Chapter 14: TRANSPORTATION

14.1 Introduction

This chapter describes the transportation characteristics and potential impacts associated with the proposed action. As described in Chapter 1, "Project Description," the proposed action would provide up to 1,169 units of affordable housing and up to approximately 122,500 square feet ("sf") of commercial space on a project site located in the Starrett City/Spring Creek neighborhood of eastern Brooklyn. Based on preliminary analyses of the proposed action, prepared per the guidance of the *CEQR Technical Manual,* detailed analyses are warranted and have been prepared to assess potential impacts associated with vehicular traffic, bus transit[1], pedestrians, and parking; in addition, vehicular and pedestrian safety evaluations have been prepared.

14.2 Principal Conclusions

TRAFFIC

Traffic conditions are evaluated for the weekday 8-9 AM, 1-2 PM, 4-5 PM, and Saturday 1-2 PM peak hours at ten intersections in the traffic study area where additional traffic resulting from the proposed action would be most heavily concentrated. As summarized in Table 14-7, "2028 With Action Conditions," the traffic impact analysis indicates the potential for significant adverse impacts at four intersections during one or more analyzed peak hours. Significant adverse impacts are identified for one lane group in the weekday AM peak hour, one lane group in the weekday midday peak hour, three lane groups in the weekday PM peak hour, and four lane groups in the Saturday peak hour. Chapter 23, "Mitigation Measures," identifies measures that could mitigate these significant adverse impacts.

TRANSIT

The study area is served by a total of four Metropolitan Transportation Authority ("MTA") local bus routes—the B13, B83, and B84, operated by New York City Transit ("NYCT"), and the Q8, operated by MTA Bus. The proposed action would generate a total of approximately 756 and 1,001 incremental bus trips

[1] As described further in this chapter, the proposed action would not result in an increase of 200 or more passengers at a single subway station or on a single subway line, and so a detailed subway analysis is not required.

on these routes during the weekday AM and PM peak hours, respectively, and thus new demand from the proposed action would exceed the 50-trip *CEQR Technical Manual* analysis threshold in the AM and/or PM peak hour at the maximum load points along all four bus routes.

Based on projected levels of bus service in the No Action conditions in combination with bus trips that the proposed action is expected to generate, in the future with the proposed action there would be a capacity shortfall of 83 passenger spaces on the northbound B13 service, 131 passenger spaces on the northbound B83 service, and 17 passengers on the eastbound Q8 in the AM peak hour. The PM peak hour would experience a capacity shortfall of 517 passenger spaces on the southbound B83 service. Therefore, the northbound B13 and B83 routes and eastbound Q8 route in the AM peak hour, and the southbound B83 route in the PM peak hour, would be significantly impacted based on *CEQR Technical Manual* criteria. As discussed in Chapter 23, "Mitigation Measures," the significant adverse impact to these bus services could be mitigated by increasing the number of buses in the peak hours. The general policy of MTA-NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

PEDESTRIANS

The proposed action is expected to generate a net total of approximately 472 walk trips in the weekday AM peak hour, 2,166 in the midday peak hour, 1,289 in the PM peak hour, and 1,392 in the Saturday midday peak hour. Persons en route to and from bus stops would add approximately 756, 718, 1,001, and 915 additional pedestrian trips to area sidewalks and crosswalks during these same periods, respectively. These pedestrian volumes are added to the projected No Action volumes to generate the With Action pedestrian volumes for analysis. Weekday peak period pedestrian conditions are evaluated at a total of five representative pedestrian elements where new trips generated by the development are expected to be most concentrated. These elements are primarily located at connections from the project site to local bus stops. There are no pedestrian elements that would be significantly adversely impacted by the proposed action, based on *CEQR Technical Manual* criteria.

VEHICLE AND PEDESTRIAN SAFETY

The City's Vision Zero initiative seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside a motor vehicle. In an effort to drive these fatalities down, New York City Department of Transportation ("NYCDOT") and New York Police Department ("NYPD") developed a set of five plans, each of which analyzes the unique conditions of each New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety. The *Vision Zero Brooklyn Pedestrian Safety Action Plan* was released on February 19, 2015. The study area does not include any Vision Zero priority intersections or corridors.

Crash data for intersections in the traffic and pedestrian study areas are obtained from New York State Department of Transportation ("NYSDOT") for the three-year period between January 1, 2012 and

December 31, 2014. During this period, a total of 104 reportable and non-reportable crashes, and eleven pedestrian/bicyclist-related injury crashes, occurred at study area intersections. According to the *CEQR Technical Manual*, a high accident location is one where there were 48 or more reportable and non-reportable crashes, or five or more pedestrian/bicyclist-related crashes in any consecutive 12 months within the most recent three-year period for which data are available. None of the individual study area intersections are high-crash locations.

PARKING

The parking analyses document changes in the parking supply and utilization in the study area and within a ¼-mile radius of the project site under both No Action and With Action conditions. Based on existing curbside parking regulations, and taking into account curb space obstructed by curb cuts, fire hydrants, and other impediments, there are approximately 1,282 legal on-street parking spaces within a reasonable walking distance of the project site on days when no alternate-side regulations are in effect. This supply for on-street parking spaces has an available capacity of 619 spaces on those days (48 percent of capacity). On the most restrictive regulation days, the number of legal on-street parking spaces is reduced to 1,020, resulting in an available capacity of 349 spaces (about 34 percent of existing curb parking capacity). A significant number of streets within the study area have no posted parking regulations.

A total of 475 parking spaces would be provided on the project site under the proposed action (221 spaces for Parcel A and 254 spaces for Parcel B). Most would be available for residents only on Parcel B,though those in the surface parking lot on Parcel A would also be available for commercial users. The Parcel A residential and commercial parking demand would be accommodated within the Parcel A on-site parking supply. The Parcel B residential and commercial parking demands would result in an on-site parking shortfall of approximately 31 (residential) and 36 (commercial) spaces, which could be accommodated by the on-street parking availability and is not expected to result in significant adverse parking impacts due to the remaining on-street available capacity.

Development of Parcel A would not eliminate any existing Brooklyn Developmental Center ("BDC") parking. The currently closed Erskine Street driveway may need to be opened to provide access to the northernmost BDC parking lot.

Development of Parcel B would eliminate approximately 47 of the existing 386 on-site parking spaces available to BDC staff. Specifically, 47 of the available 74 parking spaces in the northernmost BDC parking lot would be removed. The remaining Lot 300 parking capacity of 331 spaces (386-47) would sufficiently accommodate the on-site parking demand of 231 spaces; therefore, there would be no significant adverse impact to parking at the BDC as a result of the proposed action.

14.3 Preliminary Analysis Methodology

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 the 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 (Level 2) are to be performed to estimate the incremental trips that could be incurred at specific transportation elements and to identify potential locations for further analyses. 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, parking, and vehicular and pedestrian safety.

14.4 Level 1 Screening Assessment

A Level 1 trip generation screening assessment is conducted to estimate the numbers of person and vehicle trips by mode expected to be generated by the proposed action during the weekday AM, midday, and PM, and Saturday midday peak hours. These estimates are then compared to the *CEQR Technical Manual* analysis thresholds to determine if a Level 2 screening and/or quantified operational analyses may be warranted. The travel demand assumptions used for the assessment are described in the following sections along with a summary of the travel demand that would be generated by the proposed action; a detailed travel demand forecast is then provided.

TRANSPORTATION PLANNING FACTORS

The transportation planning factors used to forecast travel demand for the proposed action (expressed as land uses) are summarized in Table 14-1, "Transportation Planning Factors," and discussed below. The trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for each of the land uses are based on those cited in the *CEQR Technical Manual*, factors developed for the recent *East New York Rezoning Proposal Final Environmental Impact Statement ("FEIS")*[2], 2009-2013 American Community Survey ("ACS") journey-to-work data, and American Association of State Highway and Transportation Officials Census Transportation Planning Products ("AASHTO CTPP") data. Factors are

[2] *East New York Rezoning Proposal FEIS*; New York City Planning Commission, Lead Agency; February 12, 2016.

listed for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday and Saturday midday peak hours (typical peak periods for retail demand).

Table 14-1: Transportation Planning Factors

Land Use	Residential		Local Retail		Restaurant		Medical Office		Office		Day Care Center	
Size/Units	1,169 DU		67,388 gsf		12,252 gsf		12,252 gsf		12,252 gsf		18,380 gsf	
Trip Generation	(1)		(1)		(2)		(2)		(1)		(2)	
Weekday	8.075		205		173		127		18		33	
Saturday	9.6		240		193		127		3.9		2	
	per DU		per 1,000 sf		per 1,000 sf		per 1,000 sf		per 1,000 sf		per 1,000 sf	
Temporal Distribution	(1)		(1)		(2)		(2)		(1)		(2)	
AM	10.0%		3.0%		1.0%		4.0%		12.0%		16.0%	
MD	5.0%		19.0%		13.7%		11.0%		15.0%		5.0%	
PM	11.0%		10.0%		7.7%		12.0%		14.0%		19.0%	
Sat MD	8.0%		10.0%		11.6%		11.0%		17.0%		12.0%	
Modal Splits	(4)		(2)		(2)		(2)		(3)		(2)	
Auto	23.0%		5.0%		30.0%		30.0%		46.1%		5.0%	
Taxi	1.1%		1.0%		5.0%		2.0%		1.5%		1.0%	
Subway (5)	52.6%		3.0%		15.0%		33%		21.0%		3.0%	
Bus	17.7%		6.0%		15.0%		18.0%		26.8%		6.0%	
Walk/Other	5.6%		85.0%		35.0%		17.0%		4.6%		85.0%	
In/Out Splits	(2)		(2)		(2)		(2)		(2)		(2)	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	15%	85%	50%	50%	94%	6%	89%	11%	96%	4%	53%	47%
MD	50%	50%	50%	50%	65%	35%	51%	49%	39%	61%	50%	50%
PM	70%	30%	50%	50%	65%	35%	48%	52%	5%	95%	47%	53%
Sat MD	50%	50%	55%	45%	63%	37%	41%	59%	60%	40%	47%	53%
Vehicle Occupancy	(2)		(2)		(2)		(2)		(2)		(2)	
	AM/PM	MD/Sat										
Auto	1.064	1.49	2.00		2.20		1.50		1.12		1.65	
Taxi	1.3	1.3	2.00		2.30		1.50		1.20		1.40	
Truck Trip Generation	(1)		(1)		(2)		(2)		(1)		(2)	
Weekday/Saturday	0.06/0.02		0.35/0.04		3.60/3.60		0.29/0.29		0.32/0.01		0.07/0.0	
Temporal Distribution	(1)		(1)		(2)		(2)		(1)		(2)	
AM	12.0%		8.0%		6.0%		3.0%		10.0%		9.6%	
MD	9.0%		11.0%		6.0%		11.0%		11.0%		11.0%	
PM	2.0%		2.0%		1.0%		1.0%		2.0%		1.0%	
Sat MD	9.0%		11.0%		0.0%		0.0%		11.0%		0.0%	
In/Out Splits	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM/MD/PM/Sat	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%

(1) Based on data from the *CEQR Technical Manual*, 2014.
(2) Based on data from the *East New York Rezoning Proposal FEIS*, 2015.
(3) Based on AASHTO CTPP Reverse-Journey-to-Work 5-Year data for CT 1070.
(4) Based on ACS-PUMA data 2009-2013 Journey-to-Work 5-year data for Zip Code 11208.
(5) All subway trips would start or end near the project site as bus trips.
Source: STV Incorporated, 2016.

Residential

The residential travel demand forecasts are based on person trip and truck trip generation rates and temporal distributions cited in the *CEQR Technical Manual* and approved for use. The directional in/out splits are based on data from the *East New York Rezoning Proposal FEIS,* which relates to a nearby rezoning. There is a direct correlation between auto usage (e.g., auto mode share) and income as outlined in the *East New York Rezoning Proposal FEIS.* It is expected that the proposed residential units would have a modal split and vehicle occupancy patterns reflecting lower auto ownership rates, as it is anticipated that all of the residential development in the proposed action would be rental units designated as affordable. Weekday AM and PM peak hour modal splits for affordable residential uses are derived from 2008-2012 five-year ACS journey-to-work data for the East New York area.

It is noted that ACS vehicle occupancy data reflect the average vehicle occupancy for personal auto trips to and from work, and therefore do not present the complete picture of average vehicle occupancy for other purposes (e.g., shopping, errands, social and recreational activities, school trips, etc.). In general, vehicle occupancy rates for non-work-related trips have been found to be higher than vehicle occupancy rates for work-related trips. Both national data from United States Department of Transportation-Federal Highway Administration's ("USDOT-FHWA") *Summary of Travel Trends: 2009 National Household Travel Survey* and regional data from the *Regional Travel-Household Interview Survey* prepared for the New York Metropolitan Transportation Council and the North Jersey Transportation Planning Authority indicate that average vehicle occupancy rates for all auto trips are more than 1.4 times the average vehicle occupancy rates for auto trips to and from work. As such, the weekday AM and weekday PM peak hour vehicle occupancy rates derived from ACS data will be adjusted by a factor of 1.4 for the weekday and Saturday midday peak hours to reflect the predominance of non-work-related trips during these periods. While not all AM and PM peak hour trips are work-related, the lower vehicle occupancy rates for trips to and from work will be conservatively applied to all auto trips in these latter peak hours.

Residential-based trips in the weekday and Saturday midday peak hours would be expected to be local, unlike the non-local trips made during the commuter peak hours (and local trips would be expected to have a higher walk share, for example). However, the modal splits based on ACS journey-to-work data (with a higher vehicle share) are conservatively assumed for all periods.

Local Retail

The trip generation rates and temporal distributions for local retail uses are based on data from the *CEQR Technical Manual.* The modal and directional in/out splits and vehicle occupancy rates are based on data from the *East New York Rezoning Proposal FEIS.* Truck trip generation rates and temporal distributions are based on data from the *CEQR Technical Manual.* For the purposes of the travel demand forecast, it is assumed that 10 percent of all local retail trips would be linked trips, with multiple destinations within the proposed development.

Non-Retail Commercial Uses

It is expected that proposed non-retail commercial land uses on the project site would include offices and restaurants. As shown previously in Table 14-1, "Transportation Planning Factors," the factors used to forecast travel demand from these uses are developed from several pertinent sources, including the *CEQR Technical Manual*, the *East New York Rezoning Proposal FEIS*, and AASHTO CTPP reverse journey-to-work data for workers in the Census Tract ("CT") of the study area (Brooklyn CT 1070). A 25-percent linked-trip "credit" is assumed for the restaurant use, consistent with the *East New York Rezoning Proposal FEIS.*

Medical Office and Day Care Center

Other uses that may be developed as part of the project may include medical office space and a day-care center. As shown previously in Table 14-1, "Transportation Planning Factors," the factors used to forecast travel demand for these land uses are developed from the *CEQR Technical Manual* and the *East New York Rezoning Proposal FEIS.*

TRAVEL DEMAND FORECAST

The net incremental change in person and vehicle trips expected to result from the proposed action by the 2028 analysis year is derived based on the transportation planning factors listed in Table 14-1, "Transportation Planning Factors." Table 14-2, "Travel Demand Forecast," lists an estimate of the net incremental change in peak hour person trips and vehicle trips, respectively, (versus the No Action conditions) that would occur in 2028 with implementation of the proposed action. As listed in Table 14-2, the proposed action would generate a net increase of approximately 1,518 person trips in the weekday AM peak hour, 3,287 in the weekday midday peak hour, 2,738 in the weekday PM peak hour, and 2,742 person trips during the Saturday midday peak hour. Peak hour vehicle trips (including auto, truck, and taxi trips balanced to reflect that some taxis arrive or depart empty) would increase by a net total of approximately 283, 271, 371 and 270 ("in" and "out" trips, combined) in the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Peak hour transit trips would increase by a net total of approximately 756, 718, 1,001, and 915 transit trips estimated for weekday AM, midday, and PM, and Saturday midday peak hours, respectively. The transit trips are expected to be bus trips in the project study area, as the nearest subway stations are over 1.5 miles away (and therefore not within a convenient walking distance). Lastly, walk-only trips would increase by a net total of 472, 2,166, 1,289, and 1,392 trips during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively.

The proposed action is not expected to generate a substantial number of subway trips at any one particular station. Any subway trip generated by the proposed action would likely start or end with a bus trip, and it is expected that person trips would be dispersed among multiple subway station connections by bus routes that serve the project site. It is not anticipated that 200 or more peak hour subway trips would be generated at any one station.

Table 14-2, "Travel Demand Forecast," summarizes the number of additional trips that would be generated by the proposed action during the weekday AM, midday, and PM, and Saturday midday peak hours by various modes of travel. Since these numbers of peak hour trips would exceed the *CEQR Technical Manual* analysis thresholds for vehicular traffic, transit and pedestrians, a Level 2 screening assessment is undertaken to identify specific locations where additional detailed analyses may be warranted.

Table 14-2: Travel Demand Forecast

Land Use	**Residential**		**Local Retail[1]**		**Restaurant[2]**		**Medical Office**		**Office**		**Day Care Center**		**Total**	
Size/Units	1,169 DU		67,388 gsf		12,252 gsf		12,252 gsf		12,252 gsf		18,380 gsf			
Peak Hour Trips:														
AM	943		374		16		62		25		98		**1,518**	
MD	472		2,362		218		171		33		30		**3,287**	
PM	1,038		1,243		122		186		32		116		**2,738**	
Sat MD	898		1,455		206		171		8		4		**2,742**	
Person Trips:														
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	33	184	9	9	4	0	17	2	12	0	3	2	77	199
Taxi	2	9	2	2	1	0	1	0	0	0	1	0	7	11
Subway	74	422	6	6	2	1	18	2	6	0	2	1	107	432
Bus	25	142	11	11	2	0	10	2	6	0	3	3	58	158
Walk/Other	8	45	159	159	5	1	9	1	1	0	44	39	227	245
Total	**141**	**802**	**187**	**187**	**14**	**2**	**55**	**7**	**25**	**0**	**53**	**45**	**476**	**1,046**
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	54	54	59	59	43	23	26	25	6	10	1	1	189	172
Taxi	3	3	12	12	7	4	2	2	0	0	0	0	24	21
Subway	125	125	35	35	21	11	29	28	3	4	0	0	214	204
Bus	42	42	71	71	21	11	16	15	3	6	1	1	153	146
Walk/Other	13	13	1,004	1,004	50	27	14	14	1	1	13	13	1,094	1,072
Total	**236**	**236**	**1,181**	**1,181**	**142**	**76**	**87**	**84**	**13**	**21**	**15**	**15**	**1,674**	**1,613**
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	167	72	31	31	24	13	28	27	6	9	3	3	259	155
Taxi	8	4	6	6	4	2	2	2	0	0	1	1	21	15
Subway	382	164	19	19	12	7	31	31	3	4	2	2	449	227
Bus	129	55	37	37	12	6	17	16	3	5	3	3	201	123
Walk/Other	41	17	528	528	28	15	16	16	1	1	49	49	663	627
Total	**727**	**312**	**621**	**621**	**80**	**43**	**94**	**92**	**13**	**19**	**58**	**58**	**1,592**	**1,145**

Table 14-2: Travel Demand Forecast (continued)

Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	103	103	40	33	39	23	21	30	2	1	0	0	206	191
Taxi	5	5	8	7	6	4	1	2	0	0	0	0	21	17
Subway	236	236	24	20	19	11	23	33	1	1	0	0	304	301
Bus	79	79	48	39	19	11	13	18	1	1	0	0	161	149
Walk/Other	25	25	680	557	45	27	12	17	0	0	2	2	765	628
Total	**449**	**449**	**800**	**655**	**130**	**76**	**70**	**101**	**5**	**3**	**2**	**2**	**1,456**	**1,286**
Vehicle Trips:														
AM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	31	173	5	5	2	0	11	1	10	1	2	1	60	182
Taxi[3]	*1*	*7*	*1*	*1*	*1*	*0*	*1*	*0*	*1*	*0*	*1*	*0*	*6*	*8*
Taxi Balanced	8	8	2	2	1	1	1	1	1	1	1	1	14	14
Truck	4	4	1	1	1	1	0	0	0	0	0	0	6	6
Total	**43**	**185**	**8**	**8**	**4**	**2**	**12**	**2**	**11**	**2**	**3**	**2**	**81**	**202**
MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	36	36	30	30	20	10	17	17	5	8	0	0	109	102
Taxi[3]	*2*	*2*	*6*	*6*	*3*	*2*	*1*	*1*	*0*	*1*	*0*	*1*	*12*	*13*
Taxi Balanced	4	4	12	12	5	5	2	2	1	1	1	1	25	25
Truck	3	3	1	1	1	1	0	0	0	0	0	0	5	5
Total	**44**	**44**	**43**	**43**	**26**	**16**	**19**	**19**	**6**	**9**	**1**	**1**	**139**	**132**
PM	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	157	67	16	16	11	6	19	18	5	8	2	1	209	115
Taxi[3]	*6*	*3*	*3*	*3*	*2*	*1*	*1*	*1*	*0*	*0*	*1*	*1*	*13*	*9*
Taxi Balanced	9	9	6	6	3	3	2	2	0	0	2	2	22	22
Truck	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Total	**167**	**77**	**22**	**22**	**14**	**9**	**21**	**20**	**5**	**8**	**4**	**3**	**232**	**139**
Sat MD	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Auto	69	69	20	16	18	11	8	12	2	1	0	0	117	110
Taxi[3]	*4*	*4*	*4*	*3*	*3*	*2*	*1*	*1*	*0*	*0*	*0*	*0*	*11*	*10*
Taxi Balanced	8	8	7	7	5	5	2	2	0	0	0	0	22	22
Truck	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Total	**77**	**77**	**27**	**23**	**23**	**16**	**10**	**14**	**2**	**1**	**0**	**0**	**139**	**131**

(1) 10 percent linked trips for local retail.
(2) 25 percent linked trips for restaurant.
(3) Taxi trips have been balanced to reflect that taxi pick-ups may arrive empty and taxi drop-offs may depart empty. The taxi balanced trips have been included in the vehicle trips total.
(4) Due to rounding, note that row and column totals may differ.
Source: STV Incorporated, 2016.

14.5 Level 2 Screening Assessment

A Level 2 screening assessment involves the assignment of project-generated trips to the study area street network, pedestrian elements, and transit facilities, and the identification of specific locations where the incremental increase in demand may potentially exceed *CEQR Technical Manual* analysis thresholds and therefore require a quantitative analysis.

VEHICULAR TRAFFIC

Based upon the projected development associated with the proposed action, there would be 283 additional vehicle trips during the weekday AM peak hour, 271 during the midday peak hour, 371 during the PM peak hour, and 270 vehicle trips during the Saturday midday peak hour. These traffic volumes would exceed the *CEQR Technical Manual* threshold of 50 vehicle trip ends during the peak hours for Level 1 screening, and therefore a Level 2 screening is performed to help identify intersections for detailed analysis.

The *CEQR Technical Manual* Level 2 screening threshold for detailed analysis is also 50 vehicle trip ends, but this threshold applies to individual intersections during the peak hours (rather than total trips generated). A preliminary assignment of peak hour traffic volumes is performed to identify the intersections that would potentially exceed the 50-trip-end threshold during these periods. The intersections most likely to be used by concentrations of action-generated vehicles traveling to and from the projected development sites are then selected for detailed analysis. Prevailing traffic patterns in the study area are also taken into consideration. Figure 14-1, "Traffic Count Locations," shows the locations of the ten intersections (nine signalized and one unsignalized) that are selected for detailed analysis.

