13

Transportation

This chapter assesses the potential for the Proposed Project to result in significant adverse impacts on traffic operations and mobility, public transportation facilities and services, pedestrian elements and flow, safety of all roadway users (pedestrians, cyclists, transit users, and motorists), and on- and off- street parking.

Introduction

The Proposed Project is located in the East New York section of Brooklyn, along the south side of Flatlands Avenue between Louisiana Avenue and Pennsylvania Avenue. **Figure 13-1** shows the location of the Development Site. The Development Site is currently occupied by the 92,784 sf Christian Cultural Center (CCC) building that includes an approximately 3,550-seat church, and open areas surrounding the church that are primarily used for parking during church services.

The Proposed Project would consist of 2,050 residential dwelling units (DUs) and approximately 65,670 square feet (sf) of local retail space, 14,300 sf of food store space, 52,820 sf of community facility space, 81,740 sf (1.88 acres) of publicly accessible passive open space, and 312,114 sf of on-site above-grade surface parking and below-grade garage parking (approximately 886 parking spaces). The community facility space is assumed to consist of approximately 12,320 sf of daycare space, 16,500 sf performing arts center (PAC) (with up to 299 seats), a 14,100-sf trade school which would be developed within the eastern wing of the existing CCC building, and 9,900 sf of other community facility space (assumed to be medical office for conservative traffic analysis purposes). A portion of the existing 92,784 sf CCC building would be adapted to house the proposed trade school resulting in approximately 78,684 sf of CCC church space and 14,100 sf of trade school space. The church seating capacity is expected to remain the same (3,550 seats) as only existing limited use church ancillary spaces are planned to be adapted. The site plan and development program are shown in **Figure 13-2** and **Table 13-1**, respectively.

Figure 13-1 Project Location

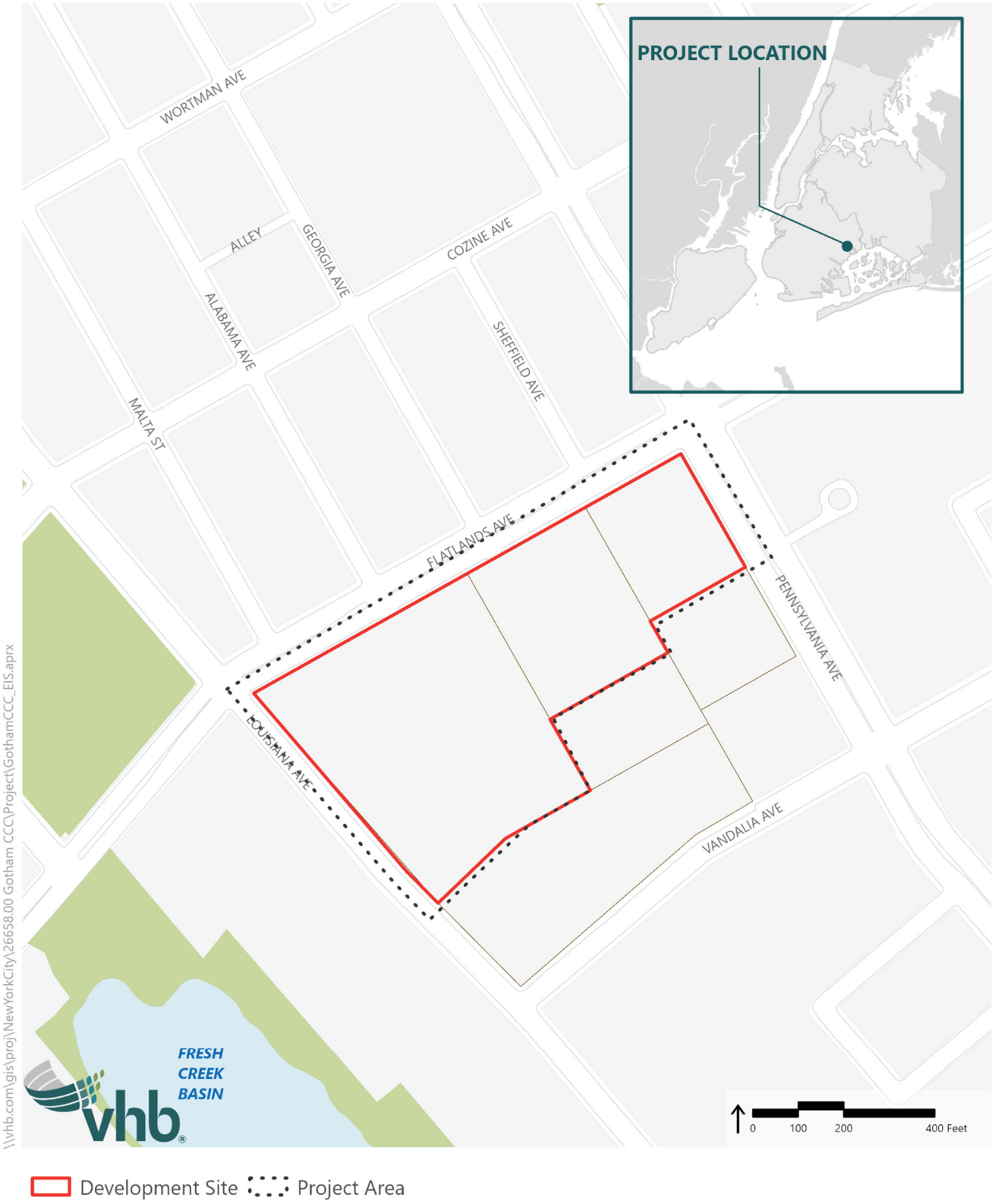


Figure 13-2 Site Plan



Table 13-1 Development Increment for Analysis

Use	Analysis Increment
Residential	2,050 DUs
Local Retail	65,670 sf
Food Store	14,300 sf
Daycare	12,320 sf
Medical Office	9,900 sf
Performing Arts Center	16,500 sf (approximately 299 seats)
Trade School	14,100 sf
Publicly Accessible Passive Open Space	81,740 sf (1.88 acres)
Non-Residential Accessory Parking	172,150 sf (approximately 500 parking spaces)
Residential Accessory Parking	139,964 sf (approximately 386 parking spaces)

Principal Conclusions

Traffic

The Proposed Project would generate a total of 668 vehicles per hour (vph) (277 "ins" and 442 "outs") in the weekday AM peak hour, 536 vph (268 "ins" and 268 "outs") in the weekday midday peak hour, 722 vph (402 "ins" and 320 "outs") in the weekday PM peak hour, 771 vph (380 "ins" and 391 "outs) in the Saturday peak hour, and 789 vph (379 "ins" and 410 "outs") in the Sunday peak hour. Of the 13 intersections analyzed, the Proposed Project would result in significant adverse traffic impacts at nine intersections during the weekday AM peak hour, seven intersections during the weekday midday peak hour, nine intersections during the weekday PM peak hour and seven intersections during the Saturday peak hour. A subset of seven intersections was analyzed for the Sunday peak hour (coinciding with CCC church services) and significant traffic impacts were identified at four of these seven intersections. The identification and evaluation of traffic capacity improvements needed to mitigate potential significant adverse traffic impacts created by the Proposed Projected are presented in **Chapter 20, Mitigation**.

Parking

The Proposed Project would provide approximately 886 on-site parking spaces between four garages – three underground garages with a total capacity of approximately 386 spaces located under Buildings 1 and 2, Buildings 3 and 4, and Building 9, and an approximately 500-space garage which would be located next to the CCC and performing arts center buildings and would be used for CCC church services, and community facility and commercial uses.

While the project's overall projected parking demand would be accommodated during the day there would be an anticipated residential shortfall of 418 parking spaces during the overnight or early morning hours, 194 parking spaces during the weekday morning and 65 parking spaces during the Saturday afternoon periods. Based on the results of the quarter-mile parking inventory survey, there would be enough available on-street parking to

accommodate the projected parking shortfall during these periods. Adequate parking supply would be provided for the other uses that include local retail, food store, and community facility uses.

An approximately 500-space parking garage would be developed as part of the project and would accommodate the majority of the church's on-site parking demand of 810 spaces during the 10 AM to 11 AM Sunday peak hour. The church parking overflow would be accommodated by the surrounding on-street parking within a quarter mile from the site (a five-minute walk) with a modest projected excess demand of 29 spaces that could be accommodated by surrounding on-street parking just beyond a five-minute walk of the Development Site. The parking demand for the proposed new uses would be expected to exceed the on-site parking by 191 spaces which would also need to be accommodated by surrounding on-street parking beyond a five-minute walk of the Development Site (total shortfall of 220 spaces). The Proposed Project would also provide shuttle bus service for CCC visitors from the subway stations which could potentially reduce the amount of church and residential-related parking demand.

Subways

Three fare control areas were analyzed at the Rockaway Parkway L subway station during the commuting peak hours. The analysis determined that all station elements that were analyzed would operate at acceptable levels of service with the exception of the Glenwood Road fare control during the AM peak hour. As part of the recent station renovations, there is no fence or other barrier behind the Glenwood Road fare control and the vast majority of subway riders were observed to not use the fare control and instead walk directly into the station without paying the fare. The analysis of this fare control area conservatively assumes that all subway riders would use the fare control and not evade the fare, and the fare control would be significantly impacted as a result of the Proposed Project.

A subway line haul analysis was conducted for the L subway line and determined that the subway line would operate at over-capacity conditions during the commuting peak hours. However, the project would result in an increase of 1.63 passengers per car in the Manhattan-bound direction during the AM peak hour and 1.53 passengers per car in the Brooklyn-bound direction during the PM peak hour; these increases are below the five subway passengers per car threshold that are considered a significant impact per the *CEQR Technical Manual* criteria. Therefore, significant subway line haul impacts are not expected as a result of the project.

Buses

Bus line haul analyses were conducted for three bus routes (B82, B82 SBS and B83) based on the *CEQR Technical Manual's* screening assessment. The With-Action condition analysis determined that there would be adequate supply for the Proposed Project's projected demand for the B82 and B82 SBS in the eastbound direction during the AM peak hour, and the B82 (both directions) and B82 SBS in the westbound direction during the PM peak hour. However, the Proposed Project would result in a capacity shortfall for the bus routes listed below; these bus routes would be significantly impacted.

› The B82 bus route in the westbound direction during the AM peak hour

- The B82 SBS bus route in the westbound direction during the AM peak hour, and in the eastbound direction during the PM peak hour
- The B83 bus route in both directions during both the AM and PM peak hours

The identification and evaluation of bus service improvements needed to mitigate potential significant adverse bus impacts created by the Proposed Projected are presented in **Chapter 20, Mitigation**.