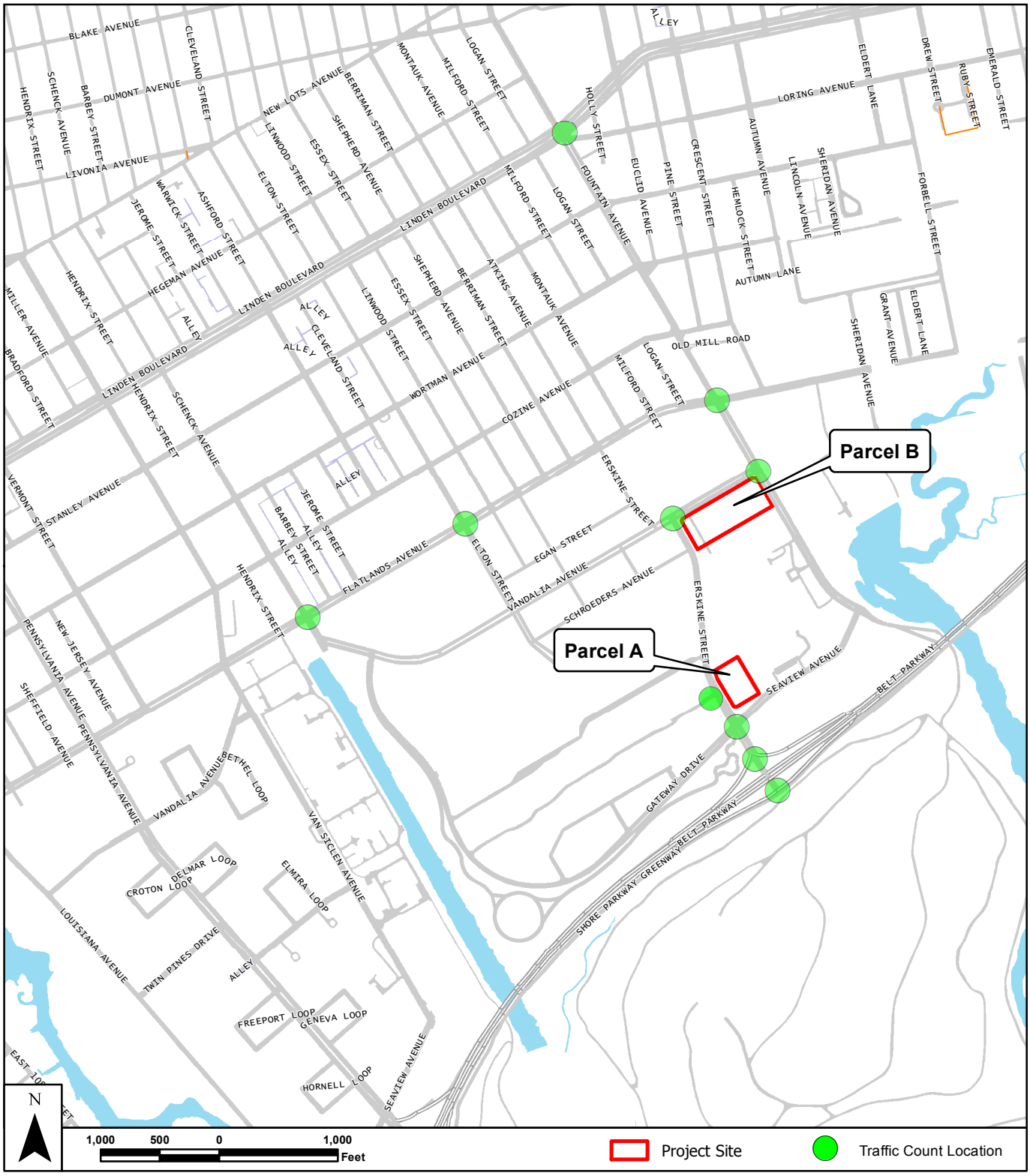

Figure 14-1

TRAFFIC COUNT LOCATIONS

Fountain Avenue Land Use Improvement and Residential Project

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TRANSIT

According to the general thresholds used by MTA and specified in the *CEQR Technical Manual*, if a proposed action would result in 50 or more bus passengers assigned to a single bus line (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 or subway analysis would be warranted.

The transit trips generated by the project are expected primarily to be bus trips, as the nearest subway stations are over 1.5 miles away. It is not expected that an increase of 200 or more passengers at a single subway station or on a single subway line would occur; therefore, a detailed subway analysis is not required. However, a detailed bus analysis is warranted because the above analysis thresholds would be exceeded.

Bus

The project site is served by four MTA local bus routes (see Figure 14-2, "Study Area Bus Routes and Subway Access"); three operated by NYCT and one operated by MTA Bus. The NYCT bus routes serving the project site include the following:

- B13 runs from the Gateway Center along Seaview and Fountain avenues adjacent to the site and connects Spring Creek to East New York and Bushwick via Queens. The B13 also provides transfer connections to the A and C subway lines at Euclid Avenue Station, the J and Z lines at the Crescent Street Station, the L line at the DeKalb Avenue Station, and the M line at Fresh Pond Road.
- B83 runs from the Gateway Center and connects Spring Creek and East New York via the Shore Parkway. The B83 provides subway transfer connections to the 3 line at Pennsylvania Avenue Station, the C line at the Liberty Avenue Station, and the A, C, J, L, and Z lines at the Broadway Junction Station.
- B84 connects Spring Creek and East New York via Fountain and Flatlands avenues. The B84 provides subway connections to the 3 line at the New Lots Avenue Station.
- The MTA Bus local route is the Q8, which circles the project site block and runs from the Gateway Center to Jamaica. The Q8 bus route also provides subway connections to the A and C lines at the Euclid Avenue Station.

The B13, B83, and Q8 all terminate at a layover area at the Gateway Center. The B84 terminal is located on Seaview Avenue at the intersection with Erskine Street near the project site. The B83 terminates to the north in the vicinity of Broadway Junction, providing transfers to other MTA transit services.

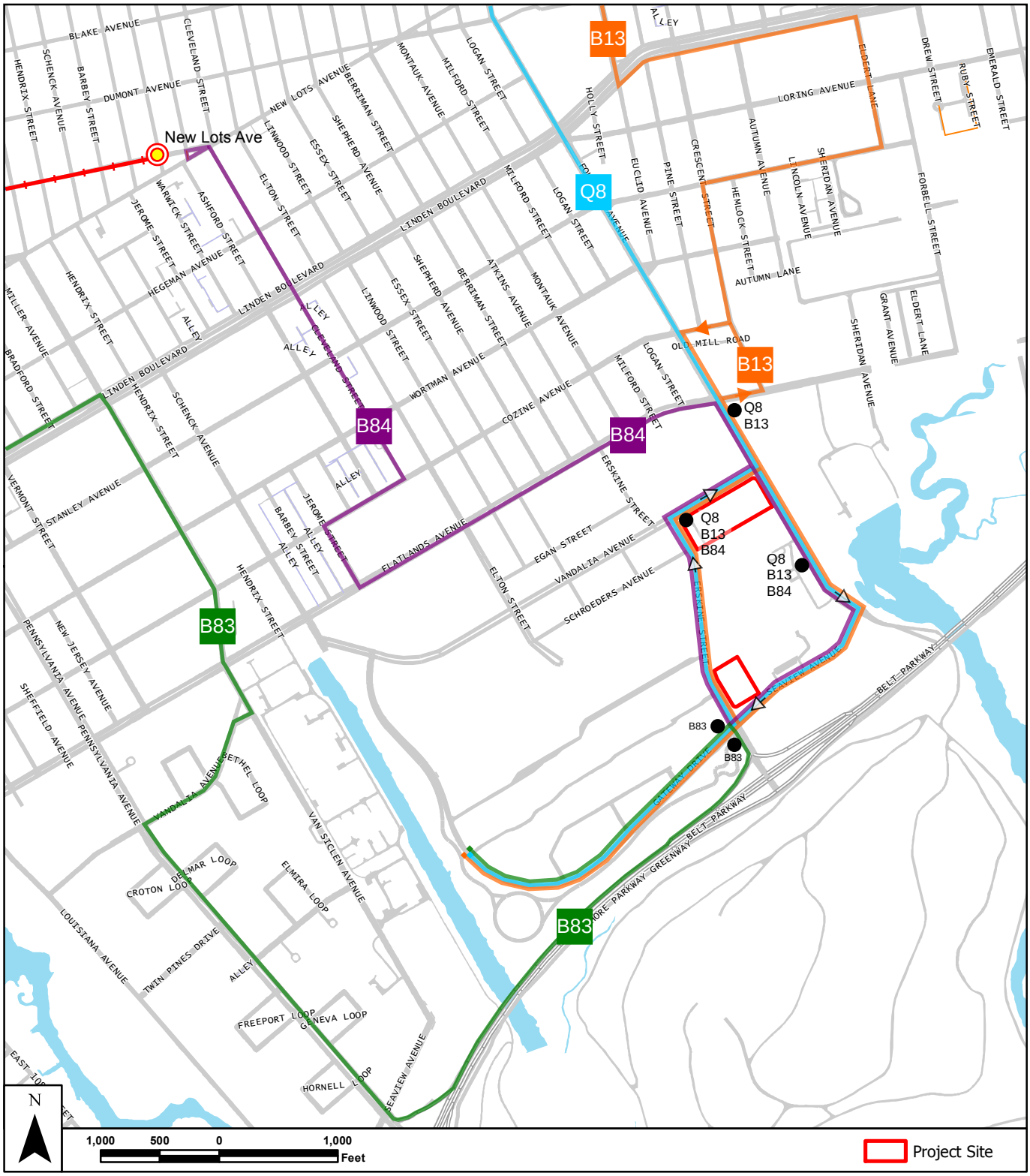

Figure 14-2

STUDY AREA BUS ROUTES AND SUBWAY ACCESS

Subway Station
Subway Routes
B83 Bus Route
Bus Stop

Fountain Avenue Land Use Improvement and Residential Project

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As listed in Table 14-2, "Travel Demand Forecast," the proposed action is expected to generate a total of approximately 756 and 1,001 incremental trips by bus during the weekday AM and PM peak hours, respectively. These local bus trips are assigned to each route based on proximity to the project site and current ridership patterns. Table 14-3, "Incremental Peak Hour Bus Trips by Route," lists 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 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 listed in Table 14-3, all four local bus routes are expected to experience 50 or more new trips in one direction in at least one peak hour and therefore warrant detailed analysis in this EIS.

Table 14-3: Incremental Peak Hour Bus Trips by Route

Route	Direction	AM Peak Hour			PM Peak Hour		
		Boarding	Alighting	Total	Boarding	Alighting	Total
B13	NB	87	0	87	39	5	44
	SB	33	42	75	62	16	78
B83	NB	175	0	175	80	10	90
	SB	0	65	65	12	556	568
B84	NB	33	0	33	39	12	51
	SB	83	0	83	46	0	46
Q8	EB	166	0	166	57	4	61
	WB	13	59	72	15	48	63

Source: STV Incorporated, 2016.

Subway

The project site is served by seven MTA subway lines from the following eight subway stations:

- Euclid Avenue Station serves the A and C subway lines and provides transfer connections to the B13 and Q8 bus routes.
- Crescent Street Station serves the J and Z subway lines and provides transfer connections to the B13 bus route.
- DeKalb Avenue Station serves the L subway line and provides transfer connections to the B13 bus route.
- Pennsylvania Avenue Station serves the 3 subway line and provides transfer connections to the B83 bus route.
- Liberty Avenue Station serves the C subway line and provides transfer connections to the B83 bus route.
- Broadway Junction Station serves the A, C, J, L and Z subway lines and provides transfer connections to the B83 bus route.

- New Lots Avenue Station serves the 3 subway line and provides transfer connections to the B84 bus route.
- Fresh Pond Road Station serves the M subway line and provides transfer connections to the B13 bus route.

As listed in Table 14-2, "Travel Demand Forecast," the proposed action is expected to generate a total of approximately 539 and 676 incremental trips by subway during the weekday AM and PM peak hours, respectively. These subway trips would be distributed among the eight subway stations that can be accessed by the four local bus routes that serve the project site. According to the general thresholds used by MTA and specified in the *CEQR Technical Manual*, a detailed analysis of subway conditions is generally not required if a proposed action is projected to result in fewer than 200 peak hour trips being assigned to a single subway station or a single subway line, as this level of new demand is considered unlikely to result in significant adverse impacts. The 539 (AM peak hour) and 676 (PM peak hour) trips generated by this project would be distributed among seven subway lines and eight subway stations and would not result in more than 200 peak hour trips assigned to a single subway station or line; therefore, no detailed subway analysis is required in this EIS.

PEDESTRIANS

Pursuant to *CEQR Technical Manual* guidelines, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more peak hour pedestrians at any sidewalk, corner reservoir, or crosswalk. The proposed action is expected to generate approximately 472 walk-only trips in the weekday AM peak hour, 2,166 in the midday peak hour, 1,289 in the PM peak hour, and 1,392 walk-only trips in the Saturday midday peak hour as listed in Table 14-2, "Travel Demand Forecast." Persons en route to and from bus stops would add approximately 756, 718, 1,001, and 915 additional pedestrian trips to the project site during these same periods, respectively. In the weekday AM and PM peak hours, new pedestrian trips would be most concentrated on crosswalks and corners adjacent to projected development sites, as well as along corridors connecting these sites to area bus stops. In the midday periods, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping, and/or errands.

The analysis of pedestrian conditions focuses on representative pedestrian elements where new trips generated by projected developments are expected to be most concentrated. These elements—corner areas and crosswalks—are selected as they provide access from the project site to area bus routes. The selected pedestrian elements are:

- The north and west crosswalks at the intersection of Erskine Street and Gateway Drive, as these provide access from the project site to the B83 north and southbound bus stops.
- The north, south, and west crosswalks and southwest corner reservoir at the intersection of Vandalia and Flatlands avenues, which provide access to the B13, B84, and Q8 bus stops.

PARKING

Peak parking demand from commercial and retail uses typically occurs in the weekday and Saturday midday periods and is lower during the afternoon and evening. In contrast, peak parking demand associated with residential uses typically occurs during the overnight period.

In order to determine whether the proposed on-site accessory parking would be sufficient to accommodate the overall incremental parking demand that would be generated by the proposed action, detailed existing on- and off-street parking inventories were conducted to document the existing supply and demand during each period. On-street parking surveys were conducted on two representative weekdays to determine the number of spaces within an acceptable walking distance (i.e., a ¼ -mile radius) of the project site. Two surveys were conducted – one when the most parking restrictions are in effect (lowest available on-street parking supply) and the other when regulations are not in effect (largest available on-street parking supply). The parking analyses evaluated the parking supply and utilization on the project site and within a ¼-mile radius of the project site, both with and without the proposed action. In addition, a BDC parking survey was conducted to determine existing supply and demand on a typical weekday in order to determine whether BDC parking capacity would be affected by the proposed action.

14.6 Transportation Analyses Methodologies

In order to assess the potential effects of the proposed action, both the "future without the proposed action" ("No Action") and the "future with the proposed action" ("With Action"), conditions are analyzed for an analysis year of 2028 for all transportation analyses, described in this section. The No Action conditions are then determined, including additional transportation-system demand and any changes expected by the year 2028. The increase in travel demand resulting from the proposed action is then projected and added to the No Action conditions to develop the With Action conditions. Methodologies for each of the transportation analyses prepared for the proposed action are described following:

VEHICULAR TRAFFIC

Analysis Methodology

The traffic analysis examines conditions in the weekday AM, midday, and PM, and Saturday midday peak hours when the increased travel demand attributable to the proposed action is expected to be the greatest. The peak hours selected for analysis are weekday 8-9 AM, 1-2 PM, and 4-5 PM, and Saturday 1-2 PM. These peak hours are selected based on existing traffic volumes in the study area as reflected in automatic traffic recorder ("ATR") and turning movement count ("TMC") data collected.

The capacity analyses at intersections are based on the methodology presented in the *Highway Capacity Manual* ("HCM") and are conducted using the Highway Capacity Software HCS+ Version 5.5. Traffic data

required for these analyses include the hourly volumes on each approach, turning movements, the percentage of trucks and buses, and pedestrian volumes at crosswalks. Field inventories are also necessary to document the physical layout, street widths, lane markings, curbside parking regulations, traffic signal timings/phasings, and other relevant characteristics needed for the analysis.

The HCM methodology produces a volume-to-capacity ("v/c") ratio for each signalized intersection approach. The v/c ratio represents the ratio of an approach's traffic volume to its carrying capacity. A v/c ratio of less than 0.90 is generally considered indicative of non-congested conditions in dense urban areas; when higher than this value, the ratio reflects increasing congestion. At a v/c ratio between 0.95 and 1.0, near-capacity conditions are reached and delays can become substantial. Ratios of greater than 1.0 indicate saturated conditions with queuing. The HCM methodology also expresses the quality of traffic flow in terms of level of service ("LOS"), which is based on the amount of delay that a driver experiences at an intersection. Levels of service range from A, representing minimal delay (10 seconds or less per vehicle), to F, which represents long delays (greater than 80 seconds per vehicle).

For unsignalized intersections, the HCM methodology generally assumes that traffic on major streets is not affected by traffic flows on minor streets. Left turns from a major street are assumed to be affected by the opposing, or oncoming, traffic flow on that major street. Traffic on minor streets is affected by all conflicting movements. Similar to signalized intersections, the HCM methodology expresses the quality of traffic flow at unsignalized intersections in terms of LOS based on the amount of delay that a driver experiences. LOS definitions used to characterize traffic flows at unsignalized intersections differ somewhat from those used for signalized intersections, primarily because drivers anticipate different levels of performance from the two different kinds of intersections. For unsignalized intersections, LOS ranges from A, representing minimal delay (10 seconds or less per vehicle, as it is for signalized intersections), to F, which represents long delays (greater than 50 seconds per vehicle, compared to greater than 80 seconds per vehicle for signalized intersections).

The delay levels for signalized intersections are detailed below.

- LOS A describes operations with very low delay, i.e., up to 10 seconds per vehicle. This occurs when signal progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- LOS B describes operations with delay in the range of 10 to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.
- LOS C describes operations with delay in the range of 20 to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping at an intersection is significant at this level, although many still pass through without stopping.
- LOS D describes operations with delay in the range of 35 to 55 seconds per vehicle. At LOS 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 that do not stop declines.

- LOS E describes operations with delay in the range of 55 to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.
- LOS F describes operations with delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also be contributing to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

The LOS thresholds for unsignalized intersections differ slightly from those for signalized intersections. Delay levels for unsignalized intersections are detailed below.

- LOS A describes operations with very low delay, i.e., up to 10 seconds per vehicle. This generally occurs when little or no delay is experienced at the intersection.
- LOS B describes operations with delay in the range of 10 to 15 seconds per vehicle. This generally occurs when short traffic delays are experienced at the intersection.
- LOS C describes operations with delay in the range of 15 to 25 seconds per vehicle. This generally occurs when average traffic delays are experienced at the intersection.
- LOS D describes operations with delay in the range of 25 to 35 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable, and longer traffic delays are experienced.
- LOS E describes operations with delay in the range of 35 to 50 seconds per vehicle. At LOS E, there is obvious congestion, and very long traffic delays are experienced at the intersection.
- LOS F describes operations with delay greater than 50 seconds per vehicle. At LOS F, there is heavy congestion, and excessive traffic delays are experienced at the intersection.

For both signalized and unsignalized intersections, LOS A, B, and C are considered acceptable; LOS D is considered marginally acceptable/unacceptable for delays shorter than or equal to/longer than those at mid-LOS D; and LOS E and F are considered unacceptable.

Significant Impact Criteria

The identification of significant adverse traffic impacts at analyzed intersections is based on criteria presented in the *CEQR Technical Manual*. If a lane group in the With Action conditions is within LOS A, B or C, or marginally acceptable LOS D (i.e., delay less than or equal to 45.0 seconds/vehicle for signalized intersections and 30.0 seconds/vehicle for unsignalized intersections), the impact is not considered significant. If the lane group LOS would deteriorate from LOS A, B, or C in the No Action conditions to worse than mid-LOS D or to LOS E or F in the With Action conditions, a significant adverse traffic impact is identified. For a lane group that would operate at LOS D in the No Action conditions, an increase in delay of 5.0 or more seconds in the With Action conditions is considered a significant adverse impact if the With Action delay would exceed mid-LOS D. For a lane group that would operate at LOS E in the No Action conditions, a projected With Action increase in delay of 4.0 or more seconds is considered a significant

adverse impact. For a lane group that would operate at LOS F in the No Action conditions, a projected With Action increase in delay of 3.0 or more seconds is considered a significant adverse impact.

The same criteria apply to signalized and unsignalized intersections. However, for traffic on a minor street at an unsignalized intersection to result in a significant adverse impact, at least 90 total passenger car equivalents ("PCEs") must be projected in the future With Action conditions in any peak hour.

TRANSIT

Analysis Methodology

Bus

The operating conditions for bus service are measured in terms of the number of passengers carried per bus at the maximum load point for each route. This is determined by dividing the peak hour passenger count by the number of buses during that hour. The bus load levels are compared with MTA-NYCT loading guidelines of 54 passenger spaces for a 40-foot standard bus and 85 passenger spaces for a 60-foot articulated bus. The bus analyses focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the bus system is usually highest. Based on existing ridership patterns, the peak hours for bus demand are 7:30-8:30 AM and 4-5 PM.

Significant Impact Criteria

Bus

According to the *CEQR Technical Manual* and MTA-NYCT guidelines, additional bus service along a route is recommended when load levels exceed maximum capacity at the route's maximum load point. A significant adverse impact is considered at the route's maximum load point where an increase in bus load levels would exceed the maximum capacity. MTA-NYCT's general policy is to provide additional bus service where demand warrants increased service, taking into account fiscal and operational constraints.

PEDESTRIANS

Analysis Methodology

Data on peak period pedestrian flow volumes are collected along analyzed sidewalks, corner areas, and crosswalks. Peak hours are determined by comparing rolling hourly averages and the highest 15-minute volumes within the selected peak hours. Based on existing peak pedestrian volumes along major corridors in the study area, the peak hours selected for analysis include the weekday 7-8 AM, 12:45-1:45 PM, and 4-5 PM, and Saturday 1-2 PM periods.

Pedestrian flow operating conditions during the weekday AM, midday and PM, and Saturday midday peak hours are analyzed using the HCM methodology and the NYCDOT-approved Excel spreadsheet as outlined in the *CEQR Technical Manual*. Using this methodology, the congestion level of pedestrian facilities is determined by considering pedestrian volume, measuring the sidewalk or crosswalk width, determining the available pedestrian capacity, and developing a ratio of volume flows to capacity conditions. The resulting ratio is then compared with LOS standards for pedestrian flow, measured in terms of pedestrian space.

At signalized and stop-controlled intersections, crosswalk and corner operations are often based on crosswalk time-space and pedestrian space. These operations are assessed based on the average effective area per pedestrian for each element, measured in square feet per pedestrian ("sf/ped"). The LOS for all crosswalk elements at a signalized intersection and for all corner elements at both a signalized and unsignalized intersection are defined in terms of these spaces. LOS A occurs when the average pedestrian space is greater than 60 sf/ped. LOS B, C, and D occur when the space is in the range of 40 to 60, 24 to 40, and 15 to 24 sf/ped, respectively. LOS E is at capacity operations, for a space from 8 to 15 sf/ped. LOS F describes congested conditions with an average space of 8 sf/ped or less.

Significant Impact Criteria

Corner Areas and Crosswalks

For non-central business district ("CBD") areas[3], *CEQR Technical Manual* criteria define a significant adverse corner area or crosswalk impact to have occurred if the average pedestrian space under the No Action conditions is greater than 26.6 sf/ped and, under the With Action conditions, the average pedestrian space decreases to 24 sf/ped or less (LOS D or worse). If the pedestrian space under the With Action conditions is greater than 24 sf/ped (LOS C or better), the impact should not be considered significant. If the average pedestrian space under the No Action conditions is between 5.1 and 26.6 sf/ped, a decrease in pedestrian space under the With Action conditions should be considered significant. Table 16-12 in the *CEQR Technical Manual* lists a sliding-scale that identifies what decrease in pedestrian space is considered a significant adverse impact for a given amount of pedestrian space in the No Action conditions. If the decrease in pedestrian space is less than that value, the impact is not considered significant. If the average pedestrian space under the No Action conditions is less than 5.1 sf/ped, then a decrease in pedestrian space greater than or equal to 0.2 sf/ped should be considered significant.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Pursuant to *CEQR Technical Manual* guidelines, an evaluation of vehicular and pedestrian safety is needed for locations within the traffic and pedestrian study areas that have been identified as high accident locations. These are defined as locations with 48 or more total reportable (i.e., involving a fatality, injury,

[3] CBD areas include Midtown and Lower Manhattan, Downtown Brooklyn, Long Island City, Downtown Flushing, Downtown Jamaica and similar districts.

or more than $1,000 in property damage) and non-reportable crashes, or where five or more pedestrian/bicyclist injury crashes have occurred in any consecutive twelve months of the most recent three-year period for which data are available. For these locations, accident trends would 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. The determination of potential significant safety impacts depends on the following: type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety should be identified and coordinated with NYCDOT.