Pedestrians

Pedestrian analyses were performed for nine sidewalk elements, 14 crosswalk elements, and 13 corner elements at key intersections for the weekday AM, midday, PM, and Saturday peak hours. Of the 36 pedestrian elements analyzed, the Proposed Project would result in significant adverse impacts at one pedestrian element (one crosswalk) during the weekday AM and midday peak hours, two pedestrian elements (two crosswalks) during the weekday PM peak hour, and four pedestrian elements (three crosswalks and one sidewalk) during the Saturday peak hour. Due to the confluence of pedestrian activities from the Proposed Project and the church services, the Proposed Project would result in significant pedestrian impacts at 12 of the 14 pedestrian elements analyzed for the Sunday peak hour (three sidewalks, five crosswalks, and four corner analysis locations). Mitigation measures that could be implemented to mitigate these significant adverse pedestrian impacts are discussed in **Chapter 20, Mitigation**.

Vehicular and Pedestrian Safety

Nine of the 13 traffic analysis locations have been identified as high crash-locations according to New York City Department of Transportation (NYC DOT) criteria. The intersection of Pennsylvania Avenue and Stanley Avenue had at least five bicycle and/or pedestrian crashes recorded within a consecutive 12-month period and was identified as a high-crash location. In addition to this intersection, eight traffic analysis locations are located along the Pennsylvania Avenue, Linden Boulevard, and Rockaway Parkway corridors which have been identified by NYC DOT as priority corridors as part of the NYC Vision Zero Program and therefore are considered high-crash locations per the *CEQR Technical Manual* criteria.

Methodology

According to the 2021 *CEQR Technical Manual* procedures for transportation analysis, a two-tiered screening process is undertaken to determine whether a quantified analysis is necessary. The first step, the Level 1 (Trip Generation) screening, determines whether the volume of peak hour person and vehicle trips generated by the Proposed Project would remain below the minimum thresholds for further study. These thresholds are:

- 50 peak hour vehicle trip ends;
- 200 peak hour subway/rail or bus transit riders; and
- 200 peak hour pedestrian trips.

If the Proposed Project results in increments that would exceed any of these thresholds, a Level 2 (Trip Assignment) screening assessment is performed. Under this assessment, project-generated trips that exceed Level 1 thresholds are assigned to and from the site through their respective networks (streets, bus and subway lines, sidewalks, etc.) based on expected origin-destination patterns and travel routes.

Level 1 Screening Assessment

The travel demand factors used to calculate the projected number of trips were obtained primarily from the *2021 CEQR Technical* Manual, American Community Survey (ACS) journey-to-work data, New York City Department of Transportation (NYC DOT) surveys, and information from other New York City environmental impact studies such as the *E*ast *New York Rezoning FEIS (2016)* and *Brooklyn ~~Development~~Developmental Center Mixed-Use FEIS (2021)*. **Table 13-2** and **Table 13-3** provide the travel demand assumptions used for the weekday AM, midday, and PM peak hours; **Table 13-4** and **Table 13-5** provide the travel demand assumptions used for the Saturday and Sunday peak hours.

Table 13-2 Weekday Travel Demand Characteristics – Residential, Retail, PAC, and Trade School

Rates	Residential	Local Retail	Food Store	Performing Arts Center	Trade School
Daily Person Trip Gen Rate (Weekday)	8.18[1] *per DU*	329[1] *per 1,000 sf*	256[1] *per 1,000 sf*	27[5] *per 1,000 sf*	26.6[1] *per 1,000 sf*
Linked Trip Credit	0%	5%	5%	0%	0%
Temporal Distribution					
Weekday AM Peak	9%[3]	5%[3]	4%[3]	1%[5]	16%[1]
Weekday Midday Peak	6%[3]	8%[3]	7%[3]	16%[5]	10.7%[7]
Weekday PM Peak	8%[3]	11%[3]	11%[3]	13%[5]	26%[1]
Modal Split					
Auto	30%[2, 6]	11%[3]	30%[8]	19.5%[5]	20%[9]
Taxi	0%[2, 6]	0%[3]	3%[8]	10%[5]	1%[9]
Bus	18%[2, 6]	2%[3]	5%[8]	20%[5]	24%[9]
Subway (via bus)	23%[2, 6]	3%[3]	5%[8]	20%[5]	47%[9]
Subway (via shuttle)	23%[2, 6]	-	-	-	-
Walk	6%[2, 6]	84%[3]	57%[8]	30.5%[5]	8%[9]
Vehicle Occupancy					
Auto	1.04[2]	2.00[4]	2.00[8]	1.60[5]	1.10[9]
Taxi	1.04[2]	2.00[4]	2.00[8]	1.20[5]	1.10[9]
Shuttle Bus	25[6]	-	-	-	
Directional Split (In/Out)					
Weekday AM Peak	22%/78%[3]	53%/50%[3]	51%/49%[3]	61%/39%[5]	94%/6%[7]
Weekday Midday Peak	50%/50%[3]	50%/50%[3]	51%/49%[3]	55%/45%[5]	46%/54%[7]
Weekday PM Peak	63%/37%[3]	50%/50%[3]	50%/50%[3]	29%/71%[5]	44%/56%[7]
Daily Delivery Trip Gen (Weekday)	0.06[1] *per DU*	0.35[1] *per 1,000 sf*	0.35[1] *per 1,000 sf*	0.14[5] *per 1,000 sf*	0.29[7] *per 1,000 sf*
Delivery Temporal Distribution					
Weekday AM Peak	12%[1]	8%[1]	10%[1]	6%[5]	9.6%[7]
Weekday Midday Peak	9%[1]	11%[1]	8%[1]	6%[5]	11%[7]
Weekday PM Peak	2%[1]	2%[1]	5%[1]	1%[5]	1%[7]
Delivery Trip Directional Split (In/Out) - 50%/50%					

Source:
[1] *2021 CEQR Technical Manual*
[2] 2013 - 2017 American Community Survey's journey to work data for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104
[3] New York City Department of Transportation survey information for residential use, local retail use, and food store use (in Brooklyn non-transit zone)
[4] *East New York Rezoning FEIS*, 2016
[5] *Spofford Campus FEIS*
[6] VHB Assumptions developed in consultation with NYC DOT and DCP
[7] *Downtown Jamaica Redevelopment Plan FEIS*, 2007
[8] *Brooklyn ~~Development~~Developmental Center Mixed-Use FEIS* (2021)
[9] *Melrose Commons FEIS*, 2011

Table 13-3 Weekday Travel Demand Characteristics – Daycare, Medical Office, and Open Space

Rates	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Passive Open Space
Daily Person Trip Gen Rate (Weekday)	22[1] *per 1,000 sf*	44[1] *per 1,000 sf*	6[1] *per 1,000 sf*	76[1] *per 1,000 sf*	44[5] *Per acre*
Linked Trip Credit	0%	0%	0%	0%	0%
Temporal Distribution					
Weekday AM Peak	25%[1]	25%[1]	25%[1]	11%[1]	3%[5]
Weekday Midday Peak	0%[1]	0%[1]	2.5%[1]	13%[1]	14%[5]
Weekday PM Peak	25%[1]	25%[1]	25%[1]	9%[1]	14%[5]
Modal Split					
Auto	-	-	50%[4]	58%[1]	20%[6]
Auto Pick-up/Drop-off	30%[2]	-	-	-	-
Taxi	0%[2]	-	1%[4]	15%[1]	1%[6]
Bus	18%[2]	18%[2]	18%[4]	8%[1]	11%[6]
Subway	46%[2]	46%[2]	21%[4]	7%[1]	12%[6]
Walk	6%[2]	6%[2]	10%[4]	12%[1]	56%[6]
Vehicle Occupancy					
Auto	1.00[1]	-	1.13[4]	1.50[1]	2.90[6]
Taxi	1.00[1]	-	1.13[4]	1.50[1]	3.00[3]
Directional Split (In/Out)					
Weekday AM Peak	100%/0%[1]	50%/50%[1]	100%/0%[1]	62%/38%[1]	59%/41%[1]
Weekday Midday Peak	50%/50%[1]	50%/50%[1]	50%/50%[1]	47%/53%[1]	55%/45%[1]
Weekday PM Peak	0%/100%[1]	50%/50%[1]	0%/100%[1]	35%/65%[1]	55/45%[1]
Daily Delivery Trip Gen (Weekday)	0.07[3] *per 1,000 sf*	- -		0.4[3] *per 1,000 sf*	0.01[6] *Per acre*
Delivery Temporal Distribution					
Weekday AM Peak	9.6%[3]	-	-	9.7%[3]	6%[6]
Weekday Midday Peak	11.0%[3]	-	-	7.8%[3]	6%[6]
Weekday PM Peak	1.0%[3]	-	-	5.1%[3]	1%[6]
Delivery Trip Directional Split (In/Out) - 50%/50%					

Source:
[1] New York City Department of Transportation surveys
[2] Based on residential journey to work assumptions
[3] *East New York Rezoning FEIS, 2016*
[4] 2006 - 2010 American Community Survey Special Tabulation: Transportation Planning (NYCDCP) reverse journey to work data (CTPP Part 3 Table A302103) for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104
[5] *2021 CEQR Technical Manual*
[6] *300 Huntington EAS, 2020*

Table 13-4 Weekend Travel Demand Characteristics – Residential, Retail, PAC, and Trade School