PARKING

Analysis Methodology

The parking analysis identifies the supply of on- and off-street public parking near a proposed action and determines the extent to which the supply is utilized in existing conditions and in the future without and with a proposed action. The analysis considers anticipated changes in the study area's parking supply and demand, and compares project-generated parking demand with future parking availability to determine if a parking shortfall is likely to result. The displacement of existing parking capacity attributable to the proposed action or project is also considered. Typically, the analysis encompasses the parking facilities—public parking lots and garages and on-street curb spaces—that vehicular traffic destined to the project site or area would likely utilize. According to the *CEQR Technical Manual*, a ¼-mile radius around a project site is generally assumed as the distance that someone driving to the site would be willing to walk. The parking analyses therefore document changes in the parking supply and utilization on the project site (parcels A and B), the remainder of the BDC (Lot 300), and within a ¼-mile radius of the site under both No Action and With Action conditions.

Significant Impact Criteria

Should a proposed action generate the need for more parking than it provides, a shortfall of spaces may be considered significant. The availability of on- and off-street parking spaces within a convenient walking distance, as well as the availability of alternative modes of transportation, are considered in making this determination.

Pursuant to *CEQR Technical Manual* guidelines, different criteria for determining significance are applied based on whether or not a proposed action is located in residential or commercial areas designated as Parking Zones 1 and 2, as shown on Map 16-2 (CEQR Parking Zones) in the *CEQR Technical Manual*. As this project is not located within these two zones, a parking shortfall that exceeds more than half the available on- and off-street parking spaces within a ¼-mile of the site can be considered significant. Additional factors that can be considered when determining whether such a shortfall is significant include: the availability and extent of transit in the area; the proximity of the project to such transit; any features

of the project that are considered trip reduction or travel demand management ("TDM") measures; travel modes of customers of area commercial businesses; and patterns of automobile usage by area residents. The sufficiency of parking within a ½-mile (rather than a ¼-mile) of the project site to accommodate the projected shortfall may also be considered.

14.7 Traffic

EXISTING CONDITIONS

Study Area Street Network

The project site is part of a city block (Block 4586, Lot 300) bounded by Vandalia Avenue to the north, Seaview Avenue to the south, Fountain Avenue to the east, and Erskine Street to the west. An irregular grid system is located north of the site and the Shore (Belt) Parkway runs parallel to Seaview Avenue south of the project site. Gateway Center, a large commercial complex, is located west of the project site (west of Erskine Street).

Primary East-West Corridors

Flatlands Avenue is a minor arterial one block north of the project site that runs east-west from Flatbush Avenue to Fountain Avenue, connecting Flatlands, Canarsie, and East New York. Within the study area, Flatlands Avenue is generally 80 feet wide with a median and operates with two moving travel lanes, a left-turn lane at selected intersections, and a curbside parking lane in each direction.

Linden Boulevard (SR 27) is a principal arterial that runs parallel to and four blocks north of Flatlands Avenue. Linden Boulevard runs east-west, connecting with Caton Avenue, from Ocean Parkway to Conduit Avenue. It is generally 140 feet wide providing two service road lanes, curbside parking, and three mainline travel lanes per direction, with dedicated left-turn lanes at intersections. The presence of a raised center median limits north-south through movements across Linden Boulevard.

The Shore Parkway (SR 907C) is a principal arterial expressway that is part of the Belt Parkway system. The Belt Parkway begins at the Gowanus Expressway in the Bay Ridge section of Brooklyn, running along the southern edge of Brooklyn and Queens, to connect to the Cross Island Parkway. The Erskine Street diamond interchange connects the project site to the Shore Parkway, with both east and westbound on- and off-ramps.

Primary North-South Corridors

Fountain Avenue is a major collector roadway that runs north-south from Seaview Avenue to Atlantic Avenue. It is an 80-foot-wide, two-way street, with two travel lanes and curbside parking in each direction. It connects the project site to Linden Boulevard.

Bus Routes

NYCT and MTA Bus routes primarily operate along portions of the following study area corridors:

- Fountain Avenue (B13, B84, Q8)
- Flatlands Avenue (B84)
- Gateway Drive to Shore Parkway (B83)

These bus routes are described in more detail below in Section 14.8, "Transit."

Truck Routes

NYCDOT has established local and through truck routes to manage the flow of trucks and improve the quality of neighborhoods, and defines a truck as "a vehicle which is designed for transportation of property, which has either of the following characteristics: two axles and six tires or three or more axles." Through trucks are defined as having neither an origin nor a destination within the Borough of Brooklyn. Through truck routes nearest to the study area have been designated along Atlantic Avenue and North and South Conduit boulevards. Local truck routes are designated routes for trucks that are intended for the purpose of delivery, loading, or providing service within Brooklyn. Generally, trucks must travel on local truck routes to reach the intersection nearest their destinations. Designated local truck routes in the study area are along Linden Boulevard and Fountain Avenue. All commercial vehicles are prohibited on the Shore Parkway.

Bicycle Lanes

A protected bicycle path is located along Gateway Drive from Vandalia Avenue to Erskine Street, with a bicycle lane along Vandalia Avenue connecting the path to Flatlands Avenue and along Erskine Street connecting to the bicycle path along the Shore Parkway. A potential future bicycle route has been identified along Cozine Avenue and a portion of Fountain Avenue.

Traffic Conditions

An extensive traffic data collection program—including ATR counts, turning movement counts, vehicle classification counts, and travel-time-and-delay surveys—was undertaken to establish the existing conditions traffic network. Physical inventory data needed for operational analysis—e.g., the number of traffic lanes, lane widths, pavement markings, turn prohibitions, bus stops, and typical parking regulations—were collected in May 2015. Signal timing plans for signalized intersections within the study area were obtained from NYCDOT. Figure 14-3, "Existing Weekday AM Peak Hour Vehicle Movements," Figure 14-4, "Existing Weekday Midday Peak Hour Vehicle Movements," Figure 14-5, "Existing Weekday

PM Peak Hour Vehicle Movements," and Figure 14-6, "Existing Saturday Midday Peak Hour Vehicle Movements," show existing traffic volumes during each analysis peak hour.

Traffic volumes vary through the study area during the peak hours. The highest traffic volumes are carried on Linden Boulevard with approximately 800 eastbound and 1,500 westbound vehicles per hour (vph) in the AM peak hour, 1,000 eastbound and westbound vph in the weekday and Saturday midday peak hours, and 1,500 eastbound and 1,300 westbound vph in the PM peak hour. Flatlands Avenue processes nearly 1,900 vehicles in the PM peak hour west of Schenck Avenue. A signification number of these vehicles are entering/exiting the Vandalia Avenue connection to the Gateway Center area. Between Schenck and Fountain avenues, the through volume on Flatlands Avenue is reduced to approximately 650 vph. The Erskine Street interchanges with the Shore Parkway carry about 1,000 vph in the AM peak hour, about 1,800 vph during the weekday midday and PM peak hours, and more than 2,500 vph during the Saturday midday peak hour.

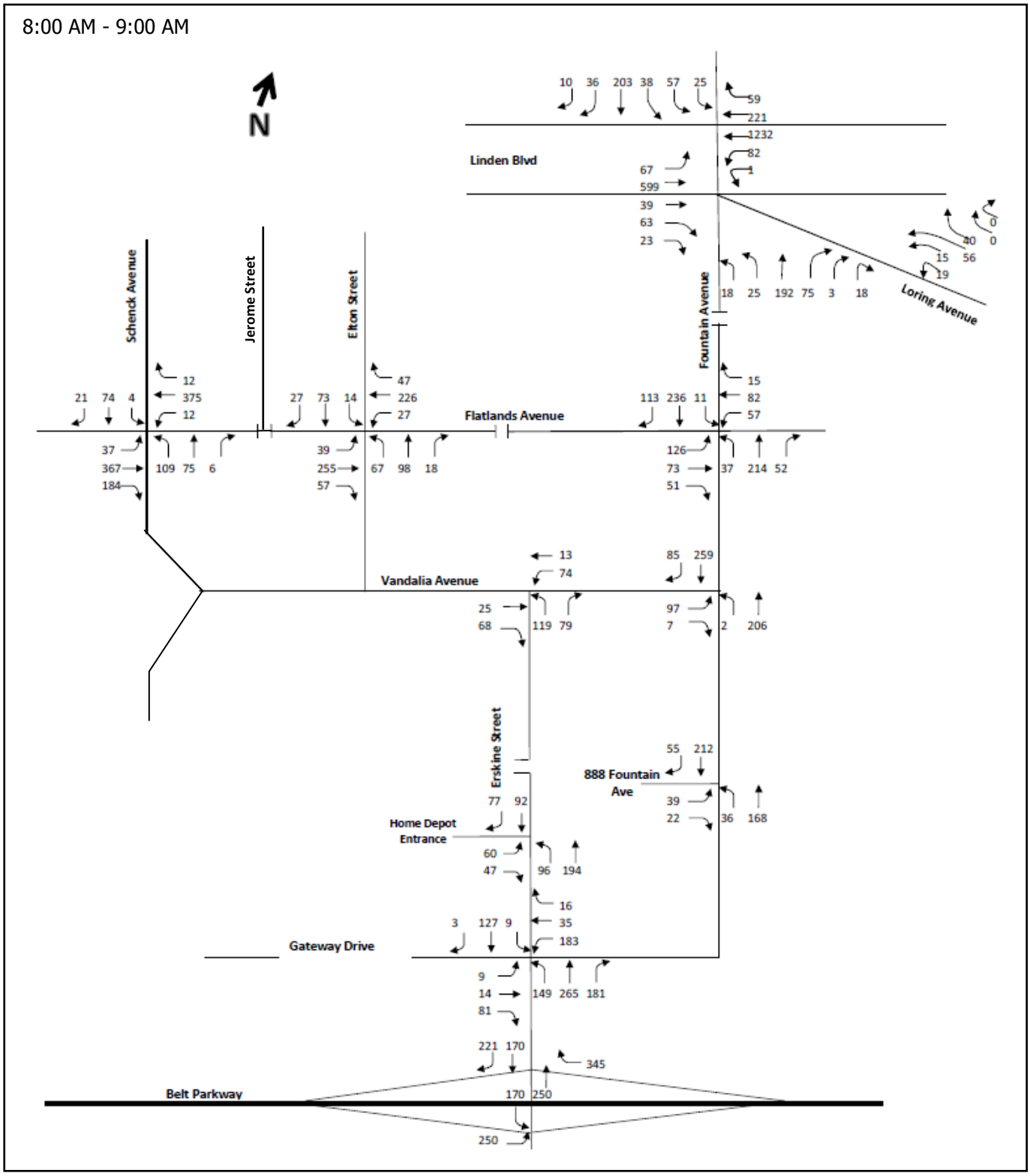

Figure 14-3

EXISTING WEEKDAY AM PEAK HOUR VEHICLE MOVEMENTS

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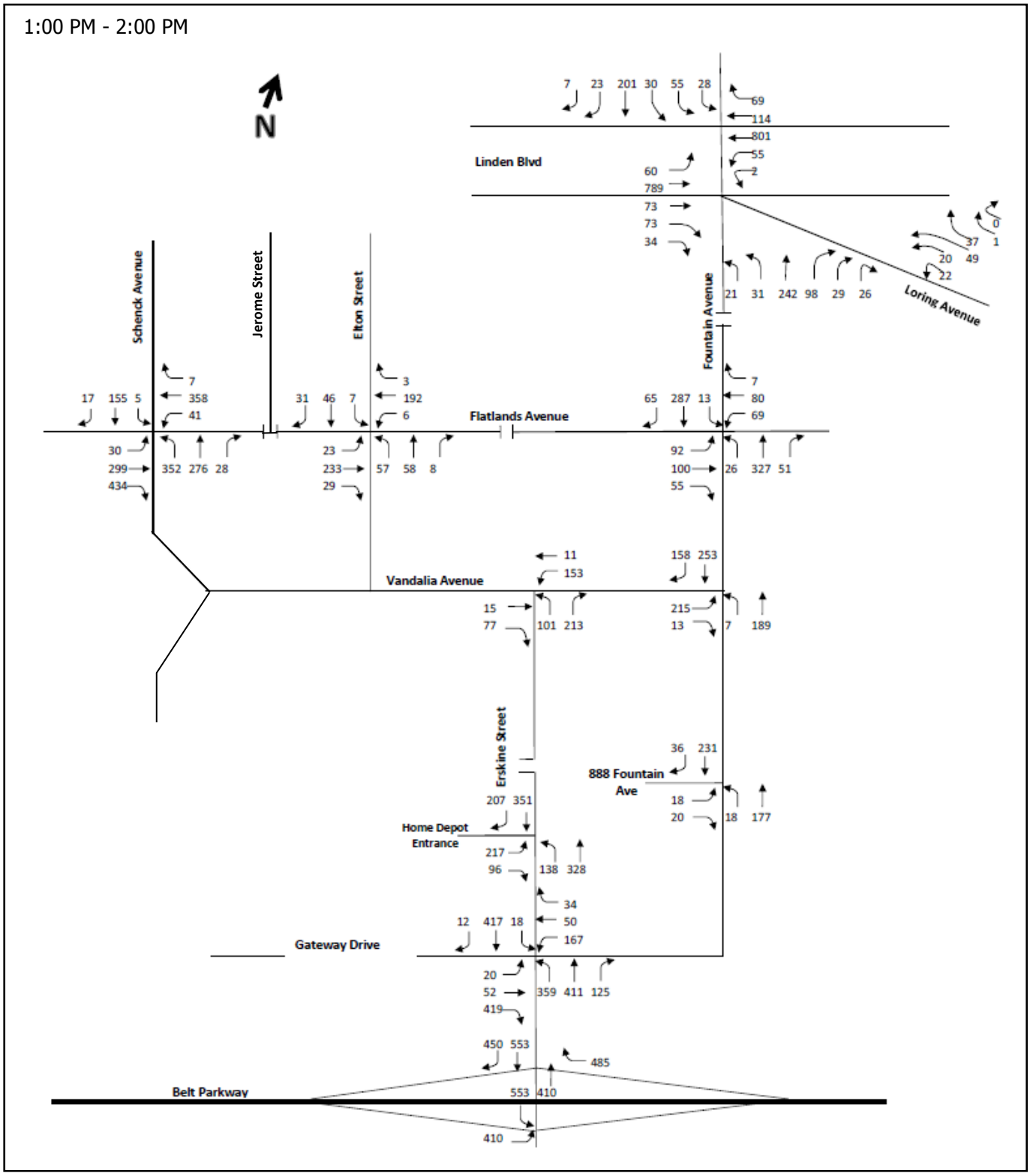

Figure 14-4

EXISTING WEEKDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

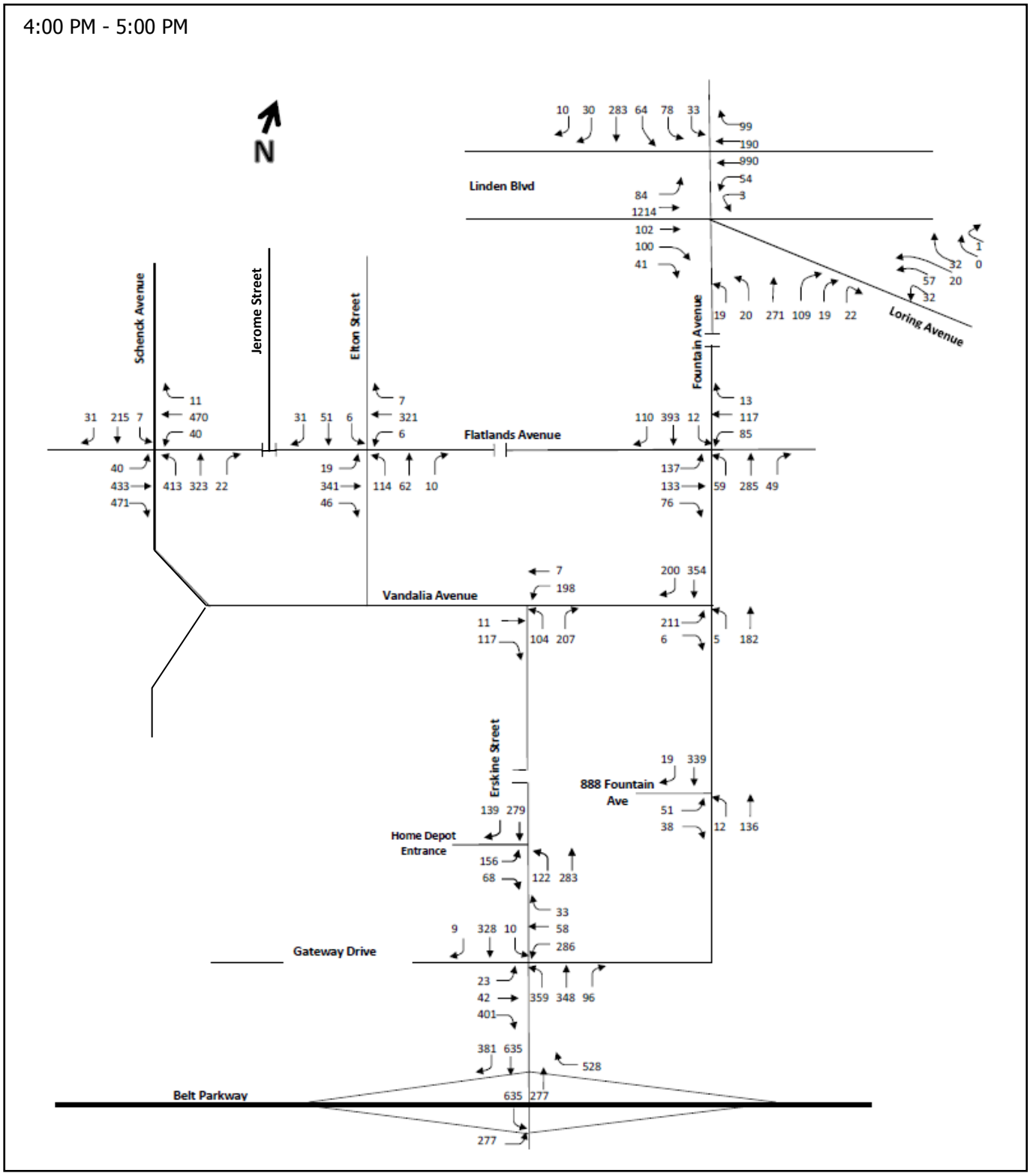

Figure 14-5

EXISTING WEEKDAY PM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

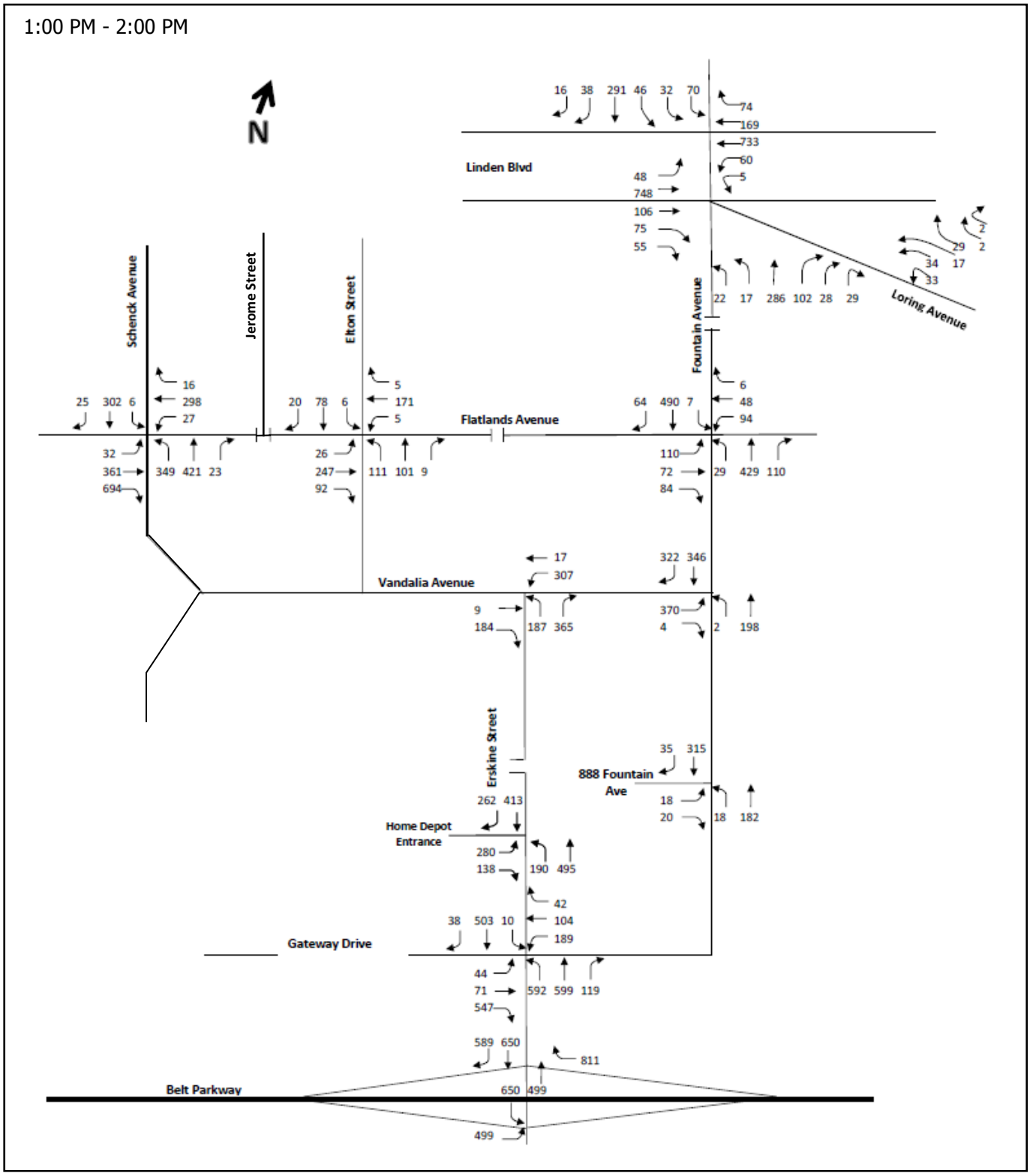

Figure 14-6

EXISTING SATURDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

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Intersection Capacity Analysis

Table 14-4, "2015 Existing Conditions Traffic Operations," lists the levels of service that characterize existing intersection conditions during the weekday 8-9 AM, 1-2 PM, and 4-5 PM, and Saturday 1-2 PM peak hours. The overall LOS of an intersection represents a weighted average of the individual lane groups' LOS. "Overall" LOS E or F indicates that serious congestion exists—either one specific lane group at the intersection has severe delays or two or more lane groups at the intersection are at LOS E or F with substantial delays.

The analyses showed that the majority of the intersections in the project study area operate at acceptable levels during the AM, midday, and PM, and Saturday midday peak analysis hours – with overall operations at LOS D or better (see Table 14-4, "2015 Existing Conditions Traffic Operations"); however, the following movements operate with some congestion:

- At the five-legged intersection of Linden Boulevard and Fountain/Loring avenues, northbound Loring Avenue operates at LOS F during the three weekday peak hours due to insufficient green time. Additionally, the southbound left-turn on Fountain Avenue operates at LOS E during the weekday midday peak period and LOS F during the PM and Saturday midday peak periods. Linden Boulevard westbound left-turns and northbound Fountain Avenue experience LOS E conditions during the PM peak hour.