Rates	Residential	Local Retail	Food Store	Performing Arts Center	Trade School
Daily Person Trip Gen Rate (Saturday/Sunday)	9.08/8.54[1, 3] *per DU*	358/314[1, 3] *per 1,000 SF*	300/284[1, 3] *per 1,000 SF*	2.7/2.7[5, 8] *per seat*	13.5/13.5[1, 8] *per 1,000 SF*
Linked Trip Credit	0%	5%	5%	0%	0%
Temporal Distribution					
Saturday Peak	8%[3]	12%[3]	9%[1]	10%[5]	16%[1]
Sunday Peak	9%[3]	12.7%[3]	10%[3]	10%[8]	16%[8]
Modal Split					
Auto	30%[2, 6]	11%[3]	30%[11]	19.5%[5]	20%[9]
Taxi	0%[2, 6]	0%[3]	3%[11]	10%[5]	1%[9]
Bus	18%[2, 6]	2%[3]	5%[11]	20%[5]	24%[9]
Subway (via bus)	23%[2, 6]	3%[3]	5%[11]	20%[5]	47%[9]
Subway (via shuttle)	23%[2, 6]	-	-	-	-
Walk	6%[2, 6]	84%[3]	57%[11]	30.5%[5]	8%[9]
Vehicle Occupancy					
Auto	1.04[2]	2.00[4]	2.00[11]	2.90[5]	1.10[9]
Taxi	1.04[2]	2.00[4]	2.00[11]	2.30[5]	1.10[9]
Shuttle Bus	25[6]	-	-	-	
Directional Split (In/Out)					
Saturday Peak	51%/49%[3]	50%/50%[3]	50%/50%[11]	0%/100%[5]	57%/43%[7]
Sunday Peak	48%/52%[3]	51%/49%[3]	51%/49%[11]	0%/100%[8]	57%/43%[8]
Daily Delivery Trip Gen (Saturday/Sunday)	0.02/0.02[1, 8] *per DU*	0.04/0.35[1, 10] *per 1,000 SF*	0.04/0.04[1, 8] *per 1,000 SF*	0.04/0.04[5, 8] *per 1,000 SF*	0/0[7, 8] *per 1,000 SF*
Delivery Temporal Distribution					
Saturday Peak	9%[1]	11%[1]	10%[1]	11%[5]	0%[7]
Sunday Peak	9%[8]	0%[10]	10%[8]	11%[8]	0%[8]
Delivery Trip Directional Split (In/Out) - 50%/50%					

Source:

[1] *2021 CEQR Technical Manual*

[2] 2013 - 2017 American Community ~~Survey's~~Survey (ACS) journey to work data for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104

[3] New York City Department of Transportation survey information for residential use, local retail use, and food store use (in Brooklyn non-transit zone)

[4] *East New York Rezoning FEIS, 2016*

[5] *Spofford Campus FEIS*

~~[6] VHB Assumptions~~

[6] Adjustments were made to the ACS Data (2, above), in consultation with DOT, to account for projected shifts to Shuttle Bus

[7] *Downtown Jamaica Redevelopment Plan FEIS, 2007*

[8] Assumed similar travel demand assumptions for the Saturday and Sunday peak hours

[9] *Melrose Commons FEIS, 2011*

[10] *Brooklyn Bridge Park Project FEIS, 2005*

[11] *Brooklyn ~~Development~~Developmental Center Mixed-Use FEIS (2021)*

Table 13-5 Weekend Travel Demand Characteristics – Daycare, Medical Office, and Open Space

Rates	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Passive Open Space
Daily Person Trip Gen Rate (Saturday/Sunday)	22/22[1, 7] *per 1,000 sf*	44/44[1, 7] *per 1,000 sf*	6/6[1, 7] *per 1,000 sf*	39/39[1,7] *per 1,000 sf*	62/62[5, 7] *Per acre*
Linked Trip Credit	0%	0%	0%	0%	0%
Temporal Distribution					
Saturday Peak	25%[1]	25%[1]	25%[1]	17%[1]	16%[5]
Sunday Peak	25%[7]	25%[7]	25%[7]	17%[7]	16%[7]
Modal Split					
Auto	-	-	50%[4]	58%[1]	20%[6]
Auto Pick-up/Drop-off	30%[2]	-	-	-	-
Taxi	0%[2]	-	1%[4]	15%[1]	1%[6]
Bus	18%[2]	18.0%[2]	18%[4]	8%[1]	11%[6]
Subway	46%[2]	46.0%[2]	21%[4]	7%[1]	12%[6]
Walk	6%[2]	6.0%[2]	10%[4]	12%[1]	56%[6]
Vehicle Occupancy					
Auto	1.00[1]	-	1.13[4]	1.50[1]	2.90[6]
Taxi	1.00[1]	-	1.13[4]	1.50[1]	3.00[3]
Directional Split (In/Out)					
Saturday Peak	0%/100%[1]	50%/50%[1]	0%/100%[1]	49%/51%[1]	55%/45%[6]
Sunday Peak	0%/100%[7]	50%/50%[7]	0%/100%[7]	49%/51%[7]	55%/45%[7]
Daily Delivery Trip Gen (Saturday/Sunday)	0.0/0.0[3, 7] *per 1,000 sf*	- -	- -	0.0/0.0[3,7] *per 1,000 sf*	0.01/0.01[6, 7] *Per acre*
Delivery Temporal Distribution					
Saturday Peak	0%[3]	-	-	0%[3]	0%[6]
Sunday Peak	0%[7]	-	-	0%[7]	0%[7]
Delivery Trip Directional Split (In/Out) - 50%/50%					

Source:
[1] New York City Department of Transportation surveys
[2] Based on residential journey to work assumptions
[3] *East New York Rezoning FEIS, 2016*
[4] 2006 - 2010 American Community Survey Special Tabulation: Transportation Planning (NYCDCP) reverse journey to work data (CTPP Part 3 Table A302103) for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104
[5] *2021 CEQR Technical Manual*
[6] *300 Huntington EAS, 2020*
[7] Assumed similar travel demand assumptions for the Saturday and Sunday peak hours

Residential

For the residential use, trip generation rates of 8.18 daily person trips per DU for weekday and 9.08 daily person trips per DU for Saturday were obtained from the *2021 CEQR Technical Manual*. Temporal distributions of 9 percent, 6 percent, 8 percent, and 8 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were provided by NYC

DOT. The Sunday trip generation rate of 8.54 daily person trips per DU and the Sunday peak hour temporal distribution of 9 percent was based on NYC DOT's latest surveys of residential uses.

Once completed, the Proposed Project would provide shuttle bus service for residents to the East 105th Street subway station (served by the L subway line) and the Pennsylvania Avenue subway station (served by the No. 3 subway line). Visitors to the CCC will also have access to shuttle buses to be provided by the Applicant. It is expected that the shuttle buses would have a 25-seat capacity.

Modal splits of 30 percent by auto, 18 percent by bus, 46 percent by subway, and 6 percent by walk and vehicle occupancies of 1.04 persons per auto or taxi during the peak hours were based on the 2013-2017 ACS journey to work data for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104. The modal splits ~~assumed~~ were adjusted to reflect a lower auto share due to the proposed shuttle bus access. Also, due to the distance of the subway stations from the project, it is assumed that residents would either use public bus or shuttle bus service to access the subway; half of the residential subway trips are assumed to use the shuttle bus service and the other half are assumed to use public bus service. The directional distributions of 22 percent "in" for the weekday AM peak hour, 50 percent "in" for the weekday midday peak hour, 63 percent "in" for the weekday PM peak hour, 51 percent "in" for the Saturday peak hour, and 48 percent "in" during the Sunday peak hour were based on NYC DOT surveys.

For residential delivery trips, trip generation rates of 0.06 and 0.02 daily delivery trips per DU for the weekday and Saturday peak hours, respectively, and temporal distributions of 12 percent, 9 percent, 2 percent, and 9 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were obtained from the *2021 CEQR Technical Manual*. Sunday peak hour delivery trips were assumed to be similar to the Saturday peak hour.

Local Retail

For the local retail use, trip generation rates of 329 daily person trips per 1,000 sf for weekday and 358 daily person trips per 1,000 sf for Saturday were obtained from the *2021 CEQR Technical Manual*, and a trip generation rate of 314 daily person trips per 1,000 sf for Sunday was provided by NYC DOT. A linked trip credit of 5 percent was assumed. Weekday, Saturday, and Sunday peak hour directional and temporal distributions were based on NYC DOT surveys. The temporal distributions used were 5 percent, 8 percent, 11 percent, 12 percent, and 12.7 percent for the weekday AM, midday, PM, Saturday, and the Sunday peak hours, respectively, and the directional distributions used were 53 percent "in", 50 percent "in", 50 percent "in", 50 percent "in", and 51 percent "in" for the weekday AM, midday, PM, Saturday, and Sunday peak hours, respectively. The modal splits of 11 percent by auto, 2 percent by bus, 3 percent by subway (via bus), and 84 percent by walk were based on NYC DOT surveys of local retail use in Brooklyn non-transit zones, and vehicle occupancies of 2.00 persons per auto or taxi were obtained from the *East New York Rezoning FEIS (2016)*.

For retail delivery trips, trip generation rates of 0.35 and 0.04 daily delivery trips per 1,000 sf for the weekday and Saturday peak hours, respectively, and a temporal distribution of 8 percent, 11 percent, 2 percent, and 11 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were obtained from the *2021 CEQR Technical Manual*. A

trip generation rate of 0.35 daily delivery trips per DU, and temporal distribution of 0 percent during the Sunday peak hour was obtained from the *Brooklyn Bridge Park Project FEIS (2005)*.

Food Store

The food store use was assumed to be similar to that of a FRESH food or smaller food store to serve the local area. Trip generation rates of 256 daily person trips per 1,000 sf for weekday and 300 daily person trips per 1,000 sf for Saturday were obtained from the *2021 CEQR Technical Manual* and a linked trip credit of 5 percent was assumed. A trip generation rate of 284 daily person trips per 1,000 sf for Sunday was provided by NYC DOT. The temporal distribution and directional split were also provided by NYC DOT while the modal split and vehicle occupancy were obtained from the *Brooklyn ~~Development~~Developmental Center Mixed-Use FEIS (2021)*. The temporal distributions used for the AM, midday, PM, Saturday, and Sunday peak hours were 4 percent, 7 percent, 11 percent, 9 percent and 10 percent, respectively, and the directional splits used were 51 percent "in", 51 percent "in", 50 percent "in", 50 percent "in" and 51 percent "in" for the weekday AM, midday, PM, Saturday and Sunday peak hours, respectively. The modal splits of 30 percent by auto, 3 percent by taxi, 5 percent by bus, 5 percent by subway (via bus), and 57 percent by walk, and vehicle occupancies of 2.00 persons per auto or taxi, were used for all peak hours.

Food store delivery trips were assumed to be similar to the local retail use. Trip generation rates of 0.35 and 0.04 daily delivery trips per 1,000 sf for weekday and weekend, respectively, and a temporal distribution of 10 percent, 8 percent, 5 percent, and 10 percent for the weekday AM, midday, PM, and weekend peak hours, respectively, were obtained from the *2021 CEQR Technical Manual*.