- At the intersection of Flatlands and Schenck avenues, the northbound left-turn lane from Schenck Avenue operates at LOS F during the weekday midday, and PM, and Saturday midday peak hours due to insufficient green time. The northbound Schenck Avenue through movement operates at LOS E in the PM peak hour.

- The northbound Erskine Street movement at the unsignalized intersection with Vandalia Avenue operates at LOS F in the Saturday midday peak hour.

Table 14-4: 2015 Existing Conditions Traffic Operations

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized														
Linden Boulevard and Fountain / Loring avenues														
Linden Boulevard (Main Road)	EB	L	0.48	33.1	C	0.33	24.1	C	0.49	30.3	C	0.23	18.8	B
		T	0.35	22.0	C	0.48	24.0	C	0.65	27.4	C	0.41	19.4	B
	WB	L	0.44	37.8	D	0.41	38.4	D	0.66	65.4	E	0.46	35.7	D
		T	0.89	46.2	D	0.63	35.3	D	0.71	37.4	D	0.60	29.5	C
Linden Boulevard (Service Road)	EB	TR	0.24	21.4	C	0.36	23.4	C	0.43	24.7	C	0.40	20.6	C
	WB	TR	0.60	38.2	D	0.44	33.7	C	0.63	39.4	D	0.59	33.2	C
Fountain Avenue	NB	LTR	0.62	41.6	D	0.83	52.1	D	0.91	61.0	E	0.91	51.9	D
	SB	L	0.63	50.6	D	0.70	58.4	E	1.04	125.1	F	0.98	98.8	F
		LTR	0.58	41.4	D	0.50	38.9	D	0.86	59.9	E	0.75	40.6	D
Loring Avenue	NB	LTR	0.98	119.2	F	1.01	125.8	F	1.04	134.1	F	0.67	54.9	D
Overall Intersection		-		**43.6**	**D**		**42.8**	**D**		**57.2**	**E**		**46.1**	**D**
Flatlands and Schenck avenues														
Flatlands Avenue	EB	L	0.09	10.2	B	0.09	10.3	B	0.11	10.5	B	0.07	9.9	A
		TR	0.39	12.6	B	0.57	15.2	B	0.64	16.4	B	0.73	18.8	B
	WB	L	0.04	9.8	A	0.25	13.3	B	0.23	13.4	B	0.18	12.7	B
		TR	0.28	11.5	B	0.35	12.1	B	0.34	12.1	B	0.21	10.9	B
Schenck Avenue	NB	L	0.31	23.7	C	1.05	90.9	F	1.04	93.5	F	1.05	91.8	F
		LTR	0.14	20.7	C	0.48	25.5	C	0.99	66.4	E	0.62	27.0	C
	SB	LTR	0.24	22.1	C	0.37	24.1	C	0.51	26.8	C	0.62	29.4	C
Overall Intersection		-		**14.5**	**B**		**28.3**	**C**		**34.7**	**C**		**30.4**	**C**
Flatlands Avenue and Elton Street														
Flatlands Avenue	EB	L	0.12	10.6	B	0.05	9.8	A	0.05	9.8	A	0.05	9.8	A
		TR	0.27	11.3	B	0.19	10.7	B	0.27	11.4	B	0.22	11.0	B
	WB	L	0.09	10.3	B	0.02	9.5	A	0.02	9.5	A	0.01	9.5	A
		TR	0.28	11.5	B	0.15	10.4	B	0.25	11.2	B	0.14	10.3	B
Elton Street	NB	LTR	0.49	26.8	C	0.28	22.9	C	0.49	27.0	C	0.56	28.9	C
	SB	LTR	0.29	22.9	C	0.19	21.5	C	0.22	21.8	C	0.19	21.5	C
Overall Intersection		-		**15.6**	**B**		**14.1**	**B**		**15.2**	**B**		**16.7**	**B**
Flatlands and Fountain avenues														
Flatlands Avenue	EB	L	0.23	10.7	B	0.18	10.2	B	0.23	10.8	B	0.19	10.1	B
		TR	0.14	15.6	B	0.18	16.0	B	0.20	16.3	B	0.17	15.9	B
	WB	L	0.10	9.4	A	0.18	10.2	B	0.18	10.2	B	0.17	10.1	B
		TR	0.09	15.2	B	0.12	15.4	B	0.13	15.6	B	0.05	14.8	B
Fountain Avenue	NB	LTR	0.37	24.7	C	0.47	26.0	C	0.59	28.8	C	0.68	30.5	C
	SB	LTR	0.46	26.0	C	0.43	25.5	C	0.59	28.3	C	0.66	29.7	C
Overall Intersection		-		**20.4**	**C**		**21.0**	**C**		**22.7**	**C**		**25.2**	**C**
Vandalia and Fountain avenues														
Vandalia Avenue	EB	LR	0.15	11.3	B	0.32	12.8	B	0.29	12.5	B	0.54	15.6	B
Fountain Avenue	NB	LT	0.31	12.7	B	0.27	12.3	B	0.30	12.6	B	0.26	12.2	B
	SB	TR	0.47	14.8	B	0.63	17.7	B	0.72	20.3	C	0.99	46.7	D
Overall Intersection		-		**13.6**	**B**		**15.2**	**B**		**16.9**	**B**		**32.0**	**C**

Table 14-4: 2015 Existing Conditions Traffic Operations (continued)

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Erskine Street and Home Depot Access														
Home Depot Access Road	EB	L	0.17	27.6	C	0.56	34.8	C	0.40	31.2	C	0.67	38.5	D
		R	0.07	9.9	A	0.13	10.4	B	0.09	10.1	B	0.18	10.8	B
Erskine Street	NB	L	0.13	6.7	A	0.21	10.2	B	0.19	8.0	A	0.30	13.2	B
		T	0.10	6.2	A	0.16	6.5	A	0.15	6.5	A	0.24	7.0	A
	SB	TR	0.12	20.4	C	0.42	23.4	C	0.29	22.0	C	0.49	24.3	C
Overall Intersection		-		**13.2**	**B**		**19.1**	**B**		**16.7**	**B**		**19.7**	**B**
Seaview Avenue / Gateway Drive and Erskine Street														
Gateway Drive	EB	L	0.03	21.8	C	0.06	22.1	C	0.07	22.2	C	0.14	23.2	C
		T	0.02	21.5	C	0.05	21.8	C	0.04	21.7	C	0.07	22.0	C
		R	0.12	7.7	A	0.51	11.9	B	0.48	11.2	B	0.62	14.1	B
Seaview Avenue	WB	L	0.55	31.3	C	0.63	34.9	C	0.81	43.4	D	0.69	37.2	D
		TR	0.06	21.9	C	0.12	22.5	C	0.10	22.2	C	0.20	23.2	C
Erskine Street	NB	L	0.20	27.6	C	0.47	31.0	C	0.48	31.2	C	0.75	37.8	D
		TR	0.27	9.9	A	0.30	10.1	B	0.25	9.7	A	0.38	10.9	B
	SB	LT	0.14	24.7	C	0.39	27.2	C	0.30	26.3	C	0.44	27.9	C
		R	0.01	23.6	C	0.03	23.8	C	0.02	23.7	C	0.09	24.5	C
Overall Intersection		-		**18.8**	**B**		**20.9**	**C**		**22.9**	**C**		**23.5**	**C**
Belt Parkway WB Off-ramp and Erskine Street														
Belt Parkway WB Off-ramp	WB	R	0.31	16.7	B	0.48	18.9	B	0.48	18.9	B	0.68	22.9	C
Erskine Street	NB	T	0.36	17.9	B	0.56	21.4	C	0.44	19.0	B	0.67	24.2	C
Overall Intersection		-		**17.2**	**B**		**20.0**	**B**		**19.0**	**B**		**23.4**	**C**
Belt Parkway EB Off-ramp and Erskine Street														
Belt Parkway EB Off-ramp	EB	L	0.19	15.5	B	0.30	16.6	B	0.28	16.3	B	0.37	17.3	B
Erskine Street	SB	L	0.13	14.9	B	0.39	17.6	B	0.57	20.1	C	0.49	18.9	B
Overall Intersection		-		**15.2**	**B**		**17.1**	**B**		**18.9**	**B**		**18.2**	**B**
Unsignalized														
Vandalia Avenue and Erskine Street														
Vandalia Avenue	WB	LT	0.07	7.7	A	0.12	7.8	A	0.17	8.0	A	0.25	8.6	A
Erskine Street	NB	LR	0.33	12.3	B	0.45	13.5	B	0.51	16.2	C	1.29	171.1	F

1 "Mvt." refers to the specific intersection approach lane(s) and how the lane(s) operate and/or specific pavement striping. TR is a combined through- right turn lane(s), R or L refers to exclusive right- or left-turn movement lane(s), and LTR is a mixed lane(s) that allows for all movement types.

2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an excess of demand over capacity.

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the lane group is saturated.

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM -TRB.

Source: STV Incorporated, 2016.

THE FUTURE WITHOUT THE PROPOSED ACTION ("NO ACTION" CONDITIONS)

This section establishes the baseline (No Action) conditions against which potential significant adverse impacts of the 2028 proposed action can be compared. No Action traffic volumes for the 2028 analysis year are established by applying a background traffic growth rate, and then adding vehicular volumes expected to be generated by elements of the Gateway Estates development. Anticipated roadway plans from the Gateway Estates development are also included in the 2028 No Action conditions.

Future No Action Traffic Growth

The assumed annual background growth rate for the East New York section of Brooklyn is 0.5 percent for Years 1 to 5, and 0.25 percent for Year 6 and beyond, as recommended by the *CEQR Technical Manual*. The total compounded background growth rate for 2028 is 4.6 percent (0.5 percent annual growth for five years from 2016 through 2020, and then 0.25 percent growth for eight years from 2021 through 2028).

Changes to the Study Area Street Network

Background Developments

Gateway Estates

The 2028 No Action conditions also includes trips anticipated to be generated by those portions of the Gateway Estates development that had not been completed as of May 2015. The Gateway Estates development is comprised of:

- up to 2,385 residential dwelling units ("DU"),
- up to 1,270,000 sf of destination retail,
- 68,000 sf of local retail,
- 1,226-seat school for intermediate and high school grade levels,
- 16,000 sf day care facility,
- 30,000 sf of an undetermined community/public facility use, and
- 36.5 acres of open space, including 33.2 acres of perimeter park and 3.3 acres of interior parks.

Portions of this development plan had been completed and occupied as of May 2015, including all of the destination retail, the 1,226-seat school, and some of the residential dwelling units and local retail space. Table 14-5, "Gateway Estates Development as of May 2015," provides a detailed summary regarding the proportion of development by land use type that was completed as of May 2015.

The *Gateway Estates II FEIS*[4] trip generation and assignment estimates are proportionally adjusted based on the percent of development completed, and therefore included in Existing Conditions traffic counts. Remaining project trips attributable to elements that had not been completed are included as part of the 2028 No Action traffic network.

Table 14-5: Gateway Estates Development as of May 2015

Project Element	Full Build Size[1]	Completed as of May 2015	Development Remaining
Residential (DU)	2,385	741	1,644
Destination Retail (sf)	1,270,000	1,270,000	0
Local Retail (sf)	68,000	33,000	35,000
School (seats)	1,226	1,226	0
Day Care (sf)	16,000	0	16,000
Community Facility (sf)	30,000	0	30,000
Parkland (acre)	36.5	0	36.5

Notes:
1. Based on *Gateway Estates II FEIS.*

Source: STV Incorporated, 2016.

Flatlands Avenue and Jerome Street

As part of the new roadway network associated with the Gateway Estates development, the intersection of Flatlands Avenue and Jerome Street will be reconfigured. Under future No Action conditions, Gateway Drive, which currently connects to Flatlands Avenue via Vandalia Avenue at the intersection of Schenck Avenue, would connect to Flatlands Avenue at the intersection of Jerome Street as the fourth leg (new northbound approach) of this intersection. Northbound Jerome Street would operate with two ten-foot-wide exclusive left-turn lanes, one ten-foot-wide shared through and right-turn lane, and two ten-foot-wide receiving lanes. Curbside parking would be prohibited along this approach.

In order for the intersection of Flatlands Avenue and Jerome Street to accommodate the heavy shift in traffic, further modifications would be needed. The *Gateway Estates II FEIS* recommends reconfiguring Jerome Street to a one-way northbound street north of Flatlands Avenue. The width of the existing roadway is 50 feet, allowing for two northbound 17-foot-wide receiving lanes with an additional eight feet for curbside parking on both sides of the street. Eastbound Flatlands Avenue would have one ten-foot-wide exclusive left-turn lane, two ten-foot-wide through lanes, and one twelve-foot-wide exclusive right-turn lane. Parking would be prohibited along this approach. Westbound Flatlands Avenue is assumed to

[4] *Gateway Estates II FEIS*; New York City Department of Housing Preservation and Development, Lead Agency, February 4, 2009.

have one ten-foot-wide exclusive left-turn lane, one twelve-foot-wide through lane, and one 20-foot-wide shared through and right-turn lane with curbside parking. Both east and westbound approaches would have two twelve-foot-wide receiving lanes with room for an additional eight feet for on-street curbside parking.

Flatlands Avenue and Schenck Avenue

In conjunction with the reconfiguration of Flatlands and Jerome avenues, the intersection of Flatlands and Schenck avenues would be reconfigured, as described in the *Gateway Estates II FEIS*. Eastbound Flatlands Avenue is assumed to consist of three through lanes (two ten-foot-wide and one twelve-foot-wide) and three receiving lanes (two ten-foot-wide and one twelve-foot-wide). Eastbound left turns are assumed to be prohibited. The westbound approach would consist of two ten-foot-wide through lanes and one twelve-foot-wide exclusive right-turn lane. Southbound Schenck Avenue is assumed to operate with one twelve-foot-wide exclusive left-turn lane, one eleven-foot-wide lane for left and right turns, and one twelve-foot-wide receiving lane with room for an additional eight feet on both sides of the street for on-street curbside parking.

Linden Boulevard, Loring Avenue, and Fountain Avenue

As part of the 1996 Fresh Creek Urban Renewal Plan ("FCURP"), Loring Avenue would be converted to a one-way eastbound street for one block. For the 2028 No Action analysis, westbound vehicles traveling along Loring Avenue are diverted through the intersections of Fountain Avenue and Stanley Avenue, and Linden Boulevard and Euclid Avenue. Turns onto westbound Loring Avenue would still be permitted. The signal phasing and timing would change; the signal phasing for westbound Loring Avenue would be modified to a shortened lag phase for westbound Linden Boulevard.

Erskine Street and Vandalia Avenue

The 1996 FCURP would also signalize the intersection of Erskine Street and Vandalia Avenue. The No Action analysis of this intersection incorporates this signalization.

Stanley Commons

Stanley Commons is a second development project within the traffic study area, which consists of 240 residential DUs and 19,500 sf of community facility uses on the block bordered by Stanley, Schenck, Wortham, and Van Siclen avenues. The September 12, 2014 technical memorandum (SEQRA No. 7CHA002K) to the 2006 Environmental Assessment Form prepared for the Stanley Commons development project indicated that these land uses would yield development densities that would be below the *CEQR Technical Manual* minimum development thresholds, and a detailed transportation analysis would not be warranted as the proposed development is not expected to result in the potential for significant adverse transportation impacts. Therefore, trips associated with this project are assumed to be included as part of the background growth rate.

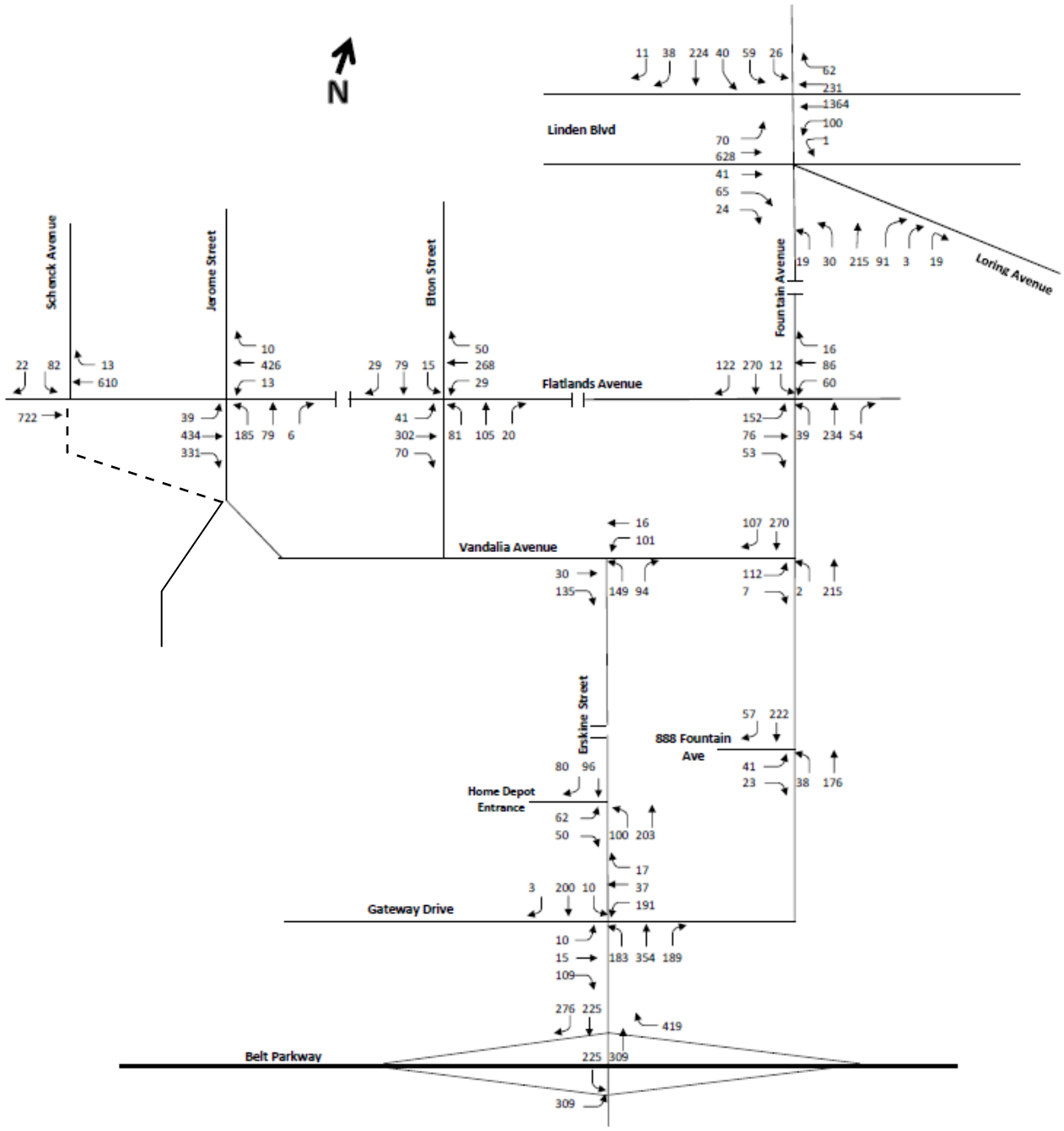
Intersection Capacity Analysis

Expected No Action LOS are determined for 2028 based on the projected increases in traffic volumes and physical changes to the roadway network. Figure 14-7, "No Action Weekday AM Peak Hour Vehicle Movements," Figure 14-8, "No Action Weekday Midday Peak Hour Vehicle Movements," Figure 14-9, "No Action Weekday PM Peak Hour Vehicle Movements," and Figure 14-10, "No Action Saturday Midday Peak Hour Vehicle Movements," show the No Action traffic volumes during analysis hours. Table 14-6, "2028 No Action Conditions," lists the LOS projected for the study area intersections during the No Action weekday 8-9 AM, 1-2 PM, and 4-5 PM, and Saturday 1-2 PM peak hours.

The analyses show that the majority of the intersections in the project study area would operate at acceptable levels during both the AM, midday, and PM, and Saturday midday peak analysis hours – with overall operations at LOS C or better. The operational change at the five-legged intersection of Linden Boulevard and Fountain Avenue/Loring Avenue would improve the LOS from the existing conditions. Additionally, the realignment of Jerome Street and Flatlands Avenue would improve the existing conditions at Flatlands and Schenck avenues. However, the following movements would operate with some congestion:

- At the five-legged intersection of Linden Boulevard and Fountain/Loring avenues, the southbound left-turn on Fountain Avenue would continue to operate at LOS F during the PM peak hour.
- The southbound approach at the intersection of Fountain Avenue and Vandalia Avenue would operate at LOS F in the Saturday midday peak hour.

8:00 AM - 9:00 AM



These portions of roadway will not exist in 2028.

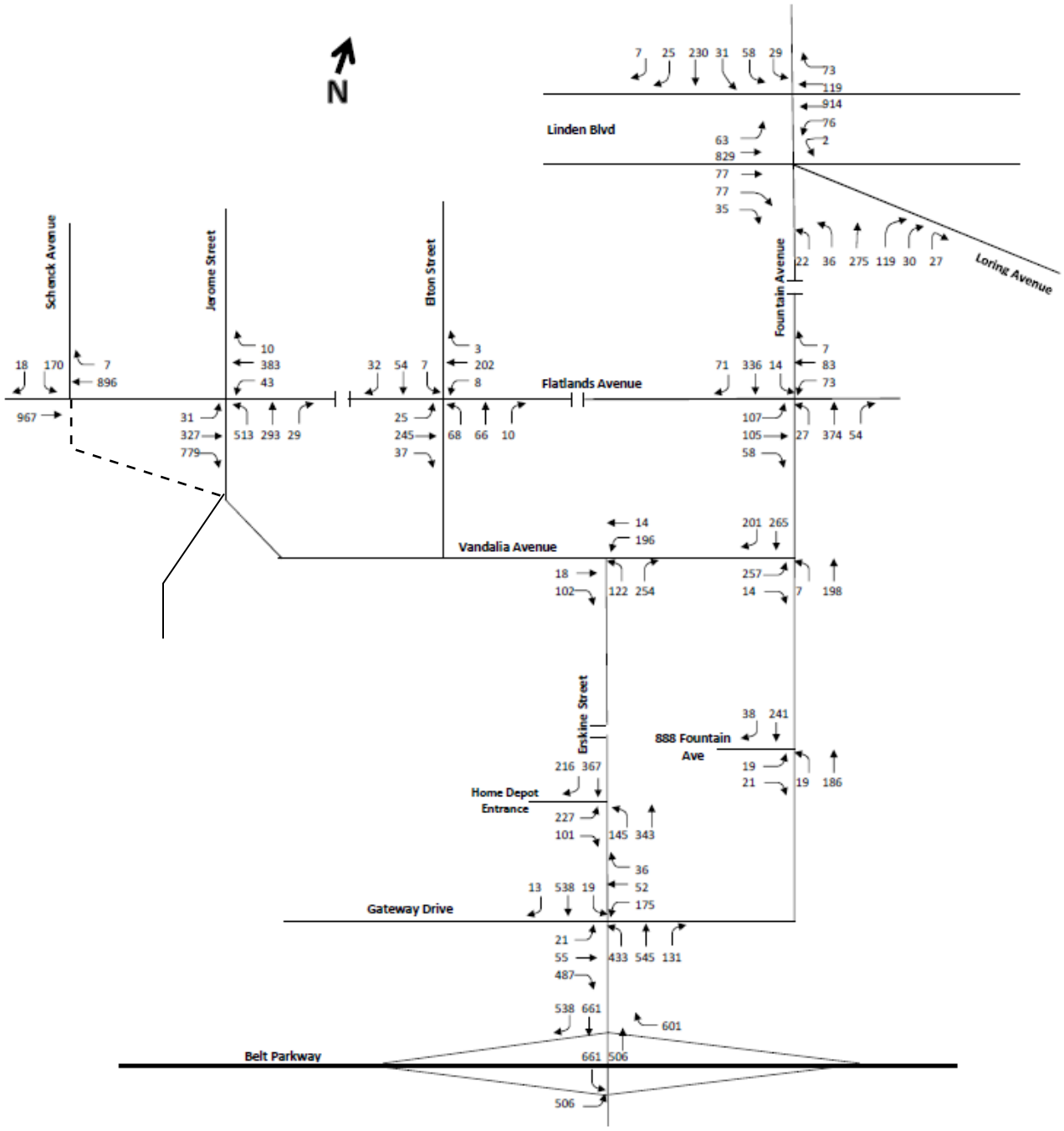
Figure 14-7

NO ACTION WEEKDAY AM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

1:00 PM - 2:00 PM



These portions of roadway will not exist in 2028.

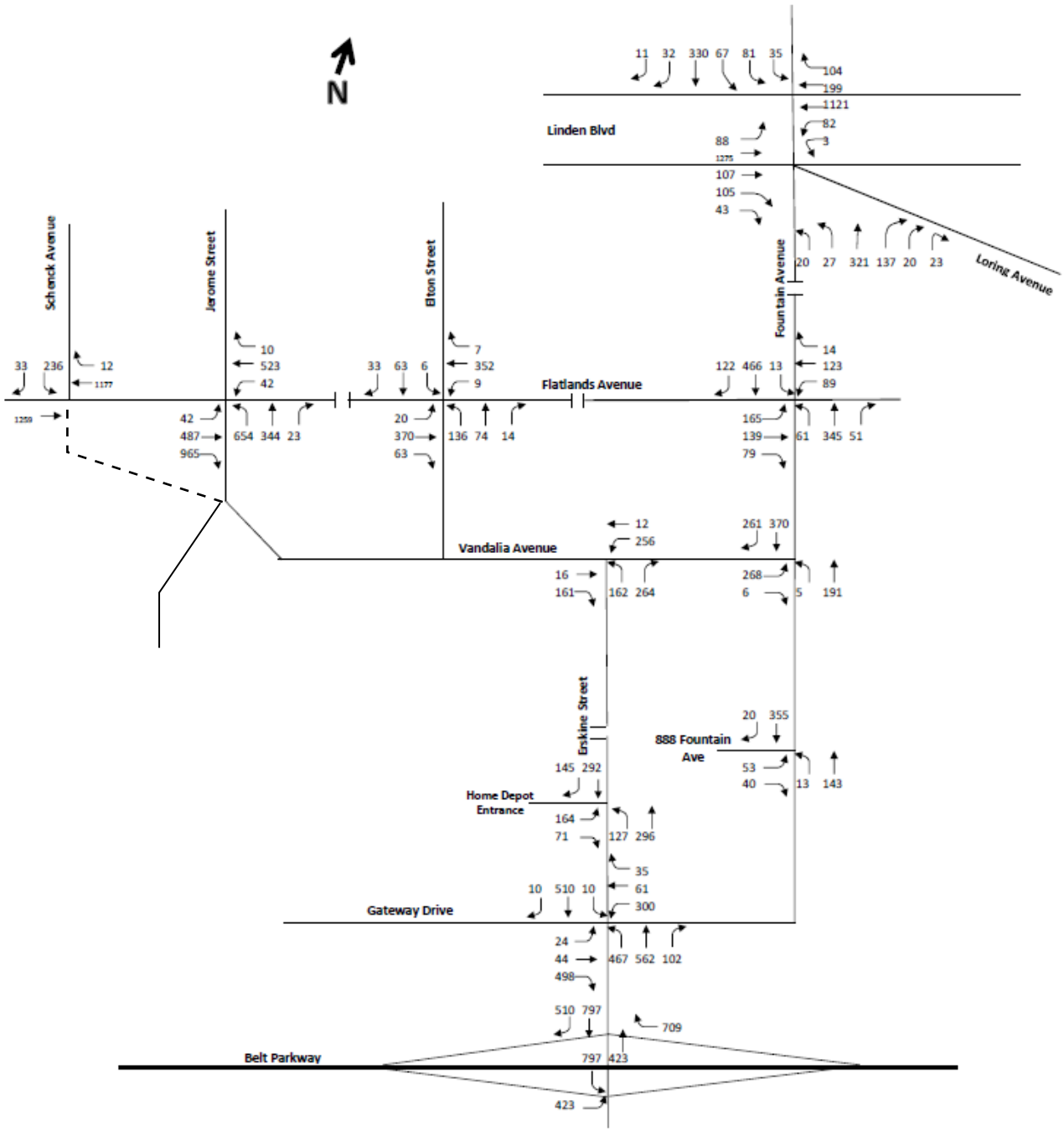
Figure 14-8

NO ACTION WEEKDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

4:00 PM - 5:00 PM



These portions of roadway will not exist in 2028.

Figure 14-9

NO ACTION WEEKDAY PM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

1:00 PM - 2:00 PM

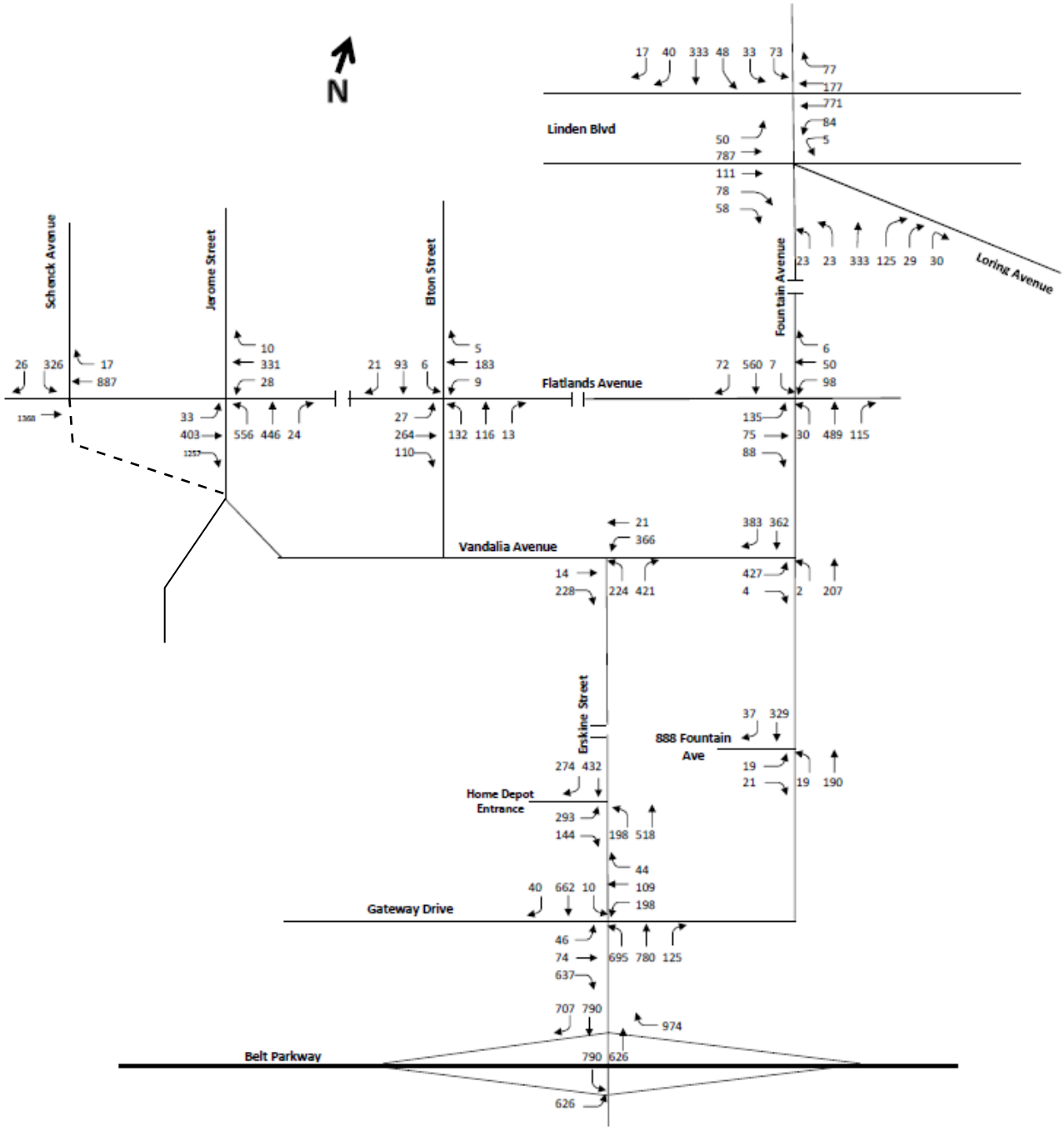


Figure 14-10

NO ACTION SATURDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

Table 14-6: 2028 No Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized														
Linden Boulevard and Fountain / Loring avenues														
Linden Boulevard (Main Road)	EB	L	0.61	45.8	D	0.39	32.0	C	0.59	42.0	D	0.15	11.4	B
		T	0.39	23.9	C	0.59	29.8	C	0.77	33.3	C	0.43	20.9	C
	WB	L	0.27	14.3	B	0.32	19.4	B	0.42	23.4	C	0.29	12.9	B
		T	0.61	18.4	B	0.48	19.5	B	0.52	18.4	B	0.46	21.3	C
Linden Boulevard (Service Road)	EB	TR	0.26	22.9	C	0.42	28.6	C	0.48	28.5	C	0.44	22.7	C
	WB	TR	0.38	15.7	B	0.30	17.8	B	0.42	18.0	B	0.46	22.9	C
Fountain Avenue	NB	LTR	0.54	34.6	C	0.68	34.5	C	0.76	39.7	D	0.82	36.8	D
	SB	L	0.59	42.9	D	0.53	36.2	D	0.91	82.9	F	0.86	65.3	E
		LTR	0.54	35.6	D	0.42	28.6	C	0.76	42.9	D	0.68	31.7	C
Overall Intersection		-		**30.1**	**C**		**30.1**	**C**		**39.0**	**D**		**34.1**	**C**
Flatlands and Schenck avenues														
Flatlands Avenue	EB	T	0.33	11.7	B	0.46	13.1	B	0.55	14.2	B	0.57	14.5	B
	WB	T	0.41	12.8	B	0.80	20.9	C	0.80	20.6	C	0.57	14.9	B
		R	0.02	9.5	A	0.02	9.5	A	0.02	9.5	A	0.03	9.6	A
Schenck Avenue	SB	L	0.18	21.3	C	0.33	23.3	C	0.44	25.1	C	0.56	27.7	C
		LR	0.08	20.2	C	0.05	19.9	B	0.09	20.5	C	0.07	20.1	C
Overall Intersection		-		**13.0**	**B**		**17.8**	**B**		**18.1**	**B**		**17.8**	**B**
Flatlands Avenue and Jerome Street														
Flatlands Avenue	EB	L	0.13	15.6	B	0.13	15.7	B	0.16	16.2	B	0.09	14.9	B
		T	0.33	16.9	B	0.26	16.2	B	0.36	17.2	B	0.28	16.4	B
		R	0.25	0.4	A	0.62	2.0	A	0.70	2.8	A	0.88	7.5	A
	WB	L	0.05	14.5	B	0.18	16.2	B	0.17	16.3	B	0.09	15.0	B
		TR	0.38	17.5	B	0.44	18.4	B	0.46	18.6	B	0.28	16.4	B
Jerome Street	NB	L	0.15	15.1	B	0.38	17.5	B	0.49	18.9	B	0.40	17.7	B
		TR	0.13	15.1	B	0.45	19.2	B	0.51	20.4	C	0.63	23.2	C
Overall Intersection		-		**13.1**	**B**		**12.8**	**B**		**13.7**	**B**		**14.1**	**B**
Flatlands Avenue and Elton Street														
Flatlands Avenue	EB	L	0.14	10.8	B	0.06	9.9	A	0.05	9.9	A	0.06	9.8	A
		TR	0.34	12.1	B	0.22	11.0	B	0.33	12.0	B	0.25	11.2	B
	WB	L	0.11	10.6	B	0.02	9.5	A	0.03	9.6	A	0.03	9.6	A
		TR	0.32	11.9	B	0.16	10.4	B	0.27	11.4	B	0.15	10.3	B
Elton Street	NB	LTR	0.58	29.2	C	0.34	23.9	C	0.61	31.0	C	0.67	33.1	C
	SB	LTR	0.32	23.3	C	0.21	21.7	C	0.25	22.3	C	0.22	21.8	C
Overall Intersection		-		**16.3**	**B**		**14.7**	**B**		**16.5**	**B**		**18.3**	**B**
Flatlands and Fountain avenues														
Flatlands Avenue	EB	L	0.28	11.3	B	0.21	10.6	B	0.28	11.4	B	0.23	10.6	B
		TR	0.14	15.7	B	0.19	16.1	B	0.21	16.4	B	0.18	16.0	B
	WB	L	0.11	9.4	A	0.19	10.4	B	0.19	10.3	B	0.18	10.2	B
		TR	0.10	15.2	B	0.12	15.4	B	0.14	15.6	B	0.05	14.9	B
Fountain Avenue	NB	LTR	0.40	25.2	C	0.53	27.0	C	0.72	32.8	C	0.80	35.2	D
	SB	LTR	0.51	27.0	C	0.50	26.6	C	0.69	30.7	C	0.75	32.4	C
Overall Intersection		-		**21.0**	**C**		**21.8**	**C**		**24.9**	**C**		**28.0**	**C**

Table 14-6: 2028 No Action Conditions (continued)

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Vandalia and Fountain avenues														
Vandalia Avenue	EB	LR	0.17	11.5	B	0.37	13.4	B	0.37	13.3	B	0.62	17.2	B
Fountain Avenue	NB	LT	0.18	11.3	B	0.15	11.1	B	0.17	11.2	B	0.27	12.3	B
	SB	TR	0.28	12.0	B	0.38	12.9	B	0.44	13.5	B	1.12	86.3	F
Overall Intersection		**-**		**11.7**	**B**		**12.7**	**B**		**13.0**	**B**		**54.0**	**D**
Erskine Street and Home Depot Access														
Home Depot Access Road	EB	L	0.17	27.7	C	0.58	35.6	D	0.42	31.6	C	0.70	39.8	D
		R	0.07	9.9	A	0.14	10.5	B	0.10	10.1	B	0.18	10.9	B
Erskine Street	NB	L	0.14	6.8	A	0.23	10.7	B	0.20	8.3	A	0.31	14.1	B
		T	0.11	6.2	A	0.17	6.6	A	0.16	6.5	A	0.25	7.1	A
	SB	TR	0.13	20.4	C	0.44	23.7	C	0.30	22.1	C	0.51	24.6	C
Overall Intersection		**-**		**13.2**	**B**		**19.4**	**B**		**16.8**	**B**		**20.1**	**C**
Seaview Avenue / Gateway Drive and Erskine Street														
Gateway Drive	EB	L	0.04	21.8	C	0.07	22.2	C	0.07	22.3	C	0.15	23.4	C
		T	0.02	21.5	C	0.06	21.8	C	0.05	21.7	C	0.07	22.0	C
		R	0.16	8.0	A	0.59	13.5	B	0.59	13.5	B	0.72	17.0	B
Seaview Avenue	WB	L	0.57	32.1	C	0.66	36.3	D	0.85	49.3	D	0.72	39.2	D
		TR	0.06	21.9	C	0.13	22.6	C	0.10	22.3	C	0.21	23.3	C
Erskine Street	NB	L	0.25	28.2	C	0.57	32.7	C	0.62	34.0	C	0.88	46.0	D
		TR	0.33	10.4	B	0.38	10.8	B	0.37	10.8	B	0.48	12.0	B
	SB	LT	0.22	25.4	C	0.50	28.7	C	0.47	28.2	C	0.58	30.0	C
		R	0.01	23.6	C	0.03	23.8	C	0.02	23.7	C	0.09	24.5	C
Overall Intersection		**-**		**19.1**	**B**		**21.8**	**C**		**24.1**	**C**		**26.2**	**C**
Belt Parkway WB Off-ramp and Erskine Street														
Belt Parkway WB Off-ramp	WB	R	0.37	17.5	B	0.59	20.9	C	0.64	22.0	C	0.82	27.8	C
Erskine Street	NB	T	0.45	19.2	B	0.69	25.0	C	0.66	24.2	C	0.84	32.5	C
Overall Intersection		**-**		**18.3**	**B**		**22.7**	**C**		**22.8**	**C**		**29.6**	**C**
Belt Parkway EB Off-ramp and Erskine Street														
Belt Parkway EB Off-ramp	EB	L	0.24	15.9	B	0.37	17.4	B	0.42	18.0	B	0.46	18.5	B
Erskine Street	SB	L	0.17	15.3	B	0.47	18.6	B	0.71	23.2	C	0.60	20.7	C
Overall Intersection		**-**		**15.6**	**B**		**18.1**	**B**		**21.3**	**C**		**19.7**	**B**
Vandalia Avenue and Erskine Street														
Vandalia Avenue	EB	TR	0.19	11.5	B	0.13	11.0	B	0.20	11.6	B	0.26	12.0	B
	WB	DefL	0.31	13.5	B	0.45	15.6	B	0.67	21.5	C	0.92	43.5	D
	NB	T	0.04	10.5	B	0.03	10.4	B	0.02	10.4	B	0.04	10.5	B
Erskine Street	NB	L	0.27	12.4	B	0.19	11.6	B	0.25	12.2	B	0.35	13.3	B
		R	0.25	12.6	B	0.56	18.0	B	0.58	18.4	B	0.95	46.0	D
Overall Intersection		**-**		**12.3**	**B**		**14.9**	**B**		**16.7**	**B**		**32.3**	**C**

Source: STV Incorporated, 2016.

THE FUTURE WITH THE PROPOSED ACTION ("WITH ACTION" CONDITIONS)

Project Traffic Growth

As listed in Table 14-2, "Travel Demand Forecast," there would be a total of approximately 283, 271, 371, and 270 additional vehicle (auto, taxi, and truck) trips during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Auto and taxi trips are assigned based on the location of the projected development and the anticipated origins and destinations of vehicle trips associated with the different uses projected for the project site (e.g., commercial, residential, etc.). The origins/destinations of residential, local retail, and non-retail commercial trips are determined based upon existing travel patterns in the area. Traffic counts taken in the traffic study area demonstrate the percentage of major roadways used as portals to enter and exit the study area in the peak periods. These same ratios are applied to the trips generated by the project development weighted towards access points to parcels A and B. Net incremental peak hour vehicle trips are assigned to intersections to be analyzed within the traffic study area, as illustrated on Figure 14-11, "Incremental Weekday AM Peak Hour Vehicle Movements," Figure 14-12, "Incremental Weekday Midday Peak Hour Vehicle Movements," Figure 14-13, "Incremental Weekday PM Peak Hour Vehicle Movements," and Figure 14-14, "Incremental Saturday Midday Peak Hour Vehicle Movements."

Truck trips en route to and from each cluster/outlier site are assigned to designated through and local truck routes, and then to the most direct paths to and from trip nodes. Truck trips are assigned to the local truck routes along Linden Boulevard and Fountain Avenue to provide access to the project site.

Figure 14-15, "With Action Weekday AM Peak Hour Vehicle Movements," Figure 14-16, "With Action Weekday Midday Peak Hour Vehicle Movements," Figure 14-17, "With Action Weekday PM Peak Hour Vehicle Movements," and Figure 14-18, "With Action Saturday Midday Peak Hour Vehicle Movements," show the total weekday AM, midday, and PM, and Saturday midday traffic volumes in the 2028 future with the proposed action. The volumes shown are the combination of the net incremental traffic generated by the proposed action and the No Action volumes. The proposed action would make one change to the study area street network, namely the addition of the Parcel A driveway to the intersection of Erskine Street at the Gateway Plaza driveway. The Parcel A driveway would be one-way inbound only and would be aligned directly opposite the Gateway Plaza driveway.