Performing Arts Center

The performing arts center would serve local community groups, including the CCC, and will serve as a venue for shows and events, and for community meetings. Travel demand factors for the performing arts center use were obtained from the *Spofford Campus EIS (2018)*; although the performing arts center would not be expected to have events during church service, the Sunday peak hour assumed the same trip generation assumptions as the Saturday peak hour to provide a conservative analysis. Trip generation rates of 27 daily person trips per 1000 sf for weekdays and 2.7 daily person trips per seat for the weekend were used. The temporal distributions used for the AM, midday, PM, weekend peak hours were 1 percent, 16 percent, 13 percent, and 10 percent, respectively, and the directional splits used were 61 percent "in", 55 percent "in", 29 percent "in", and 0 percent "in" for the weekday AM, midday, PM, and weekend peak hours, respectively. The modal splits of 19.5 percent by auto, 10 percent by taxi, 20 percent by bus, 20 percent by subway (via bus), and 30.5 percent by walk were used during all peak hours. Vehicle occupancies of 1.60 persons per auto and 1.20 per taxi were used during the weekday peak hours and vehicle occupancies of 2.90 persons per auto and 2.30 per taxi were used during the weekend peak hours. For performing arts center delivery trips, a trip generation rate of 0.14 and 0.04 daily delivery trips per 1000 sf for weekday and weekday, respectively, and a temporal distribution of 6 percent, 6 percent, 1 percent, and 11 percent for the weekday AM, midday, PM, and weekend peak hours, respectively.

Trade School

A trip generation rate of 26.6 daily person trips per 1,000 sf for weekdays and 13.5 daily person trips per 1,000 sf for Saturdays were obtained from the *2021 CEQR Technical Manual*. Weekday and Saturday temporal distributions of 16 percent, 26 percent, and 16 percent for the weekday AM, PM, and Saturday peak hours, respectively, were obtained from the *2021 CEQR Technical Manual*. Since a weekday midday peak hour temporal distribution is not provided in the *2021 CEQR Technical Manual*, it was assumed to be 10.7 percent which was obtained from the professional school use found in the *Downtown Jamaica Redevelopment Plan FEIS (2007)*. The Sunday peak hour travel characteristics were assumed to be similar to the Saturday peak hour. Modal splits and vehicle occupancy were based on the professional school use from the *Melrose Commons FEIS (2011)*. The modal splits assumed were 20 percent by auto, 1 percent by taxi, 24 percent by bus, 47 percent by subway (via bus), and 8 percent by walk. Vehicle occupancies of 1.10 persons per auto or taxi were assumed. Directional distributions of 94 percent "in", 46 percent "in", 44 percent "in", and 57 percent "in" for the weekday AM, midday, PM, and weekend peak hours, respectively, were assumed from the *Downtown Jamaica Redevelopment Plan FEIS (2007)*. For trade school delivery trips, a trip generation rate of 0.29 daily trucks per 1,000 sf for the weekday and a temporal distribution of 9.6 percent, 11 percent, and 1 percent for the weekday AM, midday, and PM peak hours, respectively, were obtained from the *Downtown Jamaica Redevelopment Plan FEIS (2007)*. No delivery trips were assumed during the weekend.

Daycare

Children

Trip generation rates of 22 daily person trips per 1,000 sf for daycare children trips was assumed for both weekdays and weekends, and a temporal distribution of 25 percent was used for the weekday AM, PM, Saturday, and Sunday peak hours; no trips are expected during the weekday midday peak hour. The directional distributions used were 100 percent "in" during the weekday AM peak hour, and 0 percent "in" during the weekday PM and weekend peak hours. The trip generation rates and temporal and directional distributions were based on NYC DOT surveys of daycare facilities. Peak hour modal splits of 30 percent by auto pick-up and drop-off, 18 percent by bus, 36 percent by subway (via bus), and 6 percent by walk were based on the journey to work assumptions used for the residential use. Vehicle occupancies of 1.00 person per and taxi were assumed based on NYC DOT guidance.

Parent

Trip generation rates, and temporal and directional distributions for daycare parent pick-up and drop-off trips were based on NYC DOT surveys of daycare facilities. A trip generation rate of 44 daily person trips per 1,000 sf was assumed for the weekday and weekend, and temporal distributions of 25 percent (50 percent "in") was assumed for the weekday AM, PM, Saturday, midday and Sunday peak hours; no trips are expected during the weekday midday peak hour. The modal split of 18 percent by bus, 46 percent by subway, and 6 percent by walk was assumed during the peak hours analyzed and were based the journey to work assumptions used for the residential use; auto pick-up and drop-off trips are accounted for in the daycare children trip generation estimates. No delivery trips are associated with this use.

Staff

Trip generation rates of 6 daily person trips per 1,000 sf for daycare staff was assumed for both weekdays and weekends, and a temporal distribution of 25 percent was used for the weekday AM, PM, Saturday, and Sunday peak hours and 2.5 percent for the weekday midday peak hour. The directional distributions used were 100 percent "in" during the weekday AM peak hour, and 0 percent "in" during the weekday PM and weekend peak hours. The trip generation rates and temporal and directional distributions were based on NYC DOT surveys of daycare facilities. A modal split of 50 percent by auto, 1 percent by taxi, 18 percent by bus, 21 percent by subway, and 10 percent by walk and vehicle occupancy of 1.13 for auto and taxi were obtained from the New York City Department of City Planning's Special Tabulation of American Community Survey 2006 – 2010 reverse journey to work data (CTPP Part 3 Table A302103) for Brooklyn Census Tracts 982, 1018, 1058.01, 1058.04, and 1104. No delivery trips are associated with this use.

Medical Office

For the medical office use, the trip generation, temporal distribution, modal split, vehicle occupancy and directional distributions were based on NYC DOT surveys of medical office facilities; the travel demand factors used for the Saturday peak hour were assumed for the Sunday peak hour. Trip generation rates of 76 daily person trips per 1,000 sf for weekdays and 39.0 daily person trips per 1,000 sf for the weekend. The temporal distributions were 11 percent, 13 percent, 9 percent, and 17 percent for the weekday AM, weekday midday, weekday PM, and weekend peak hours, respectively. For both weekdays and weekends, modal splits of 58 percent by auto, 15 percent by taxi, 8 percent by bus, 7 percent by subway, and 12 percent by walking were used. For all periods, an auto and taxi vehicle occupancy rate of 1.50 was used. The directional distributions were 62 percent "in" for the weekday AM peak hour, 47 percent "in" for the weekday midday peak hour, 35 percent "in" for the weekday PM peak hour, and 49 percent "in" for the weekend peak hours. For medical office delivery trips, trip generation rates of 0.40 per 1,000 sf for the weekday, and temporal distributions of 9.7 percent, 7.8 percent and 5.1 percent for the weekday AM, midday, and PM peak hours, respectively, were obtained from the *East New York Rezoning FEIS (2016)*. No delivery trips are expected during the weekends.

Passive Open Space

A trip generation rate of 44 daily person trips per acre for weekdays and 62 daily person trips per acre for Saturdays were obtained from the *2021 CEQR Technical Manual*. Weekday and Saturday temporal distributions of 3 percent, 14 percent, 14 percent, and 16 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were obtained from the *2021 CEQR Technical Manual*. Sunday peak hour travel characteristics were assumed to be similar to the Saturday peak hour. Modal splits and auto vehicle occupancies were based on the *300 Huntington EAS (2020)*. The modal splits assumed were 20 percent by auto, 1 percent by taxi, 11 percent by bus, 12 percent by subway, and 56 percent by walk. A vehicle occupancy of 2.90 persons per auto and 3.00 persons per taxi was assumed. Directional distributions of 59 percent "in", 55 percent "in", and 55 percent "in" for the weekday hours were provided by NYC DOT. Directional distributions of 55 percent "in" for the weekend peak hours were obtained from the *300 Huntington EAS (2020)*. For passive open space delivery trips, a trip generation rate of 0.01 daily trucks per acre for the weekday and weekend peak

hours was obtained from the *300 Huntington EAS (2020)*. Temporal distributions of 6 percent, 6 percent, 1 percent, and 0 percent for the weekday AM, midday, PM, and weekend peak hours, respectively, were also obtained from the *300 Huntington EAS (2020)*.

Level 1 Screening Results

Transit and Pedestrians

The total number of pedestrian trips generated by the Proposed Project are provided in **Table 13-6** and would be expected to exceed the *2021 CEQR Technical Manual* Level 1 screening thresholds for pedestrian and transit trips. The number of pedestrian trips generated by use is detailed in **Table 13-7** and **Table 13-8**.

- During the weekday AM peak hour, the project would generate 363 bus trips, 865 subway trips, and 2,293 pedestrian trips (walk plus bus and subway).[1]
- During the weekday midday peak hour, the project would generate 259 bus trips, 561 subway trips, and 2,442 pedestrian trips.
- During the weekday PM peak hour, the project would generate 389 bus trips, 871 subway trips, and 3,510 pedestrian trips.
- During the Saturday peak hour, the project would generate 408 bus trips, 911 subway trips, and 3,928 pedestrian trips.
- During the Sunday peak hour, the project would generate 422 bus trips, 949 subway trips, and 3,835 pedestrian trips.

Since the number of peak hour bus, subway, and pedestrian trips expected to be generated by the Proposed Project would exceed the CEQR thresholds of 200 pedestrian trips per hour, a Level 2 trip assignment is needed to determine whether detailed subway, bus, and pedestrian analyses are needed.

[1] Shuttle bus service to the local subway stations would be provided for project residents. Due to the distance between the nearby subway stations and the Proposed Project, for the residential use, 50 percent of subway trips are assumed to be made using shuttle buses provided by the Proposed Project, with the remaining 50 percent using public buses. Subway trips for other uses are assumed to take public bus to reach the subway stations. However, as requested by New York City Transit, to provide a conservative analysis for transit and pedestrian trips, it is assumed that all residential subway trips would use public bus and not the shuttle service.