8:00 AM - 9:00 AM

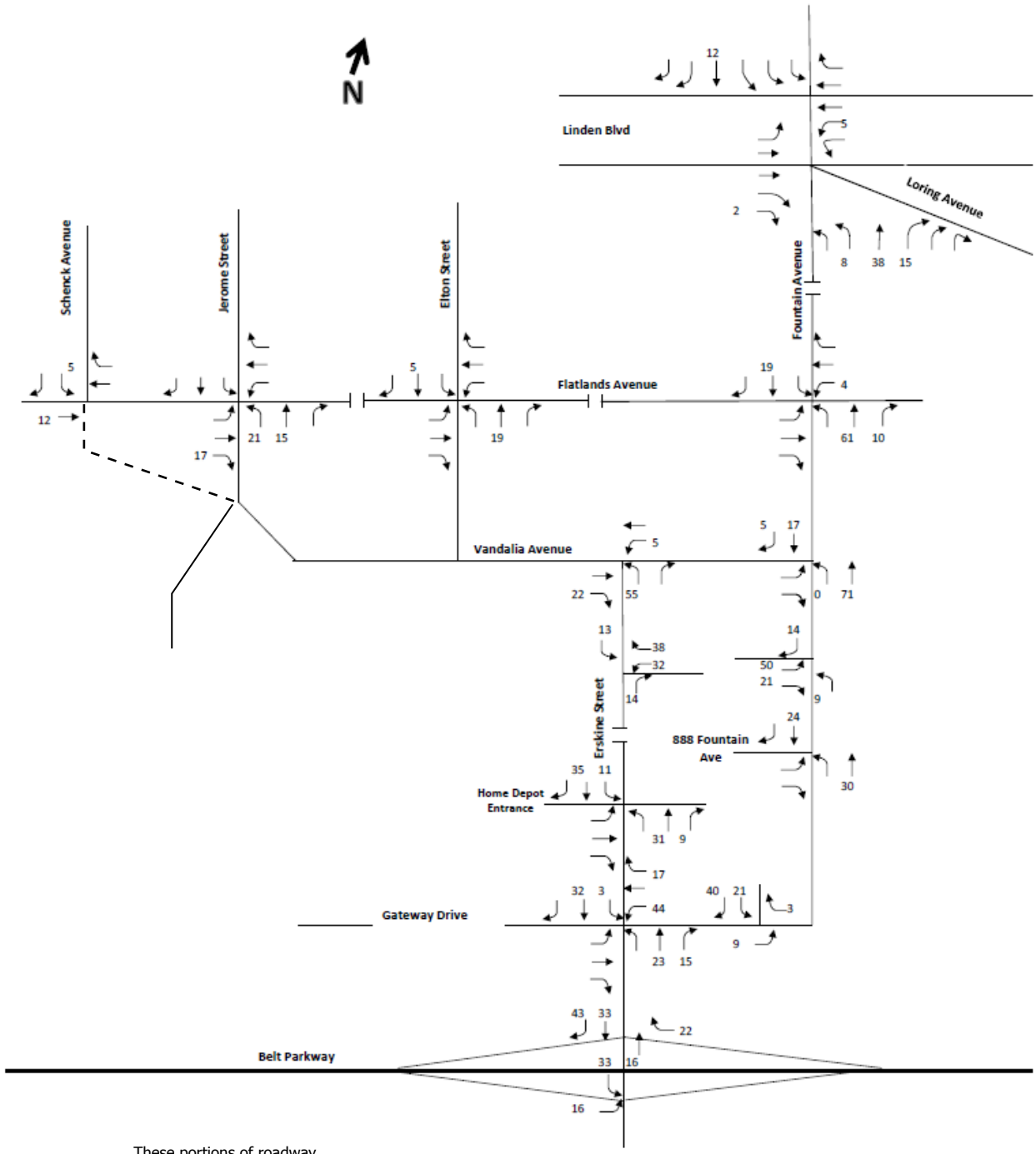


Figure 14-11

INCREMENTAL WEEKDAY AM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

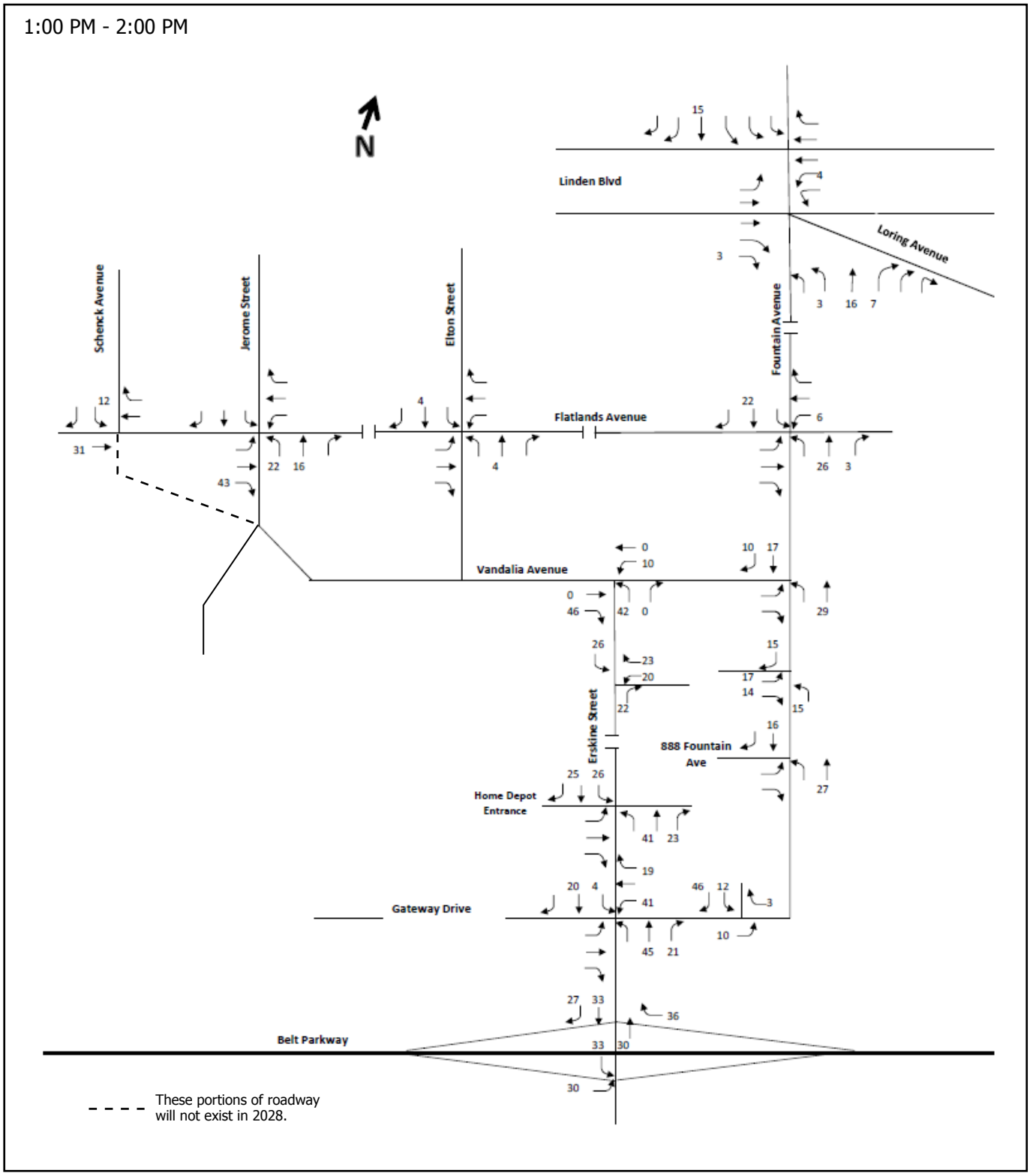


Figure 14-12

INCREMENTAL WEEKDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

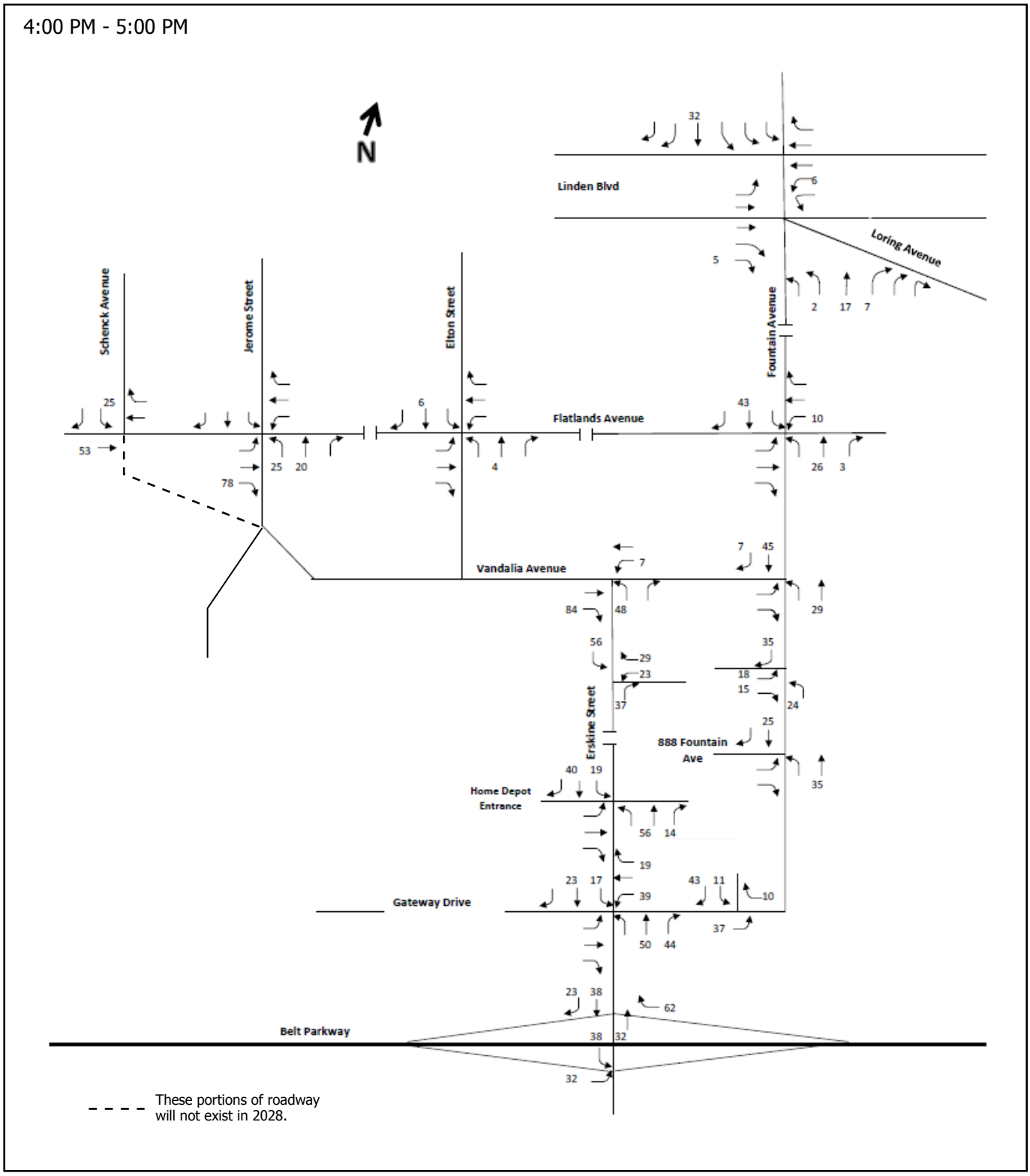


Figure 14-13

INCREMENTAL WEEKDAY PM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

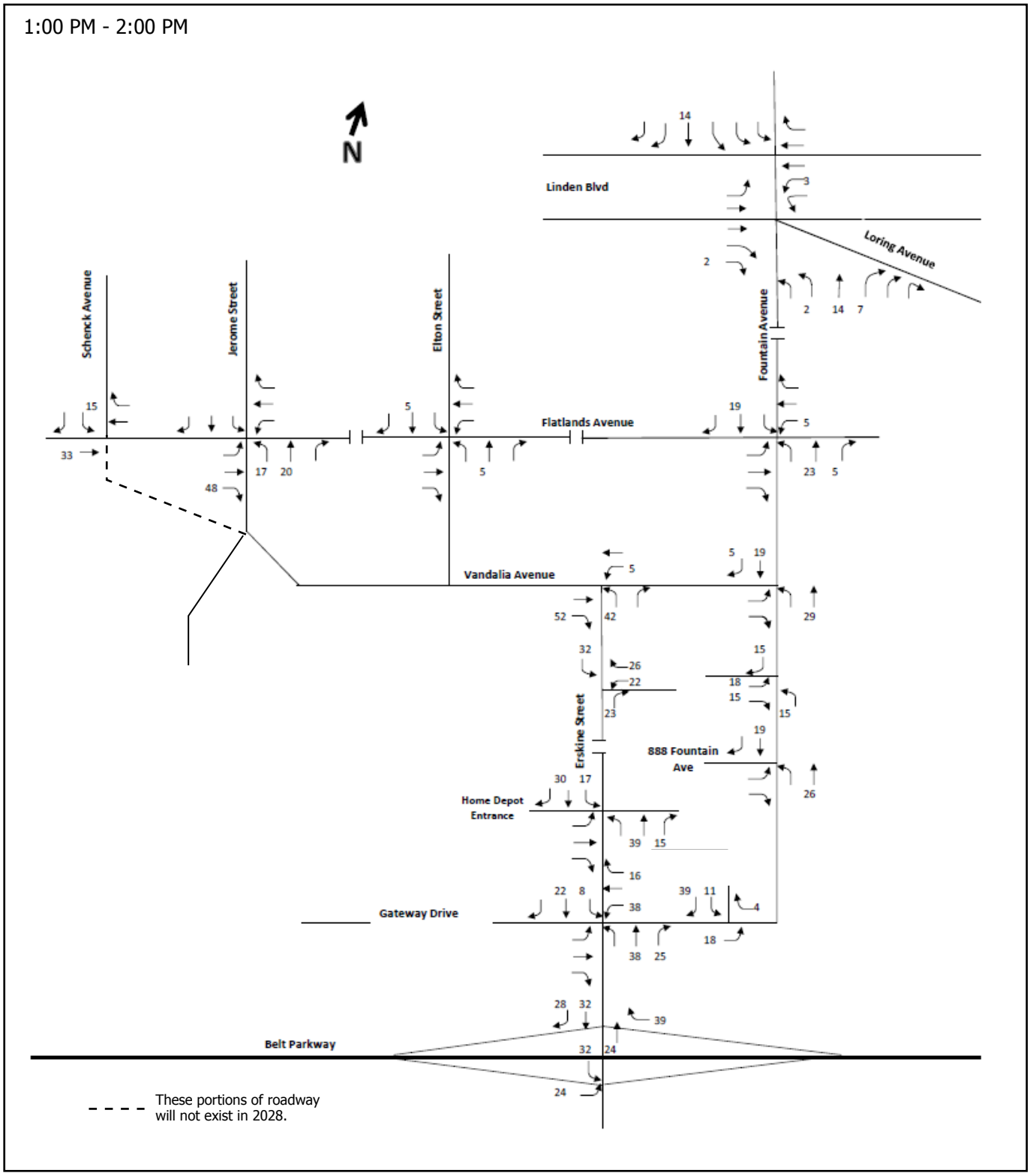


Figure 14-14

INCREMENTAL SATURDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

8:00 AM - 9:00 AM

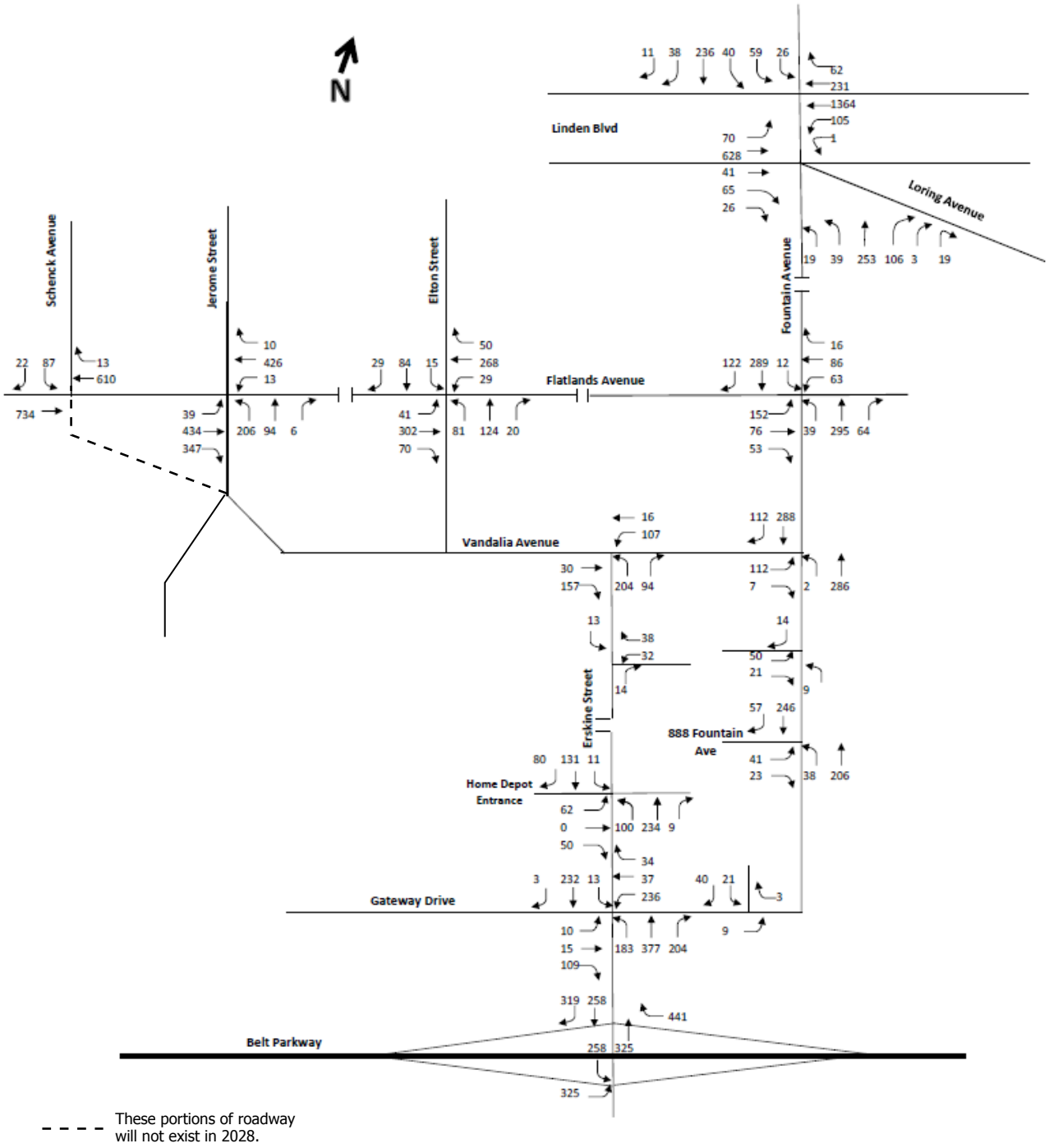


Figure 14-15

WITH ACTION WEEKDAY AM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

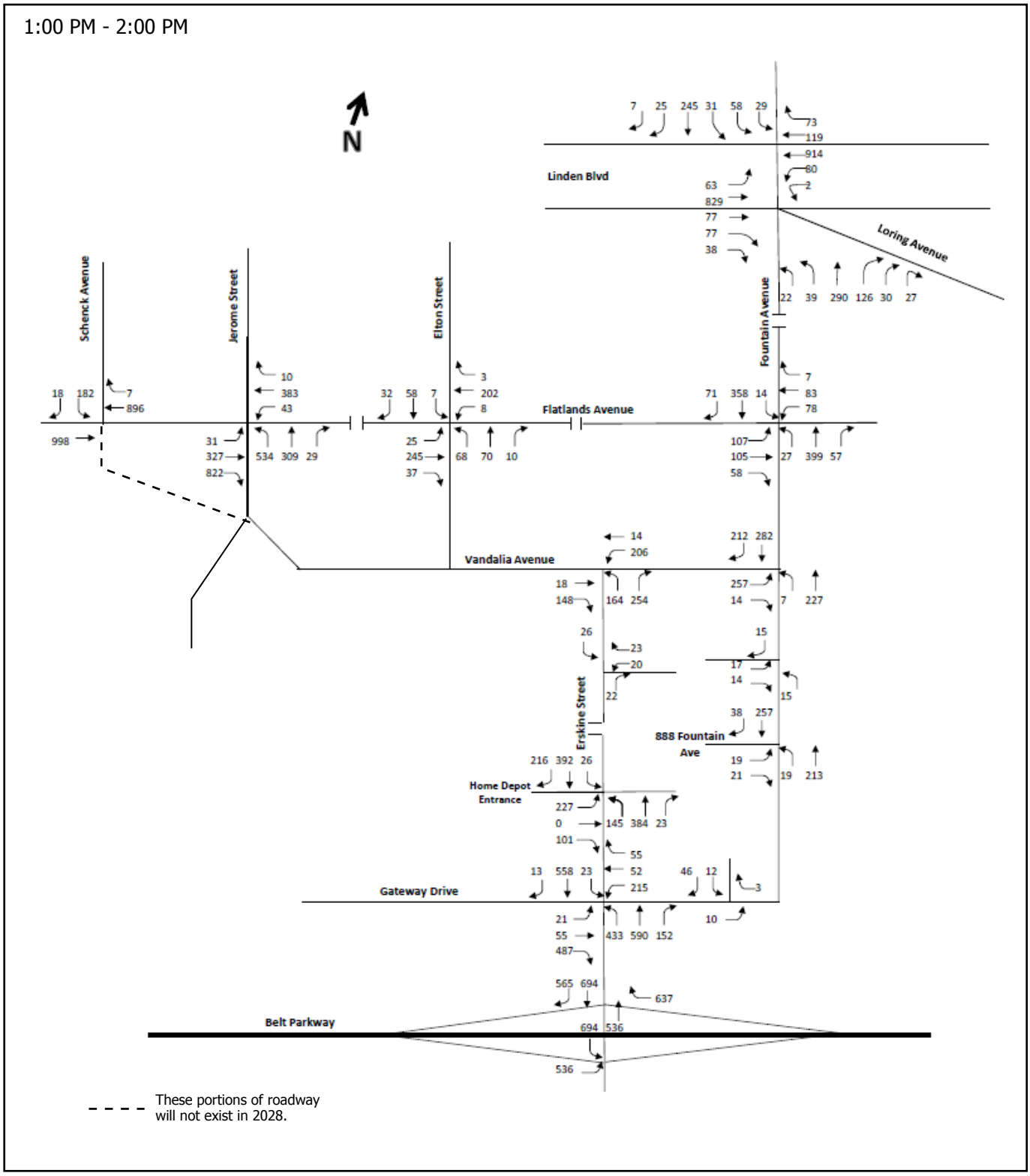


Figure 14-16

WITH ACTION WEEKDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

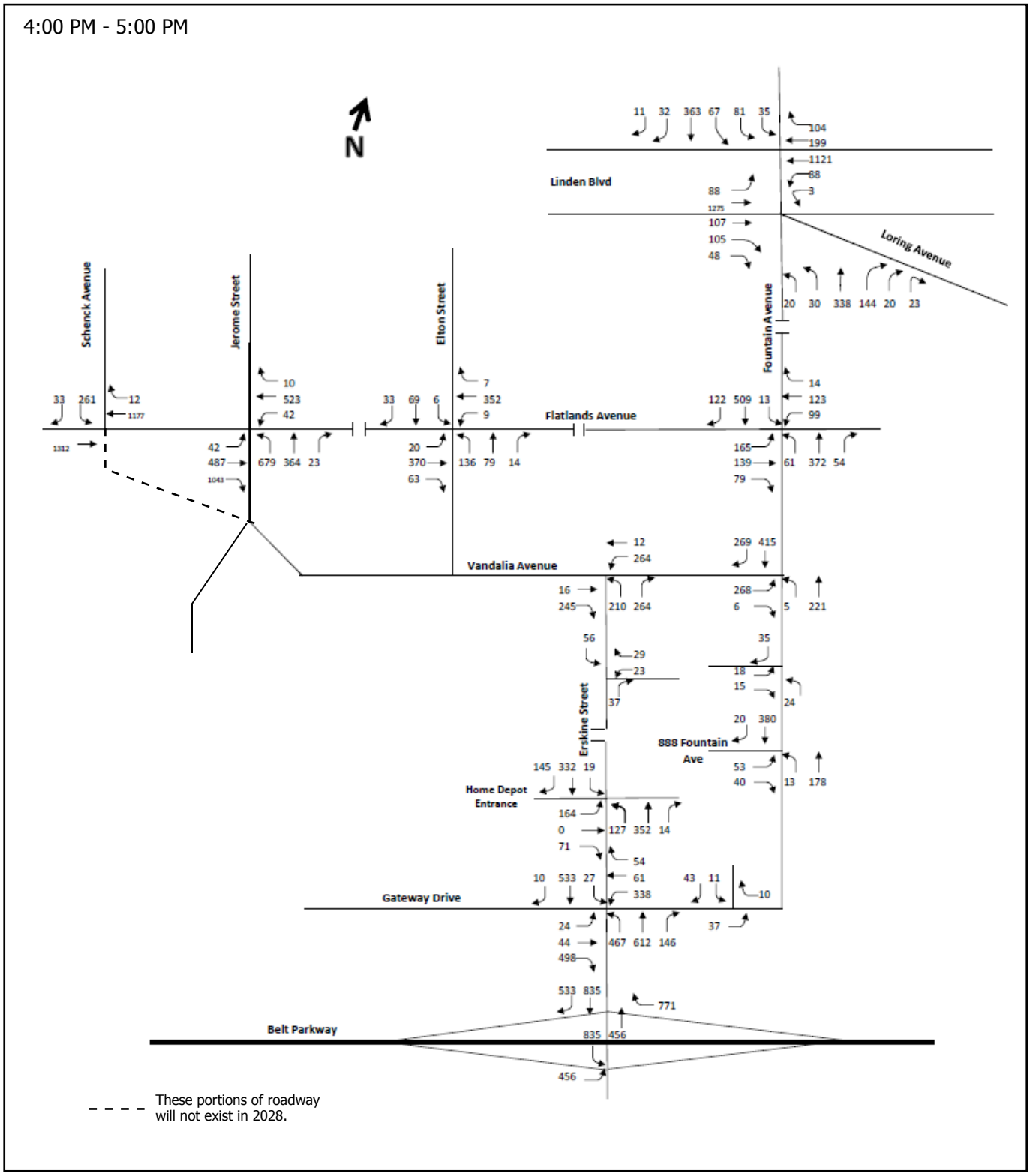


Figure 14-17

WITH ACTION WEEKDAY PM PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

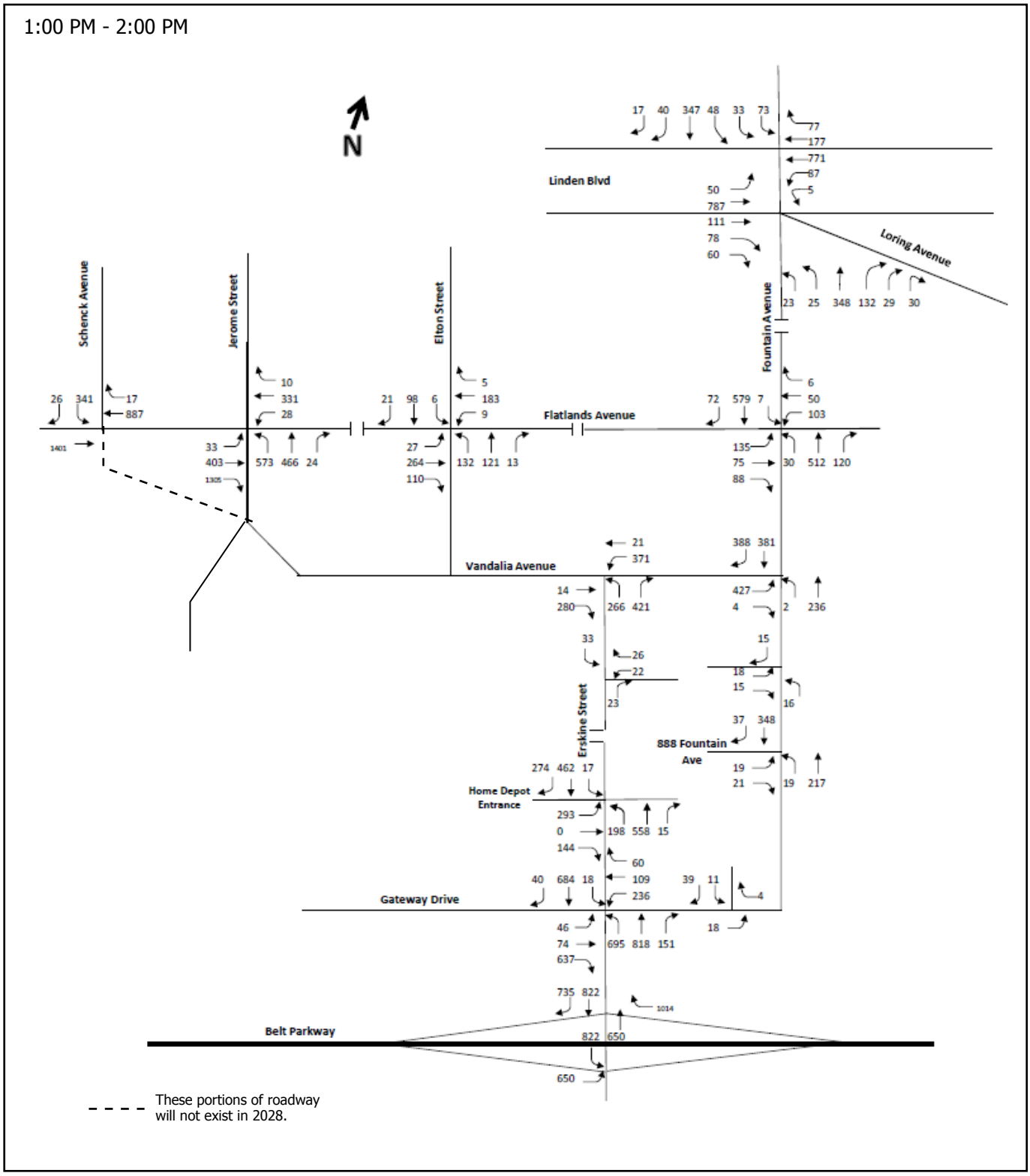


Figure 14-18

WITH ACTION SATURDAY MIDDAY PEAK HOUR VEHICLE MOVEMENTS

Fountain Avenue Land Use Improvement and Residential Project

NEW YORK STATE OF OPPORTUNITY. Empire State Development

Intersection Capacity Analysis

Table 14-4, "2015 Existing Conditions Traffic Operations," lists the expected With Action LOS projected for the study area intersections during the weekday 8-9 AM, 1-2 PM, and 4-5 PM, and Saturday 1-2 PM peak hours.

The analyses show that the majority of the intersections in the project study area would operate at acceptable levels during the AM, midday, and PM, and Saturday midday peak analysis hours – with overall operations at LOS C or better (see Table 14-7, "2028 With Action Conditions"). However, one lane group in the weekday AM peak hour, one lane group in the weekday midday peak hour, three lane groups in the weekday PM peak hour, and four lane groups in the Saturday peak hour would experience a significant adverse traffic impact based on a deteriorating LOS from the No Action conditions:

- At the five-legged intersection of Linden Boulevard and Fountain/Loring avenues, the southbound left-turn movement on Fountain Avenue would deteriorate within LOS D during the weekday AM peak hour (with an increase in delay of 6.6 seconds), within LOS F during the weekday PM peak hour, and within LOS E during the Saturday midday peak hour. The northbound Fountain Avenue movement at this intersection would deteriorate within LOS D during the weekday PM peak hour with an increase in delay of 5.8 seconds.
- At the intersection of Seaview Avenue and Erskine Street, the westbound left-turn on Seaview Avenue would deteriorate from LOS D to LOS E during the weekday midday peak hour, from LOS D to LOS F during the weekday PM peak hour, and within LOS D (increase in delay of 7.6 seconds) during the Saturday midday peak hour.
- At the intersection of Vandalia and Fountain avenues, the southbound approach would deteriorate within LOS F during the Saturday midday peak hour.
- At the intersection of Vandalia Avenue and Erskine Street, the westbound de-facto left-turn lane would deteriorate from LOS D to E during the Saturday midday peak hour.

Potential measures to mitigate the significant adverse traffic impacts, identified in Table 14-7, "2028 With Action Conditions," are discussed in Chapter 23, "Mitigation Measures."

Table 14-7: 2028 With Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized														
Linden Boulevard and Fountain / Loring avenues														
Linden Boulevard (Main Road)	EB	L	0.61	45.8	D	0.39	32.0	C	0.59	42.0	D	0.15	11.4	B
		T	0.39	23.9	C	0.59	29.8	C	0.77	33.3	C	0.43	20.9	C
	WB	L	0.28	14.5	B	0.33	19.7	B	0.45	24.4	C	0.30	13.1	B
		T	0.61	18.3	B	0.48	19.5	B	0.52	18.4	B	0.46	21.3	C
Linden Boulevard (Service Road)	EB	TR	0.27	23.0	C	0.43	28.8	C	0.50	28.8	C	0.45	22.8	C
	WB	TR	0.38	15.7	B	0.30	17.8	B	0.42	18.0	B	0.46	22.9	C
Fountain Avenue	NB	LTR	0.66	38.1	D	0.72	36.4	D	0.85	45.5	D	0.88	42.2	D
	SB	L	0.67	49.5	D	0.56	37.8	D	0.98	100.1	F	0.92	76.9	E
		LTR	0.56	36.3	D	0.45	29.0	C	0.83	48.0	D	0.70	32.6	C
Overall Intersection		**-**		**32.4**	**C**		**31.3**	**C**		**43.9**	**D**		**37.4**	**D**
Flatlands and Schenck avenues														
Flatlands Avenue	EB	T	0.33	11.8	B	0.47	13.2	B	0.57	14.5	B	0.58	14.7	B
	WB	T	0.41	12.8	B	0.80	20.9	C	0.80	20.6	C	0.57	14.9	B
		R	0.02	9.5	A	0.02	9.5	A	0.02	9.5	A	0.03	9.6	A
Schenck Avenue	SB	L	0.20	21.5	C	0.36	23.7	C	0.49	26.0	C	0.59	28.4	C
		LR	0.08	20.2	C	0.05	19.9	B	0.09	20.5	C	0.07	20.1	C
Overall Intersection		**-**		**13.0**	**B**		**17.8**	**B**		**18.3**	**B**		**16.5**	**B**
Flatlands Avenue and Jerome Street														
Flatlands Avenue	EB	L	0.13	15.6	B	0.13	15.7	B	0.16	16.2	B	0.10	15.0	B
		T	0.33	16.9	B	0.26	16.2	B	0.36	17.2	B	0.31	16.7	B
		R	0.26	0.4	A	0.65	2.3	A	0.76	3.7	A	0.99	20.6	C
	WB	L	0.05	14.5	B	0.18	16.2	B	0.17	16.3	B	0.09	15.1	B
		TR	0.38	17.5	B	0.45	18.5	B	0.46	18.6	B	0.29	16.5	B
Jerome Street	NB	L	0.17	15.3	B	0.39	17.7	B	0.51	19.2	B	0.43	18.1	B
		TR	0.15	15.4	B	0.47	19.6	B	0.54	21.0	C	0.69	15.0	B
Overall Intersection		**-**		**13.1**	**B**		**12.9**	**B**		**13.9**	**B**		**19.8**	**B**
Flatlands Avenue and Elton Street														
Flatlands Avenue	EB	L	0.14	10.8	B	0.06	9.9	A	0.05	9.9	A	0.06	9.8	A
		TR	0.34	12.1	B	0.22	11.0	B	0.33	12.0	B	0.25	11.2	B
	WB	L	0.11	10.6	B	0.02	9.5	A	0.03	9.6	A	0.03	9.6	A
		TR	0.32	11.9	B	0.16	10.4	B	0.27	11.4	B	0.15	10.3	B
Elton Street	NB	LTR	0.62	30.7	C	0.35	24.0	C	0.63	31.6	C	0.69	33.8	C
	SB	LTR	0.33	23.5	C	0.22	21.8	C	0.26	22.5	C	0.23	21.9	C
Overall Intersection		**-**		**16.9**	**B**		**14.8**	**B**		**16.7**	**B**		**18.6**	**B**
Flatlands and Fountain avenues														
Flatlands Avenue	EB	L	0.28	11.3	B	0.21	10.6	B	0.28	11.4	B	0.23	10.6	B
		TR	0.14	15.7	B	0.19	16.1	B	0.21	16.4	B	0.18	16.0	B
	WB	L	0.11	9.5	A	0.21	10.5	B	0.21	10.5	B	0.19	10.3	B
		TR	0.10	15.2	B	0.12	15.4	B	0.14	15.6	B	0.05	14.9	B
Fountain Avenue	NB	LTR	0.48	26.4	C	0.56	27.6	C	0.78	35.9	D	0.84	38.0	D
	SB	LTR	0.53	27.4	C	0.52	27.0	C	0.73	32.3	C	0.77	33.3	C
Overall Intersection		**-**		**21.8**	**C**		**22.3**	**C**		**26.6**	**C**		**29.4**	**C**

Table 14-7: 2028 With Action Conditions (continued)

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			MD Peak Hour			PM Peak Hour			Sat MD Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS	V/C	Control Delay	LOS
Vandalia and Fountain avenues														
Vandalia Avenue	EB	LR	0.18	11.6	B	0.37	13.5	B	0.37	13.4	B	0.62	17.2	B
Fountain Avenue	NB	LT	0.22	11.6	B	0.17	11.2	B	0.18	11.3	B	0.31	12.7	B
	SB	TR	0.31	12.2	B	0.46	14.0	B	0.58	15.4	B	1.40	206.5	F
Overall Intersection		**-**		**11.9**	**B**		**13.2**	**B**		**14.1**	**B**		**118.8**	**F**
Erskine Street and Home Depot Access														
Home Depot Access Road	EB	LT	0.17	27.7	C	0.58	35.6	D	0.37	30.4	C	0.70	39.8	D
		R	0.07	9.9	A	0.14	10.5	B	0.10	10.1	B	0.18	10.9	B
Erskine Street	NB	L	0.14	6.8	A	0.23	11.5	B	0.20	8.9	A	0.32	15.2	B
		TR	0.13	6.3	A	0.20	6.8	A	0.20	6.7	A	0.28	7.2	A
	SB	LTR	0.17	20.8	C	0.52	24.9	C	0.38	22.9	C	0.59	26.0	C
Overall Intersection		**-**		**13.5**	**B**		**19.7**	**B**		**16.8**	**B**		**20.6**	**C**
Seaview Avenue / Gateway Drive and Erskine Street														
Gateway Drive	EB	L	0.04	21.9	C	0.09	22.6	C	0.11	22.9	C	0.20	24.5	C
		T	0.02	21.5	C	0.06	21.8	C	0.05	21.8	C	0.08	22.0	C
		R	0.17	8.1	A	0.67	16.0	B	0.63	14.6	B	0.89	29.0	C
Seaview Avenue	WB	L	0.74	41.0	D	0.92	63.3	E	1.01	81.8	F	0.80	46.8	D
		TR	0.09	22.2	C	0.19	23.2	C	0.16	22.9	C	0.21	23.4	C
Erskine Street	NB	L	0.25	28.2	C	0.57	32.7	C	0.64	34.3	C	0.92	50.4	D
		TR	0.36	10.7	B	0.42	11.3	B	0.44	11.5	B	0.55	12.9	B
	SB	LT	0.22	25.5	C	0.53	29.2	C	0.52	29.0	C	0.65	31.4	C
		R	0.01	23.6	C	0.04	23.9	C	0.03	23.7	C	0.11	24.8	C
Overall Intersection		**-**		**20.9**	**C**		**25.4**	**C**		**28.5**	**C**		**29.9**	**C**
Belt Parkway WB Off-ramp and Erskine Street														
Belt Parkway WB Off-ramp	WB	R	0.39	17.7	B	0.63	21.7	C	0.70	23.4	C	0.85	29.6	C
Erskine Street	NB	T	0.46	19.4	B	0.74	26.6	C	0.72	26.0	C	0.88	35.4	D
Overall Intersection		**-**		**18.4**	**B**		**23.8**	**C**		**24.4**	**C**		**31.9**	**C**
Belt Parkway EB Off-ramp and Erskine Street														
Belt Parkway EB Off-ramp	EB	L	0.25	16.0	B	0.39	17.6	B	0.45	18.4	B	0.48	18.7	B
Erskine Street	SB	L	0.18	15.4	B	0.49	18.9	B	0.75	24.2	C	0.62	21.1	C
Overall Intersection		**-**		**15.8**	**B**		**18.4**	**B**		**22.1**	**C**		**20.1**	**C**
Vandalia Avenue and Erskine Street														
Vandalia Avenue	EB	TR	0.22	11.7	B	0.18	11.4	B	0.30	12.4	B	0.32	12.6	B
	WB	DefL	0.33	14.0	B	0.50	16.7	B	0.76	27.1	C	1.00	63.2	E
		T	0.04	10.5	B	0.03	10.4	B	0.02	10.4	B	0.04	10.5	B
Erskine Street	NB	L	0.37	13.5	B	0.25	12.2	B	0.32	12.9	B	0.42	14.2	B
		R	0.25	12.6	B	0.56	18.0	B	0.58	18.4	B	0.97	50.3	D
Overall Intersection		**-**		**12.8**	**B**		**15.0**	**B**		**18.0**	**B**		**37.8**	**D**

Source: STV Incorporated, 2016.

14.8 Transit

EXISTING CONDITIONS

Bus Service

As discussed above in Section 14.5, "Level 2 Screening Assessment," the proposed action is expected to exceed the 50-trip *CEQR Technical Manual* analysis threshold in the weekday AM and PM peak hours for all four local bus routes. Table 14-8, "Existing Local Bus Analysis," lists the existing number of buses and ridership at the maximum load point in each direction for each of these local bus routes in the AM and PM peak hours. As listed, all four local bus routes currently operate with available capacity at their maximum load points in the AM and PM peak hours with the exception of eastbound Q8 buses, which operate with a deficit of 92 spaces at their maximum load point in the AM peak hour. A brief overview of these local bus services is provided below.

Table 14-8: Existing Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[1]	Average Passengers per Bus	Available Capacity[2]
AM	B13	NB	Euclid Ave & Sutter Ave	5	221	44	49
		SB	Euclid Ave & Sutter Ave	4	131	33	85
	B83	NB	New Lots Ave & Van Siclen Ave	10	474	47	66
		SB	New Lots Ave & Van Siclen Ave	8	273	34	159
	B84	NB	Cozine Ave & Ashford Ave	2	58	29	50
		SB	Cozine Ave & Ashford Ave	4	22	6	194
	Q8	EB	101st Av & 133rd St	10	632	63	-92
		WB	101st Av & 121st St	8	268	34	164
PM	B13	NB	Euclid Ave & Sutter Ave	4	103	26	113
		SB	Euclid Ave & Sutter Ave	5	134	27	136
	B83	NB	New Lots Ave & Van Siclen Ave	6	208	35	116
		SB	Pennsylvania Ave & Livonia Ave	7	324	46	54
	B84	NB	Cozine Ave & Ashford Ave	2	18	9	90
		SB	Cozine Ave & Ashford Ave	2	26	13	82
	Q8	EB	101st Av & Lefferts Blvd	10	237	22	317
		WB	101st Av & Cresskill Place	9	427	51	28

Notes:
(1) Based on most currently available data from NYCT/MTA Bus.
(2) Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

Source: STV incorporated, 2016.

B13

NYCT's B13 route provides daily service between Wyckoff/DeKalb Avenues in Bushwick, Brooklyn and the Gateway Center in Spring Creek, Brooklyn, generally from 4:15 AM to 1:30 AM. The B13 buses circle the project site, traveling southbound on Fountain Avenue and returning northbound on Erskine Street. The terminal is located at the Gateway Center.

B83

NYCT's B83 route provides daily service between Broadway Junction/Van Sinderen Avenue in East New York and the Gateway Center in Spring Creek, Brooklyn. On weekdays, service is generally provided from 4:30 AM to 1:30 AM. In proximity to the project site, B83 buses travel east and westbound on the Shore Parkway to/from the Erskine Street interchange. The B83 terminal is located at the Gateway Center.

B84

NYCT's B84 route provides daily service between Livonia Avenue/Warwick Street in East New York and the Gateway Center in Spring Creek, Brooklyn. On weekdays, service is generally provided from 5:30 AM to 9:30 PM. In proximity to the project site, B84 buses circle the project site and travel east and westbound on Flatlands Avenue. The B84 terminal is located at the intersection on Seaview Drive and Erskine Street.

Q8

The Q8 route, operated by MTA Bus, provides daily service between Gateway Center in Spring Creek, Brooklyn and the 165th Street Bus Terminal in Jamaica, Queens. Service is generally provided between the hours of 4:30 AM and 12:30 AM. In proximity to the project site, Q8 buses circle the project site, traveling southbound on Fountain Avenue and returning northbound on Erskine Street. The terminal is located at the Gateway Center.

THE FUTURE WITHOUT THE PROPOSED ACTION ("NO ACTION" CONDITIONS)

Bus Service

Demand on the local bus services operating in the vicinity of the study area is expected to increase during the 2015 through 2028 period as a result of background growth and incremental bus trips associated with the East New York Rezoning. The East New York Rezoning is estimated to increase ridership on the B13 bus route at the peak load point by 35 northbound and 32 southbound trips during the AM peak hour and by 34 northbound and 61 southbound trips in the PM peak hour. Ridership on the Q8 bus route would increase by approximately 14 eastbound and 3 westbound trips during the AM peak hour and by 5 eastbound and 18 westbound trips during the PM peak hour. The East New York Rezoning would require adding one additional bus to the Q8 bus route in the westbound direction during the PM peak hour to accommodate the demand.

As listed in Table 14-9, "No Action Local Bus Analysis," existing levels of bus service will not be sufficient to provide adequate supply to meet the projected demand in the 2028 No Action conditions on the eastbound Q8 route in the AM peak hour. Based on a loading guideline of 54 passengers per standard bus, an additional three standard buses per hour would be needed (for a total of 13) in the eastbound direction in the AM peak hour to accommodate the projected No Action demand.

As a general policy, MTA (NYCT and MTA Bus) provides additional bus service where demand warrants, taking into account financial and operational constraints. Based on ongoing passenger monitoring programs, comprehensive service plans would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally and operationally practicable. The MTA's capital program is developed on a five-year cycle; expansion of bus services would be provided as needs are determined through this program. It is therefore anticipated that in the No Action conditions, MTA Bus

would increase service frequency on the Q8 route to address its capacity shortfall on this route in the eastbound direction in the AM peak hour.

Table 14-9: No Action Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Passengers[1]	No Action Conditions with Current Service Levels			No Action Conditions with Potential Service Adjustments		
					Peak Hour Buses[1]	Average Passengers per Bus	Available Capacity[2]	Peak Hour Buses	Average Passengers per Bus	Available Capacity[2]
AM	B13	NB	Euclid Ave & Sutter Ave	266	5	53	4	5	53	4
		SB	Euclid Ave & Sutter Ave	169	4	42	47	4	42	47
	B83	NB	New Lots Ave & Van Siclen Ave	496	10	50	44	10	50	44
		SB	New Lots Ave & Van Siclen Ave	286	8	36	146	8	36	146
	B84	NB	Cozine Ave & Ashford Ave	61	2	30	47	2	30	47
		SB	Cozine Ave & Ashford Ave	23	4	6	193	4	6	193
	Q8	EB	101st Av & 133rd St	675	10	66	-135	13	52	27
		WB	101st Av & 121st St	283	8	35	149	8	35	149
PM	B13	NB	Euclid Ave & Sutter Ave	142	4	35	74	4	35	74
		SB	Euclid Ave & Sutter Ave	201	5	40	69	5	40	69
	B83	NB	New Lots Ave & Van Siclen Ave	218	6	36	106	6	36	106
		SB	Pennsylvania Ave & Livonia Ave	339	7	48	39	7	48	39
	B84	NB	Cozine Ave & Ashford Ave	19	2	9	89	2	9	89
		SB	Cozine Ave & Ashford Ave	27	2	14	81	2	14	81
	Q8	EB	101st Av & Lefferts Blvd	253	10	25	287	10	25	287
		WB	101st Av & Cresskill Place	465	10	46	75	10	46	75

Notes:
(1) Based on most currently available data from NYCT/MTA Bus.
(2) Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

Source: STV Incorporated, 2016.

THE FUTURE WITH THE PROPOSED ACTION ("WITH ACTION" CONDITIONS)

Bus Service

As listed in Table 14-2, "Travel Demand Forecast," the proposed action is expected to generate a net total of 756 and 1,001 new trips on the local bus services operating in proximity to the project site during the weekday AM and PM peak hours, respectively. The new bus trips are assigned among the four bus routes based on counts taken in May 2015. The percentage of the existing riders that utilize each line is applied to the project increment. The maximum load points for all four bus lines are located at a significant distance from the project site. The maximum load point for the B13 and B83 buses are approximately 1.7 miles from the project site, the maximum load point for the B84 is one mile from the project site, and the maximum load point for the Q8 is over five miles from the project site. Except for the Q8 bus route, the maximum load point occurs between the project site and the nearest subway stations; therefore, it is conservatively assumed that all the project generated bus and subway trips would reach the maximum load point. For the Q8 bus route, the maximum load point is beyond the Euclid Avenue Station and all subway transfers from the project site are not assumed to be on the Q8 bus at the peak load point.

As listed in Table 14-10, "With Action Local Bus Analysis," demand on the B13 route would increase by approximately 87 northbound and 42 southbound trips in the AM peak hour, and by an estimated 39 northbound and 16 southbound trips in the PM peak hour. Demand on the B83 route would increase by an estimated 175 northbound and 65 southbound trips in the AM peak hour, and by approximately 80 northbound and 556 southbound trips in the PM peak hour. Demand on the B84 route would increase by approximately 33 northbound trips in the AM peak hour and by approximately 39 northbound trips in the PM peak hour. Demand on the Q8 route would increase by approximately 44 eastbound and 21 westbound trips in the AM peak hour, and by approximately 20 eastbound and 15 westbound trips in the PM peak hour.

The proposed action would result in a capacity shortfall of 83 passenger spaces on the northbound B13 service, 131 passenger spaces on the northbound B83 service, and 17 passenger spaces on the eastbound Q8 in the AM peak hour. The PM peak hour would experience a capacity shortfall of 517 passenger spaces on the southbound B83 service. Therefore, the northbound B13 and B83 routes and the eastbound Q8 route in the AM peak hour, and the southbound B83 route in the PM peak hour, would be significantly impacted based on *CEQR Technical Manual* criteria. As discussed in Chapter 23, "Mitigation Measures," the significant adverse impact to these bus services could be mitigated by increasing the number of buses in the peak hours.