Table 13-6 Trip Generation Summary – Person Trips

Mode	Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	231	446	677	319	319	638	461	384	845
Auto Pick-up/ Drop-off	20	0	20	0	0	0	0	20	20
Taxi	11	7	18	15	15	30	11	17	28
Bus	121	242	363	129	130	259	214	175	389
Subway (via bus)	194	324	518	166	165	331	297	263	560
Walk	541	524	1,065	813	809	1,622	1,128	1,122	2,250
Subway (via shuttle bus)	76	271	347	115	115	230	196	115	311
Total	**1,194**	**1,814**	**3,008**	**1,557**	**1,553**	**3,110**	**2,307**	**2,096**	**4,403**

Mode	Saturday Peak Hour			Sunday Peak Hour		
	In	Out	Total	In	Out	Total
Auto	452	474	926	448	485	933
Auto Pick-up/ Drop-off	0	20	20	0	20	20
Taxi	11	19	30	11	19	30
Bus	190	218	408	192	230	422
Subway (via bus)	263	309	572	263	324	587
Walk	1,289	1,320	2,609	1,237	1,227	2,464
Subway (via shuttle bus)	171	168	339	174	188	362
Total	**2,376**	**2,528**	**4,904**	**2,325**	**2,493**	**4,818**

Table 13-7 Weekday Trip Generation Summary by Land Use – Person Trips

	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Open Space	Total
Weekday AM Peak Hour											
Auto Person Trips	452	113	41	1	12	0	0	9	49	0	677
Taxi Person Trips	0	0	4	0	1	0	0	0	13	0	18
Bus Person Trips	273	20	7	1	15	12	24	3	8	0	363
Subway Person Trips	347	32	7	1	29	31	62	4	5	0	518
Walk Person Trips	92	862	79	2	5	4	8	2	9	2	1065
Shuttle Person Trips	347	0	0	0	0	0	0	0	0	0	347
Auto Pick-up/Drop-off Person Trips	0	0	0	0	0	20	0	0	0	0	20
Total Person Trips	1,511	1,027	138	5	62	67	94	18	84	2	3,008
Weekday Midday Peak Hour											
Auto Person Trips	302	182	73	14	8	0	0	0	57	2	638
Taxi Person Trips	0	0	8	7	0	0	0	0	15	0	30
Bus Person Trips	180	34	12	14	9	0	0	0	8	2	259
Subway Person Trips	230	48	12	14	19	0	0	0	6	2	331
Walk Person Trips	60	1,380	139	22	3	0	0	0	11	7	1622
Shuttle Person Trips	230	0	0	0	0	0	0	0	0	0	230
Auto Pick-up/Drop-off Person Trips	0	0	0	0	0	0	0	0	0	0	0
Total Person Trips	1,002	1,644	244	71	39	0	0	0	97	13	3,110
Weekday PM Peak Hour											
Auto Person Trips	402	248	114	11	20	0	0	9	39	2	845
Taxi Person Trips	0	0	12	6	1	0	0	0	9	0	28
Bus Person Trips	243	46	20	11	23	12	24	3	5	2	389
Subway Person Trips	311	68	20	11	46	31	62	4	5	2	560
Walk Person Trips	82	1,896	218	18	7	4	8	2	8	7	2250
Shuttle Person Trips	311	0	0	0	0	0	0	0	0	0	311
Auto Pick-up/Drop-off Person Trips	0	0	0	0	0	20	0	0	0	0	20
Total Person Trips	1,349	2,258	384	57	97	67	94	18	66	13	4,403

Table 13-8 Weekend Trip Generation Summary by Land Use – Person Trips

	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Open Space	Total
Saturday Peak Hour											
Auto Person Trips	447	296	110	16	6	0	0	9	38	4	926
Taxi Person Trips	0	0	12	8	0	0	0	0	10	0	30
Bus Person Trips	266	54	18	16	7	12	24	3	6	2	408
Subway Person Trips	339	82	18	16	14	31	62	4	4	2	572
Walk Person Trips	88	2,252	210	25	2	4	8	2	7	11	2609
Shuttle Person Trips	339	0	0	0	0	0	0	0	0	0	339
Auto Pick-up/Drop-off Person Trips	0	0	0	0	0	20	0	0	0	0	20
Total Person Trips	1,479	2,684	368	81	29	67	94	18	65	19	4,904
Sunday Peak Hour											
Auto Person Trips	472	272	116	16	6	0	0	9	38	4	933
Taxi Person Trips	0	0	12	8	0	0	0	0	10	0	30
Bus Person Trips	283	50	19	16	7	12	24	3	6	2	422
Subway Person Trips	362	73	19	16	14	31	62	4	4	2	587
Walk Person Trips	95	2,090	220	25	2	4	8	2	7	11	2464
Shuttle Person Trips	362	0	0	0	0	0	0	0	0	0	362
Auto Pick-up/Drop-off Person Trips	0	0	0	0	0	20	0	0	0	0	20
Total Person Trips	1,574	2,485	386	81	29	67	94	18	65	19	4,818

Traffic and Parking

Table 13-9 summarizes the total peak hour vehicular volumes ("ins" plus "outs") for the Proposed Project under the With-Action condition. The hourly vehicle trips generated by the Proposed Project would be 668 vehicles per hour (vph) during the weekday AM peak hour, 536 vph in the weekday midday peak hour, 722 vph in weekday PM peak hour, 771 vph in the Saturday peak hour, and 789 vph in the Sunday peak hour. The number of vehicle trips generated by use is detailed in **Table 13-10** and **Table 13-11**. Since the volume of vehicle trips generated by the Proposed Project would exceed the 50-vehicle trip threshold during all peak hours, a Level 2 trip assignment is needed to determine whether detailed traffic analyses would be needed.

Table 13-9 Trip Generation Summary – Vehicle Trips

	Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour		
Mode	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	177	391	568	236	236	472	356	274	630
Auto Pick-up/Drop-off	20	20	40	0	0	0	20	20	40
Taxi	11	11	22	20	20	40	18	18	36
Delivery Vehicle	8	8	16	7	7	14	0	0	0
Shuttle Bus	11	11	22	5	5	10	8	8	16
Total	**227**	**441**	**668**	**268**	**268**	**536**	**402**	**320**	**722**

	Saturday Peak Hour			Sunday Peak Hour		
Mode	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	337	348	685	335	366	701
Auto Pick-up/Drop-off	20	20	40	20	20	40
Taxi	15	15	30	15	15	30
Delivery Vehicle	1	1	2	1	1	2
Shuttle Bus	7	7	14	8	8	16
Total	**380**	**391**	**771**	**379**	**410**	**789**

Table 13-10 Weekday Trip Generation Summary by Land Use – Vehicle Trips

	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Open Space	Total
Weekday AM Peak Hour											
Auto Vehicle Trips	436	58	21	1	11	0	0	8	33	0	568
Taxi Vehicle Trips	0	0	4	0	2	0	0	0	16	0	22
Delivery Vehicle Trips	16	0	0	0	0	0	0	0	0	0	16
Shuttle Vehicle Trips	22	0	0	0	0	0	0	0	0	0	22
Auto Pick-up/Drop-off Vehicle Trips	0	0	0	0	0	40	0	0	0	0	40
Total Vehicle Trips	474	58	25	1	13	40	0	8	49	0	668
Weekday Midday Peak Hour											
Auto Vehicle Trips	288	92	37	9	8	0	0	0	38	0	472
Taxi Vehicle Trips	0	0	8	12	0	0	0	0	20	0	40
Delivery Vehicle Trips	14	0	0	0	0	0	0	0	0	0	14
Shuttle Vehicle Trips	10	0	0	0	0	0	0	0	0	0	10
Auto Pick-up/Drop-off Vehicle Trips	0	0	0	0	0	0	0	0	0	0	0
Total Vehicle Trips	312	92	45	21	8	0	0	0	58	0	536
Weekday PM Peak Hour											
Auto Vehicle Trips	387	126	58	7	18	0	0	8	26	0	630
Taxi Vehicle Trips	0	0	12	10	2	0	0	0	12	0	36
Delivery Vehicle Trips	0	0	0	0	0	0	0	0	0	0	0
Shuttle Vehicle Trips	16	0	0	0	0	0	0	0	0	0	16
Auto Pick-up/Drop-off Vehicle Trips	0	0	0	0	0	40	0	0	0	0	40
Total Vehicle Trips	403	126	70	17	20	40	0	8	38	0	722

Table 13-11 Weekend Trip Generation Summary by Land Use – Vehicle Trips

	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare Children	Daycare Parents	Daycare Staff	Medical Office	Open Space	Total
Saturday Peak Hour											
Auto Vehicle Trips	431	150	56	6	6	0	0	8	26	2	685
Taxi Vehicle Trips	0	0	12	6	0	0	0	0	12	0	30
Delivery Vehicle Trips	0	0	0	2	0	0	0	0	0	0	2
Shuttle Vehicle Trips	14	0	0	0	0	0	0	0	0	0	14
Auto Pick-up/Drop-off Vehicle Trips	0	0	0	0	0	40	0	0	0	0	40
Total Vehicle Trips	445	150	68	14	6	40	0	8	38	2	771
Sunday Peak Hour											
Auto Vehicle Trips	456	138	59	6	6	0	0	8	26	2	701
Taxi Vehicle Trips	0	0	12	6	0	0	0	0	12	0	30
Delivery Vehicle Trips	0	0	0	2	0	0	0	0	0	0	2
Shuttle Vehicle Trips	16	0	0	0	0	0	0	0	0	0	16
Auto Pick-up/Drop-off Vehicle Trips	0	0	0	0	0	40	0	0	0	0	40
Total Vehicle Trips	472	138	71	14	6	40	0	8	38	2	789

Level 2 Screening Assessment

As shown above, the number of trips generated by the Proposed Project would exceed the *2021 CEQR Technical Manual* Level 1 screening thresholds for vehicular traffic, subways, buses, and pedestrians during the peak hours analyzed. Project-generated trips were assigned through the surrounding street network, subway stations and routes, bus routes, and pedestrian facilities based on expected routes to and from the Development Site.

Transit and Pedestrians

Transit and pedestrian trips were assigned through the pedestrian network based on logical and direct travel routes to and from the Development Site from neighborhood attractions, subway stations and/or bus stops, to determine if the number of additional pedestrian trips generated by the Proposed Project would exceed 200 peak hour pedestrian trips at key pedestrian elements (e.g. crosswalks, sidewalks, corner reservoir areas) approaching the site – the threshold for detailed pedestrian analysis. The Development Site is bordered by Flatlands Avenue to the north, Louisiana Avenue to the west, Pennsylvania Avenue to the east, and Vandalia Avenue to the south.

Bus transit options within the Development Site vicinity include the B6, B60, B82, B82 SBS, B83, and B103 bus routes. The B82 SBS only operates on the weekdays. The BM2 and BM5 bus routes also stop within the project vicinity but it is assumed that little to no trips would utilize these bus lines due to the infrequency at which they stop as well as the availability of other bus options that travel along similar, quicker routes. It is assumed that approximately 30 percent of project-generated bus trips would use the B82 and B82 SBS bus lines, which have stops along the Development Site's Flatlands Avenue and Pennsylvania Avenue frontages, and that 25 percent would use the B6 bus line, 20 percent each would use the B60 and B103 bus lines, and five percent would use the B83 bus line.

The closest subway stations are located over a half-mile from the Development Site. Because of this distance to the subway stations, it is expected that all subway trips would rely on connecting bus service to access the site. Two stations were identified to provide the vast majority of subway access to the site given their proximity to the site and their connection to bus routes: the Canarsie Rockaway Parkway station serving the L subway line; and the Pennsylvania Avenue station serving the No. 3 subway line. Approximately 80 percent of subway trips are assumed to use the L subway line (connecting via the B82 and B82 SBS bus routes), and the remaining subway trips were assumed to use the No. 3 subway line (connecting via the B83 bus route).[2]

Walk-only pedestrian trips were assigned based on the surrounding land uses, residential populations, and notable attractions in the area. Several large housing complexes are located within the Development Site vicinity including NYCHA Linden Houses to the northeast, NYCHA Breukelen Houses to the west, and Starrett City to the southeast. Local

[2] The Proposed Project would provide shuttle service to the East 105th Street L subway station and the Pennsylvania Avenue No. 3 line subway station, and it is assumed that half of the residential subway trips would use the shuttle service to reach the subway while the other half would use public buses. However, as requested by New York City Transit, for the purposes of a conservative transit analysis, it is assumed that all subway trips would use public buses to reach the subway stations. This assumption was also applied to the pedestrian analysis

commercial attractions within the Development Site vicinity include the shopping center on Louisiana Avenue opposite of the project to the southwest, and commercial retail stores along Pennsylvania Avenue to the northwest of the project.

Pedestrian volume increment maps for the weekday AM, midday, PM, Saturday and Sunday peak hours are shown in **Figure 13-3** through **Figure 13-7**.

Figure 13-3 Project-Generated Pedestrian Trips – Weekday AM Peak Hour



Figure 13-4 Project-Generated Pedestrian Trips – Weekday Midday Peak Hour



Figure 13-5 Project-Generated Pedestrian Trips – Weekday PM Peak Hour



Figure 13-6 Project-Generated Pedestrian Trips – Saturday Peak Hour



Figure 13-7 Project-Generated Pedestrian Trips – Sunday Peak Hour



Traffic

Project-generated vehicle trips shown in **Table 13-9** were assigned through the surrounding street network based on expected routes to the Development Site, the configuration of the street network, and the anticipated entrances to the Development Site and parking facilities on-site. Access to the Development Site would be available along Flatlands Avenue, Louisiana Avenue, and southbound Pennsylvania Avenue.

Residential

Residential vehicle trip assignments were based on the 2012-2016 American Community Survey's journey to work data for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104. Approximately 58 percent of project-generated vehicle trips were identified to be destined for other sections of Brooklyn. Of the remaining trips, approximately 8 percent of vehicle trips were destined to Manhattan, 27 percent to Queens, 3 percent to Long Island, and 4 percent to the Bronx and Westchester.

Approximately 23 percent of the outbound trips were assigned to the west along Flatlands Avenue, 31 percent were assigned to the north along Pennsylvania Avenue, and 16 percent were assigned along westbound Linden Boulevard (via Pennsylvania Avenue, and other roadways such as Georgia Avenue and Malta Street). Approximately 16 percent of the trips were assigned to the south and west via the Belt Parkway towards other parts of Brooklyn and Manhattan and 8 percent were assigned to the north towards Queens and Long Island. The remaining trips (6 percent) would travel along eastbound Flatlands Avenue.

Inbound trips were assigned along similar general routes; approximately 23 percent of the trips were assigned from the west along Flatlands Avenue, 31 percent were assigned from the north along Pennsylvania Avenue, and 16 percent were assigned along eastbound Linden Boulevard (to Louisiana Avenue). Approximately 16 percent of the trips were assigned to the Belt Parkway originating from the south and west, and 8 percent would approach the Development Site from the northeast. The remaining trips (6 percent) would travel along westbound Flatlands Avenue towards the project.

Local Trips

Local vehicle trip assignments were applied to land uses that would serve the immediately surrounding areas such as local retail, food store, performing arts center, daycare (children trips), medical office, and passive open space uses. Therefore, vehicle trips were generally assigned from local origins within a one-mile radius of the Development Site based on population densities.

Worker Trips

Worker vehicle assignments (i.e., trade school and daycare staff) were based on the 2012-2016 ACS Special Tabulation: Census Transportation Planning reverse journey to work data (CTPP Part 3 Table A302103) for Brooklyn census tracts 982, 1018, 1058.01, 1058.04, and 1104. Most trips would be expected to originate from within Brooklyn (50 percent). Of the remaining trips, approximately 25 percent of the trips would be expected to originate from Queens, 15 percent from Long Island, 4 percent from Staten Island and southern parts of

New Jersey, and 6 percent from points north (such as the Bronx, Westchester, and northern parts of New Jersey).

Approximately 39 percent of the project trips were assigned along the Belt Parkway to the Development Site (19 percent from the south and west, and 20 percent from the north). Approximately 26 percent of school staff trips were assigned from the north via Pennsylvania Avenue, 20 percent from the west via Linden Boulevard (accessing the project via Louisiana Avenue), and 10 percent from the west via Flatlands Avenue. The remaining trips (5 percent) were assigned from the east via westbound Flatlands Avenue. Worker trips leaving the project were assigned along similar routes.

Project-generated volume increment maps are shown in **Figure 13-8** through **Figure 13-22**.

Figure 13-8 Project-Generated Vehicle Trips – Weekday AM Peak Hour (North Study Area)



Figure 13-9 Project-Generated Vehicle Trips – Weekday AM Peak Hour (South Study Area)



Figure 13-10 Project-Generated Vehicle Trips – Weekday AM Peak Hour (Project Area)

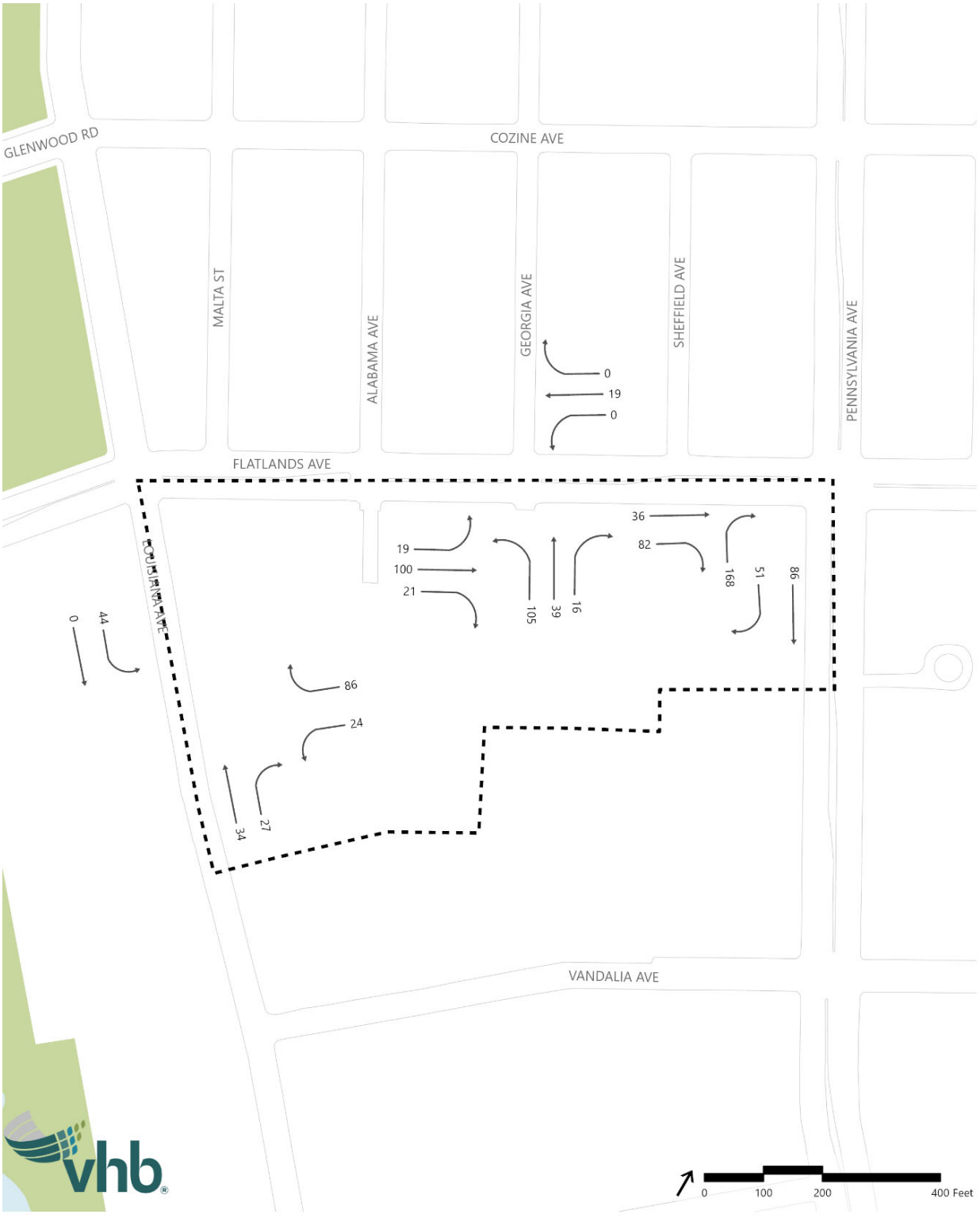


Figure 13-11 Project-Generated Vehicle Trips – Weekday Midday Peak Hour (North Study Area)



Figure 13-12 Project-Generated Vehicle Trips – Weekday Midday Peak Hour (South Study Area)



Figure 13-13 Project-Generated Vehicle Trips – Weekday Midday Peak Hour (Project Area)