Table 14-10: With Action Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No-Action Available Capacity[2]	Project Increment	Available Capacity w/Proposed Action[2]
AM	B13	NB	Euclid Ave & Sutter Ave	5	4	87	-83
		SB	Euclid Ave & Sutter Ave	4	47	42	37
	B83	NB	New Lots Ave & Van Siclen Ave	10	44	175	-131
		SB	New Lots Ave & Van Siclen Ave	8	146	65	81
	B84	NB	Cozine Ave & Ashford Ave	2	47	33	14
		SB	Cozine Ave & Ashford Ave	4	193	0	193
	Q8	EB	101st Av & 133rd St	13	27	44	-17
		WB	101st Av & 121st St	8	149	21	128
PM	B13	NB	Euclid Ave & Sutter Ave	4	74	39	35
		SB	Euclid Ave & Sutter Ave	5	69	16	53
	B83	NB	New Lots Ave & Van Siclen Ave	6	106	80	26
		SB	Pennsylvania Ave & Livonia Ave	7	39	556	-517
	B84	NB	Cozine Ave & Ashford Ave	2	89	39	50
		SB	Cozine Ave & Ashford Ave	2	81	0	81
	Q8	EB	101st Av & Lefferts Blvd	10	287	20	267
		WB	101st Av & Cresskill Place	10	75	15	60

Notes:
(1) Assumes service levels adjusted to address Q8 capacity shortfall in the No-Action conditions.
(2) Available capacity based on MTA loading guidelines of 54 passengers per standard bus.

Source: STV Incorporated, 2016.

14.9 Pedestrians

EXISTING CONDITIONS

The study area currently experiences light pedestrian flows during the peak periods. As discussed previously in Section 14.5, "Level 2 Screening Assessment," the analysis of pedestrian conditions focuses on representative pedestrian elements where new trips generated by the proposed action are expected to be most concentrated. These elements—sidewalks, corner areas, and crosswalks—are selected as they provide access from the project site to area bus routes. As discussed previously, a total of five crosswalks and one corner reservoir area at the intersections of Erskine Street and Gateway Drive and Vandalia and Flatlands avenues are analyzed (see Figure 14-19, "Pedestrian Analysis Locations").

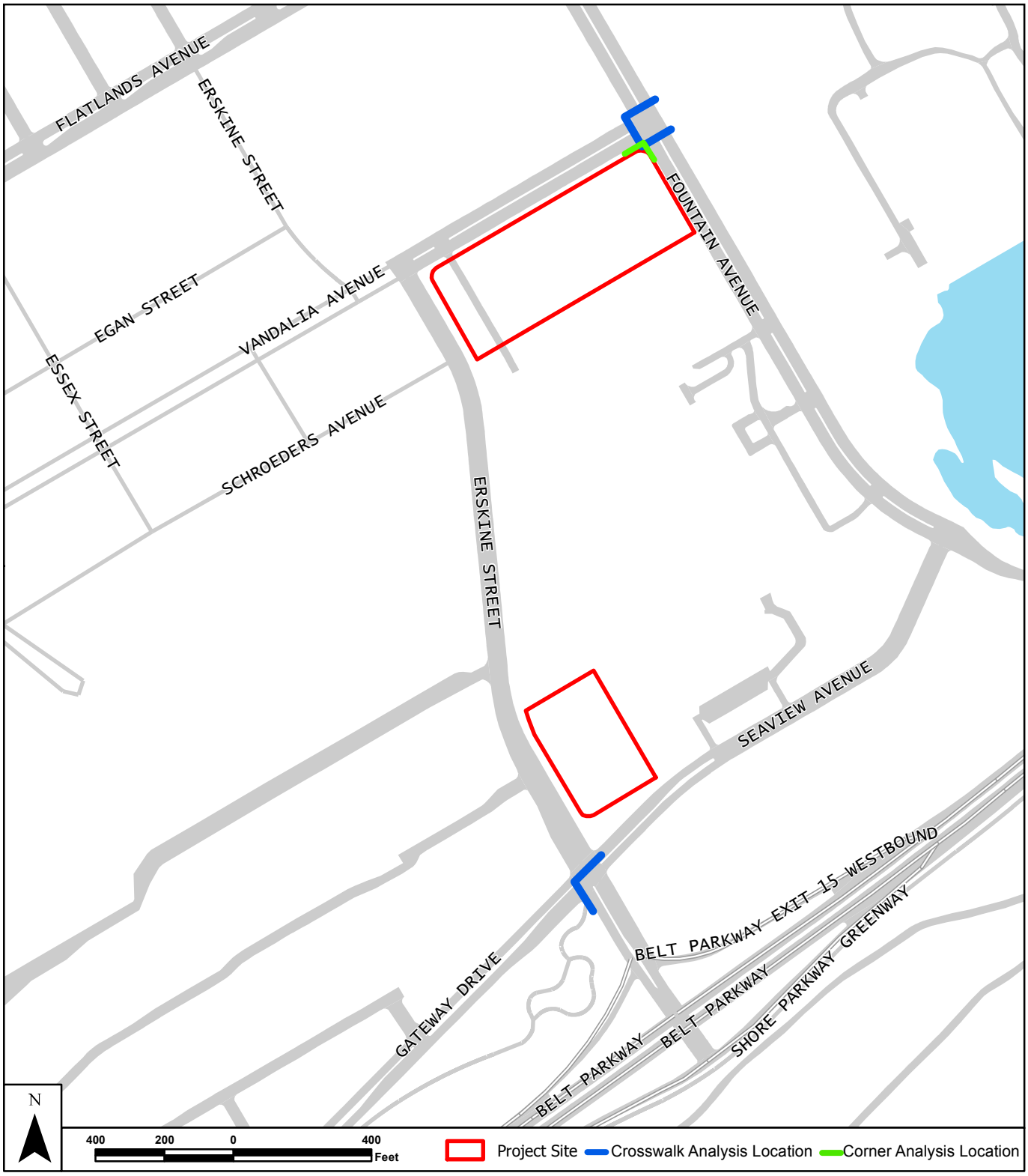


Figure 14-19

PEDESTRIAN ANALYSIS LOCATIONS

Crosswalks

The north and west crosswalks at Erskine Street and Gateway Drive are primarily used to access the B83 bus stop nearest to the project site. Eastbound B83 service towards the project site drops off alighting passengers on Gateway Drive west of Erskine Street, so that the walk portion of the transit trip will use the north (16-foot-wide) crosswalk. Westbound B83 service away from the project site picks up boarding passengers on Erskine Street south of Gateway Drive, and the walk portion of the trip is assumed to use the north and west (13-foot-wide) crosswalks. Existing pedestrian use at these crosswalks is low.

All three crosswalks are analyzed at the intersection of Vandalia and Fountain avenues, which provide access to the B13 and Q8 bus service. The north and south crosswalks are twelve feet wide, and the west crosswalk is 13 feet wide. Existing pedestrian use at these crosswalks is low. As listed in Table 14-11, "Existing Pedestrian Conditions," all analyzed crosswalks operate at an uncongested LOS A in the weekday AM, midday, and PM, and Saturday midday peak hours.

Corner Areas

The southwest corner area at the intersection of Vandalia and Fountain avenues is analyzed, as it currently provides access to the southbound B13, B84, and Q8 stop located near the main entrance to the BDC on Fountain Avenue and the northbound B13, B84, and Q8 stop located on eastbound Vandalia Avenue. The corner reservoir area is 15 feet by 20 feet, with a twelve-foot corner radius. The current pedestrian use is low, and the area operates at LOS A in the weekday AM, midday, and PM, and Saturday midday peak hours.

Table 14-11: Existing Pedestrian Conditions

Intersection and Element	AM Peak		Midday Peak		PM Peak		Saturday Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Erskine Street and Gateway Drive								
North Crosswalk	893	A	461	A	866	A	955	A
West Crosswalk	813	A	725	A	937	A	1,283	A
Vandalia Avenue and Fountain Avenue								
Southwest Corner	2,515	A	8,670	A	2,151	A	5,061	A
North Crosswalk	360	A	804	A	1,422	A	9,854	A
South Crosswalk	1,105	A	1,598	A	3,344	A	1,662	A
West Crosswalk	480	A	3,284	A	254	A	926	A

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

Source: STV Incorporated, 2016.

THE FUTURE WITHOUT THE PROPOSED ACTION ("NO ACTION" CONDITIONS)

Pedestrian Elements

Pedestrian volumes along analyzed sidewalks, crosswalks, and corner areas are expected to increase during the 2015 through 2028 period as a result of background growth, as well as demand from the nearby Gateway Estates development. In determining future No Action pedestrian volumes, walk-trips to the bus stops on Fountain Avenue from the Gateway Estates development are added to the intersection of Vandalia and Fountain avenues. Trips are added from the portion of the Gateway Estates development that has not been completed as of May 2015 and with frontage along Vandalia Avenue. The bus usage established in the *Gateway Estates II FEIS* is applied. The annual background growth rate for the East New York section of Brooklyn is 0.5 percent for Years 1 to 5 and 0.25 percent for Year 6 and beyond. The total compounded background growth rate for 2028 is 4.6 percent (0.5 percent annual growth for five years from 2016 through 2020 and then 0.25 percent growth for eight years from 2021 through 2028).

Crosswalks

Table 14-12, "No Action Pedestrian Conditions," lists the average pedestrian space at all analyzed crosswalks in the No Action conditions. All crosswalks would continue to operate at LOS A.

Corner Areas

The southwest corner at Vandalia and Fountain avenues would continue to operate at acceptable LOS A for all peak hours in the No Action Conditions.

Table 14-12: No Action Pedestrian Conditions

Intersection and Element	AM Peak		Midday Peak		PM Peak		Saturday Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Erskine Street and Gateway Drive								
North Crosswalk	796	A	427	A	757	A	828	A
West Crosswalk	691	A	624	A	895	A	1,104	A
Vandalia Avenue and Fountain Avenue								
Southwest Corner	1,921	A	3,232	A	1,559	A	3,106	A
North Crosswalk	273	A	471	A	753	A	971	A
South Crosswalk	717	A	649	A	899	A	587	A
West Crosswalk	368	A	813	A	199	A	734	A

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

Source: STV Incorporated, 2016.

THE FUTURE WITH THE PROPOSED ACTION ("WITH ACTION" CONDITIONS)

Pedestrian Elements

The proposed action would generate new pedestrian demand on analyzed sidewalks, crosswalks, and corner areas by 2028. This new demand would include trips made solely by walking, as well as pedestrian trips en route to and from bus stops. Pedestrian trips generated by the proposed action are expected to be most concentrated in proximity to projected development sites and along corridors connecting these sites to area bus routes.

As listed in Table 14-2, "Travel Demand Forecast," the proposed action is expected to generate a net total of approximately 472 walk trips in the weekday AM peak hour, 2,166 in the midday peak hour, 1,289 in the PM peak hour, and 1,392 walk trips during the Saturday midday peak hour. Persons en route to and from bus stops would add approximately 756, 718, 1,001, and 915 additional pedestrian trips to area sidewalks and crosswalks during these same periods, respectively. These pedestrian volumes are added to the projected No Action volumes to generate the With Action pedestrian volumes for analysis.

Crosswalks

Table 14-13, "With Action Pedestrian Increment," lists the incremental change in peak hour pedestrian volumes at the analyzed crosswalks. The average pedestrian space and LOS for each element is listed in Table 14-14, "With Action Pedestrian Conditions." All crosswalks would continue to operate at acceptable LOS, and there would be no significant adverse impacts.

Corner Areas

The increase in pedestrians to the southwest corner at the intersection of Vandalia and Fountain avenues is listed in Table 14-13, "With Action Pedestrian Increment." The corner would continue to operate at LOS A in the With Action conditions (see Table 14-14, "With Action Pedestrian Conditions").

Table 14-13: With Action Pedestrian Increment

Intersection and Element	AM Peak		Midday Peak		PM Peak		Saturday Midday Peak	
	Project Increment	Peak Hour Volumes	Project Increment	Peak Hour Volumes	Project Increment	Peak Hour Volumes	Project Increment	Peak Hour Volumes
Erskine Street and Gateway Drive								
North Crosswalk	153	179	363	395	596	626	463	490
West Crosswalk	88	106	117	138	40	56	151	161
Vandalia Avenue and Fountain Avenue								
Southwest Corner	132	184	498	525	304	369	335	360
North Crosswalk	21	56	51	67	33	46	38	45
South Crosswalk	21	40	55	65	35	46	41	52
West Crosswalk	111	144	443	460	269	323	294	308

Source: STV Incorporated, 2016.

Table 14-14: With Action Pedestrian Conditions

Intersection and Element	AM Peak		Midday Peak		PM Peak		Saturday Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Erskine Street and Gateway Drive								
North Crosswalk	98	A	33	C	33	C	34	C
West Crosswalk	156	A	265	A	313	A	67	A
Vandalia Avenue and Fountain Avenue								
Southwest Corner	287	A	148	A	182	A	222	A
North Crosswalk	77	A	41	B	72	A	144	A
South Crosswalk	161	A	55	B	104	A	125	A
West Crosswalk	61	A	31	C	31	C	38	C

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

Source: STV Incorporated, 2016.

14.10 Vehicle and Pedestrian Safety

RECENT NYCDOT INITIATIVES

Vision Zero Brooklyn Pedestrian Safety Action Plan

The City's Vision Zero initiative seeks to eliminate all deaths from traffic crashes, regardless of whether on foot, bicycle, or inside a motor vehicle. In an effort to drive these fatalities down, NYCDOT and NYPD developed a set of five plans, each of which analyzes the unique conditions of one New York City borough, and recommends actions to address the borough's specific challenges to pedestrian safety. These plans pinpoint the conditions and characteristics of pedestrian fatalities and severe injuries; they also identify priority corridors, intersections, and areas that disproportionately account for pedestrian fatalities and severe injuries, prioritizing them for safety interventions. The plans outline a series of recommended actions comprised of engineering, enforcement, and education measures that intend to alter the physical and behavioral conditions on City streets that lead to pedestrian fatality and injury.

The *Vision Zero Brooklyn Pedestrian Safety Action Plan* was released on February 19, 2015. The study area does not include any Vision Zero priority intersections or corridors.

STUDY AREA HIGH ACCIDENT LOCATIONS

Crash data for intersections in the traffic and pedestrian study areas are obtained from NYSDOT for the three-year period between January 1, 2012 and December 31, 2014. The data quantify the total number of reportable (i.e., involving a fatality, injury, or more than $1,000 in property damage) and non-reportable crashes, as well as the total number of crashes involving injuries to pedestrians or bicyclists. During the three-year reporting period, a total of 104 reportable and non-reportable crashes, and eleven pedestrian/bicyclist-related injury crashes, occurred at study area intersections. Table 14-15, "Summary of Motor Vehicle Accident Data 2012-2014," provides details of accident characteristics by intersection during the 2012 through 2014 period, as well as a breakdown of pedestrian and bicycle crashes by year and location.

According to the *CEQR Technical Manual*, a high accident location is one where there have been 48 or more reportable and non-reportable crashes, or five or more pedestrian/bicyclist-related crashes in any consecutive twelve month period within the most recent three-year period for which data are available. None of the study area intersections are high-crash locations.

Table 14-15: Summary of Motor Vehicle Crash Data 2012-2014

Intersection		Crashes												Injuries			Fatalities		
		Total			Motor Vehicle			Pedestrian			Bicycle								
		2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Fountain Avenue at	Seaview Avenue	2	0	1	2	0	1	0	0	0	0	0	0	2	0	1	0	0	0
	Vandalia Avenue	1	2	3	1	1	3	0	0	0	0	1	0	1	2	1	0	0	0
	Flatlands Avenue	0	3	2	0	3	1	0	0	1	0	0	0	0	3	2	0	0	0
	Linden Boulevard / Loring Avenue	22	16	6	18	15	6	4	1	0	0	0	0	18	11	5	0	0	0
Flatlands Avenue at	Schenck Avenue	7	2	5	6	2	5	0	0	0	1	0	0	4	2	5	0	0	0
	Elton Street	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0
Erskine Street at	Vandalia Avenue	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Seaview Avenue / Gateway Drive	11	7	10	11	6	8	0	1	2	0	0	0	5	2	8	0	0	0

Source: NYSDOT crash data from January 1, 2012 to December, 31, 2014.

14.11 Parking

EXISTING CONDITIONS

Off-Street Parking

Off-street public parking facilities were inventoried during May 2015. No public parking lots exist within ¼-mile of the project site.

The BDC currently has an on-site parking capacity of 386 spaces, of which 47 are located on Parcel B. An hourly parking utilization survey was performed on one representative midweek day to determine the site's existing parking demands, which was identified to peak at 231 spaces during the weekday 11 AM – 12 PM hour (approximately 60 percent of capacity). Access to BDC parking areas is currently provided at the driveway along Fountain Avenue between Vandalia and Seaview avenues.

On-Street Parking

An inventory of existing parking regulations within a ¼-mile radius of the project site was compiled from field data and on-line sources in May 2015. Curbside parking regulations for all block faces within the study area are listed in the accompanying Appendix H. On-street public parking is generally governed by alternate-side-of-the-street regulations to facilitate street cleaning. On-street parking surveys were conducted on two representative midweek days to determine the available capacity. Two surveys were conducted – one when the most parking restrictions are in effect (Tuesday mornings between 10:30 AM and 12 PM), and the other when regulations are not in effect (Wednesday mornings). There are approximately 1,282 legal on-street parking spaces within a reasonable walking distance of the project site on days when no alternate-side regulations are in effect based on existing curbside parking regulations, and taking into account curb space obstructed by curb cuts, fire hydrants, and other impediments. This supply for on-street parking spaces has an available capacity of 619 spaces on those days (48 percent of capacity). On the most restrictive regulation days, the number of legal on-street parking spaces is reduced to 1,020, resulting in an available capacity of 349 spaces (about 34 percent of existing curb parking capacity) (see Table 14-16, "2015 Existing On-Street Parking Supply and Demand"). Many streets within the study area have no posted parking regulations.

Table 14-16: 2015 Existing On-Street Parking Supply and Demand

Parking Parameter	w/Regs	w/o Regs
Parking-Space Supply	1,020	1,282
Demand (Occupancy Rate)	671 (66%)	663 (52%)
Spaces Available (Rate)	349 34%	619 48%

Source: STV Incorporated, 2016.

THE FUTURE WITHOUT THE PROPOSED ACTION ("NO ACTION" CONDITIONS)

Between 2015 and 2028, it is expected that parking demand in the vicinity of the project site will increase, due to long-term background growth as well as the completion of the nearby Gateway Estates development. These background growth rates, recommended in the *CEQR Technical Manual* for projects in Brooklyn outside of the Downtown area, are applied to account for general increases in parking demand not attributable to specific development projects.

Off-Street Parking

No new off-street public parking lots within a ¼-mile of the project site are assumed to be developed by 2028 in the No Action conditions. The increase in off-street public parking as a result of the Gateway Estates development is assumed to be completely utilized by the increased parking demand generated from the Gateway Estates development.

No changes in the number of employees or level of operations at BDC are assumed to occur between the existing and No Action conditions. Therefore, the peak hour on-site parking demand is assumed to remain at 60 percent of capacity.

On-Street Parking

The new roadway network that is to be completed as a result of the Gateway Estates development would provide additional on-street parking. It is assumed that these on-street parking spaces would provide the necessary capacity for the additional parking demand as a result of the remaining residential component of the Gateway Estates development and would be completely utilized by the Gateway Estates development. Therefore, the additional on-street parking is not included as part of the available capacity of the on-street parking supply. The supply for on-street parking spaces in the 2028 No Action Conditions would have an available capacity of 589 spaces on days with the fewest on-street regulations (46 percent of capacity). On the most restrictive regulation days, the number of available on-street parking spaces would be reduced to 1,020, resulting in an available capacity of 318 spaces (about 31 percent of existing curb parking capacity) (see Table 14-17, "2028 No Action On-Street Parking Supply and Demand").

Table 14-17: 2028 No Action On-Street Parking Supply and Demand

Parking Parameter	w/Regs	w/o Regs
Parking-Space Supply	1,020	1,282
Demand (Occupancy Rate)	702 (69%)	693 (54%)
Spaces Available (Rate)	318 31%	589 46%

Source: STV Incorporated, 2016.

THE FUTURE WITH THE PROPOSED ACTION ("WITH ACTION" CONDITIONS)

Table 14-18, "With Action Net Incremental Hourly Parking Demand for Commercial Land Uses," lists the net incremental change in parking demand for commercial land uses under the proposed action. Parking demands from the commercial land uses are derived from the forecasts of the daily auto trips. The known commercial auto trips arriving to the project site during the AM, midday, and PM, and Saturday midday peak hours are used as a base assumption for the net increase in parking, conservatively assuming that vehicles would remain parked for between one and two hours.

The forecast of parking demand generated by the affordable residential units of the proposed action is based on 2006-2010 five-year ACS data on average vehicles per household for affordable units located in PUMA 4008, which encompasses the project site. This reflects an auto ownership rate of 0.34 autos per household, resulting in a total parking demand of 398 spaces (113 parking space demand for Parcel A and 285 spaces for Parcel B).

Table 14-18: With Action Net Incremental Hourly Parking Demand for Commercial Land Uses

Time	Parcel A	Parcel B	Total Demand
12 - 1 AM	0	0	0
1 - 2 AM	0	0	0
2 - 3 AM	0	0	0
3 - 4 AM	0	0	0
4 - 5 AM	0	0	0
5 - 6 AM	0	0	0
6 - 7 AM	0	0	0
7 - 8 AM	8	8	16
8 - 9 AM	15	15	30
10 - 11 AM	26	26	52
11 - 12 PM	33	33	66
1 - 2 PM	36	36	72
2 - 3 PM	34	34	68
3 - 4 PM	29	29	58
4 - 5 PM	26	26	52
5 - 6 PM	19	19	37
6 - 7 PM	10	10	20
7 - 8 PM	3	3	5
8 - 9 PM	3	3	5
10 - 11 PM	0	0	0
11 PM - 12 AM	0	0	0

Source: STV Incorporated, 2016.

Off-Street Parking

A total of 475 parking spaces would be provided on the project site under the proposed action. Parcels A and B would have on-site parking lots with 221 and 254 parking spaces, respectively. Parcel A would designate 118 parking spaces for residential use and 103 parking spaces for general use; parking spaces on Parcel B would be for residential use only. During the Phase I 2020 conditions, Parcel A would create an estimated peak parking demand of 113 spaces for residential uses and 36 spaces for commercial uses, which would be accommodated within the Parcel A on-site parking supply. During the Phase II 2028 conditions, Parcel B would create a parking demand of 285 spaces for residential uses, of which 254 spaces can be accommodated on-site. The remaining demand for about 31 parking spaces could park on-street. Additionally, the maximum hourly demand from the Parcel B commercial land uses would be 36 parking spaces, which would also be expected to park on-street. The parking analyses conservatively assume that Parcel B residents and commercial users would not utilize the available Parcel A parking spaces.

Development of Parcel A would not eliminate any existing BDC parking. The currently closed Erskine Street driveway would be opened to provide access to the parking area of the northernmost BDC building.

Development of Parcel B would eliminate approximately 47 of the existing 386 parking spaces available to BDC workers. Specifically, 47 of the available 74 parking spaces in the northernmost BDC parking lot would be removed. The remaining Lot 300 parking capacity of 331 spaces (386-47) would sufficiently accommodate the peak parking demand of 231 spaces; therefore, there would be no significant adverse impact to parking at the BDC as a result of the proposed action.

On-Street Parking

The increase in demand of on-street parking in the With Action conditions would include the shortfall of 67 parking spaces as a result of the Parcel B residential and commercial parking demands. The maximum hourly on-street demand from the Parcel B residential and commercial land uses would be 31 and 36 parking spaces, respectively. Conservatively assuming that the peak residential and commercial demands would be concurrent, this would result in an available capacity of 522 spaces on days with the fewest regulations (41 percent of capacity), and an available capacity of 251 spaces on the most restrictive regulation days (about 25 percent of existing curb parking capacity) (see Table 14-19, "2028 With Action On-Street Parking Supply and Demand"). The proposed action is not expected to result in significant adverse parking impacts due to the remaining available capacity.

Table 14-19: 2028 With Action On-Street Parking Supply and Demand

Parking Parameter	w/Regs	w/o Regs
Parking-Space Supply	1,020	1,282
Demand (Occupancy Rate)	769 (75%)	760 (59%)
Spaces Available (Rate)	251 25%	522 41%

Source: STV Incorporated, 2016.