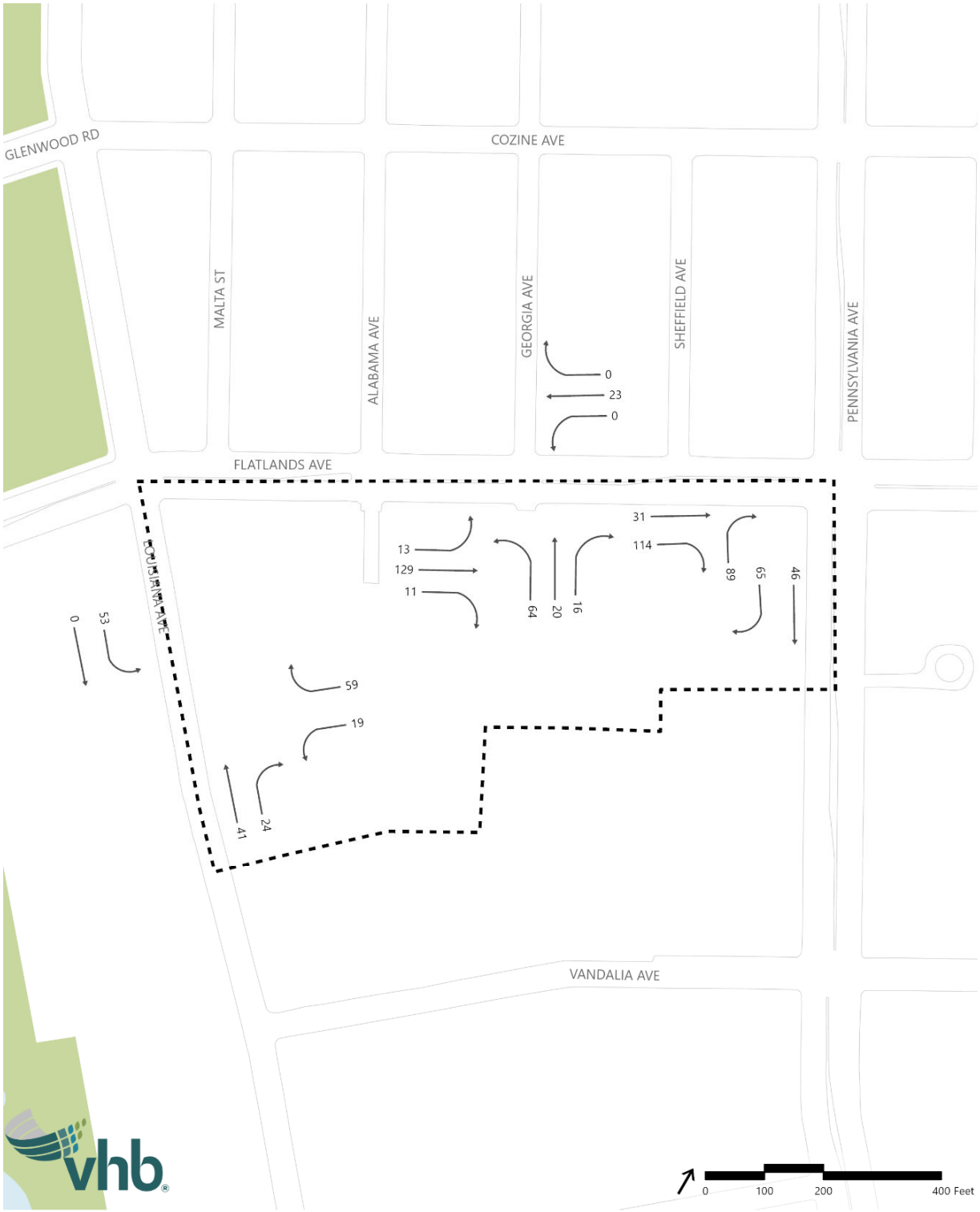


Figure 13-14 Project-Generated Vehicle Trips – Weekday PM Peak Hour (North Study Area)



Figure 13-15 Project-Generated Vehicle Trips – Weekday PM Peak Hour (South Study Area)



Figure 13-16 Project-Generated Vehicle Trips – Weekday PM Peak Hour (Project Area)

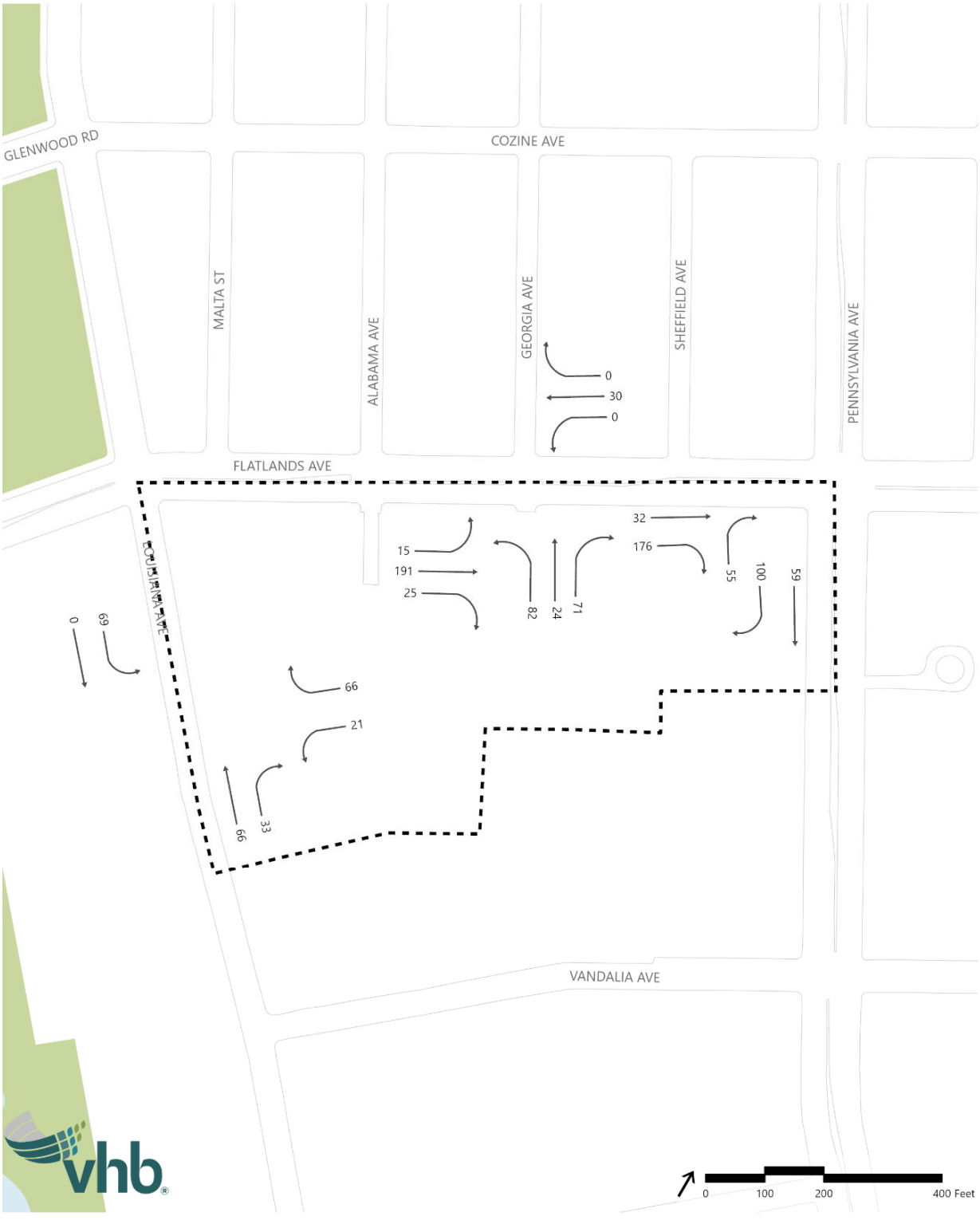


Figure 13-17 Project-Generated Vehicle Trips – Saturday Peak Hour (North Study Area)



Figure 13-18 Project-Generated Vehicle Trips – Saturday Peak Hour (South Study Area)



Figure 13-19 Project-Generated Vehicle Trips – Saturday Peak Hour (Project Area)

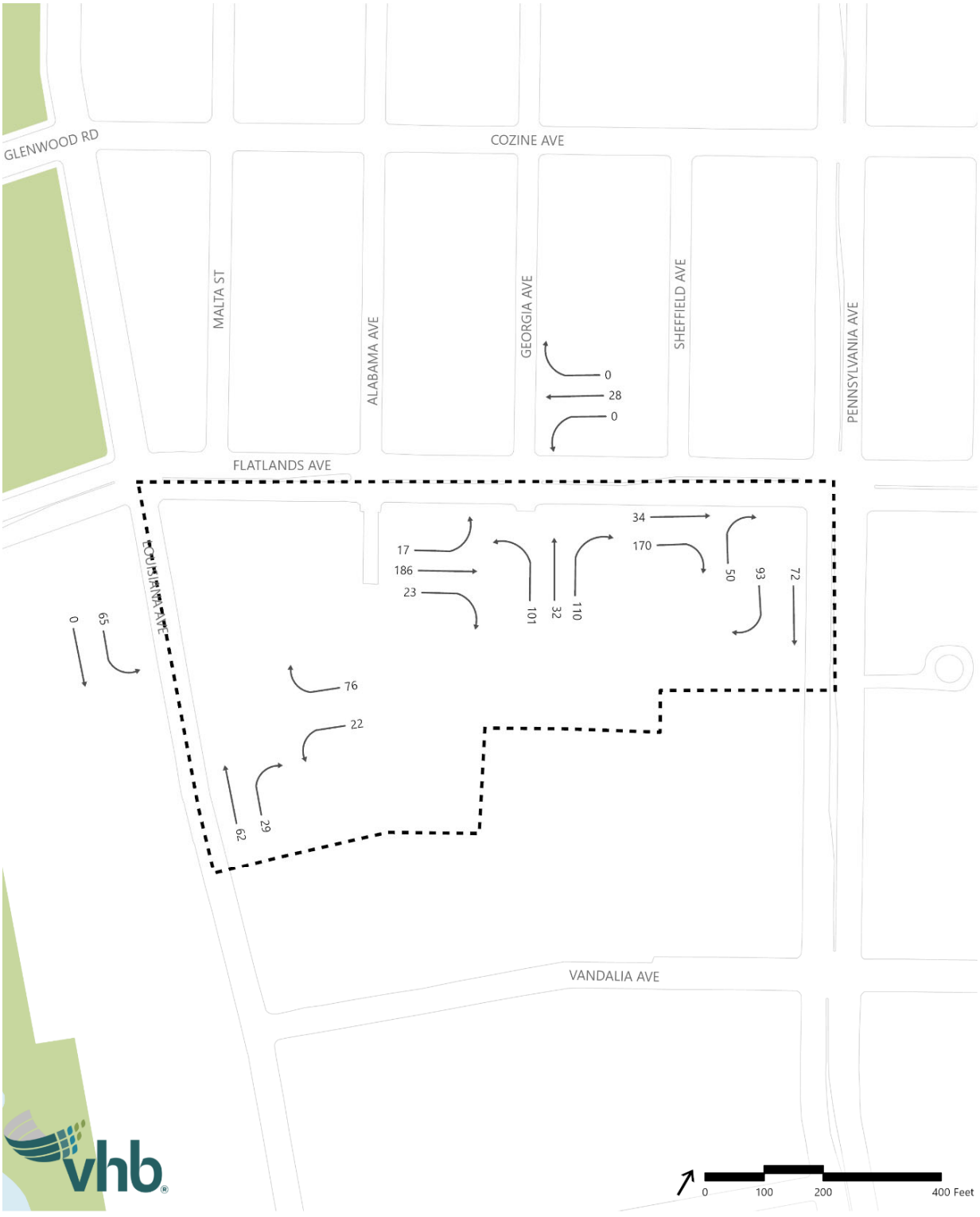


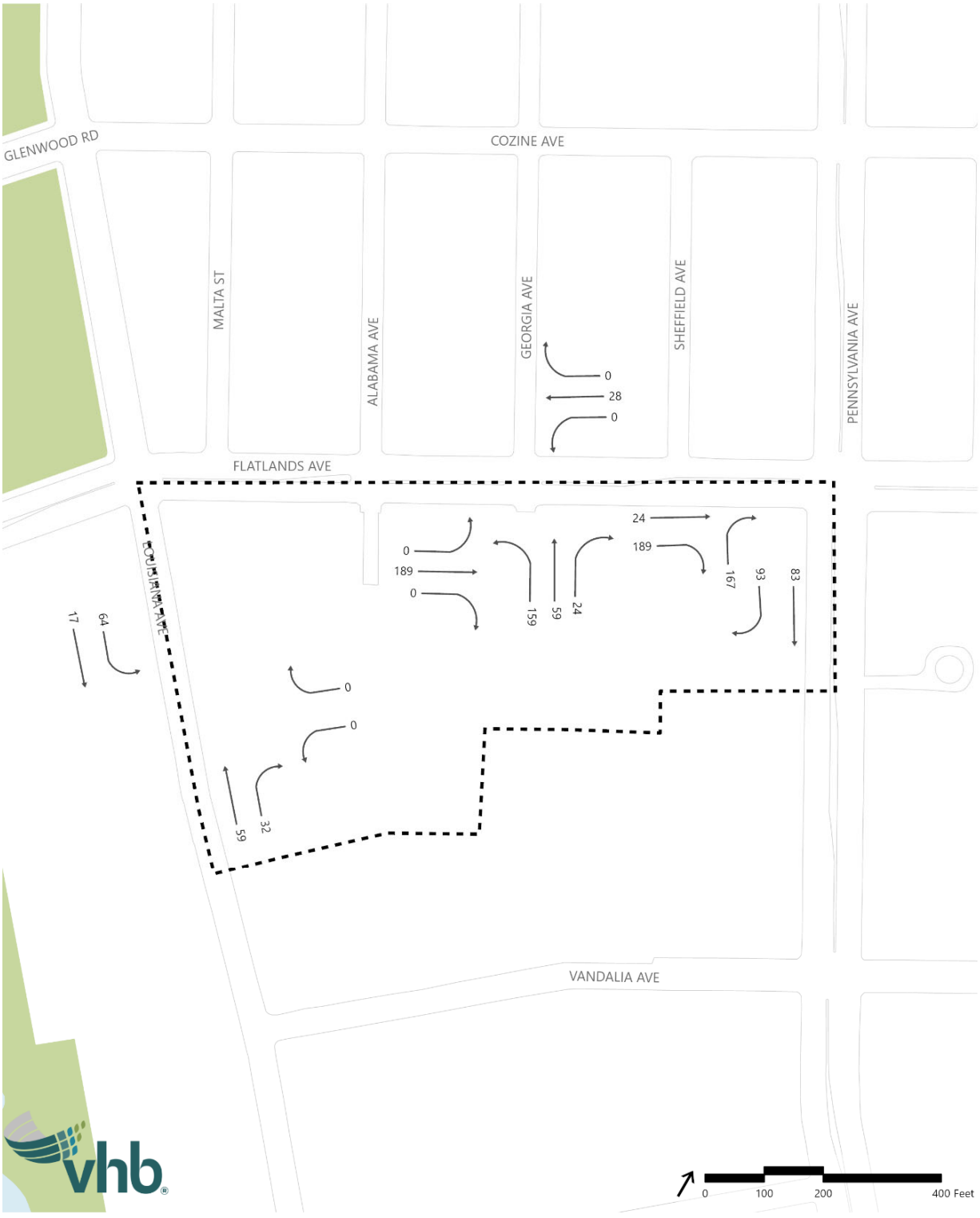
Figure 13-20 Project-Generated Vehicle Trips – Sunday Peak Hour (North Study Area)



Figure 13-21 Project-Generated Vehicle Trips – Sunday Peak Hour (South Study Area)



Figure 13-22 Project-Generated Vehicle Trips – Sunday Peak Hour (Project Area)



Level 2 Screening Results

Traffic

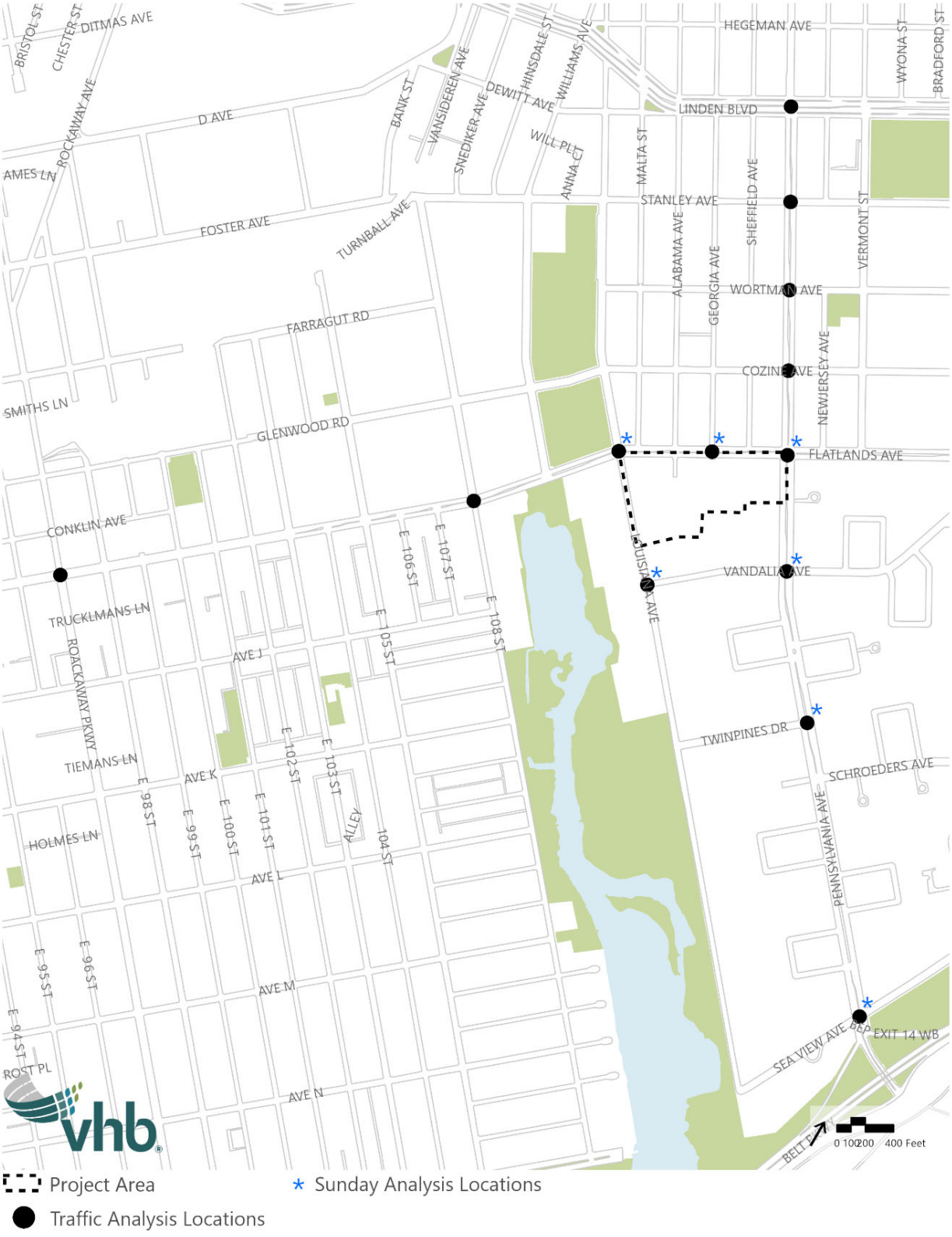
Based on the vehicular traffic assignments described above, the following 13 intersections were identified for analysis for the weekday AM, midday, PM, and Saturday peak hours, and are shown in **Figure 13-23**:

- Pennsylvania Avenue and Seaview Avenue
- Pennsylvania Avenue and Twin Pines Drive
- Pennsylvania Avenue and Vandalia Avenue
- Pennsylvania Avenue and Flatlands Avenue
- Pennsylvania Avenue and Cozine Avenue
- Pennsylvania Avenue and Wortman Avenue
- Pennsylvania Avenue and Stanley Avenue
- Pennsylvania Avenue and Linden Boulevard
- Louisiana Avenue and Vandalia Avenue
- Louisiana Avenue and Flatlands Avenue
- Flatlands Avenue and Georgia Avenue/Site Driveway
- Flatlands Avenue and East 108th Street
- Flatlands Avenue and Rockaway Parkway

During the Sunday peak hour, which coincides with church services, a subset of seven intersections that experience an increase in traffic due to church services are analyzed. These are intersections closest to the church and the Development Site which would be expected to be the focus of the greatest potential issues between church-related traffic and project-generated traffic. These seven intersections include Pennsylvania Avenue with Seaview Avenue, Twin Pines Drive, Vandalia Avenue, and Flatlands Avenue, Louisiana Avenue with Flatlands Avenue and Vandalia Avenue, and the intersection of Flatlands Avenue and Georgia Avenue/Site Driveway.

The proposed driveways along Pennsylvania Avenue, Louisiana Avenue, and at the intersection of Flatlands Avenue and Sheffield Avenue were also included for analysis in the With-Action condition.

Figure 13-23 Traffic Analysis Locations



Subways

Based on the subway transit assignments, an analysis of the Rockaway Parkway (L subway line) station is needed for the weekday AM and PM peak hours. The three station fare control areas that will be used be project-generated trips will be analyzed in addition to a line-haul analysis for the L subway line. The study area subway and bus options are shown in **Figure 13-24**.

Buses

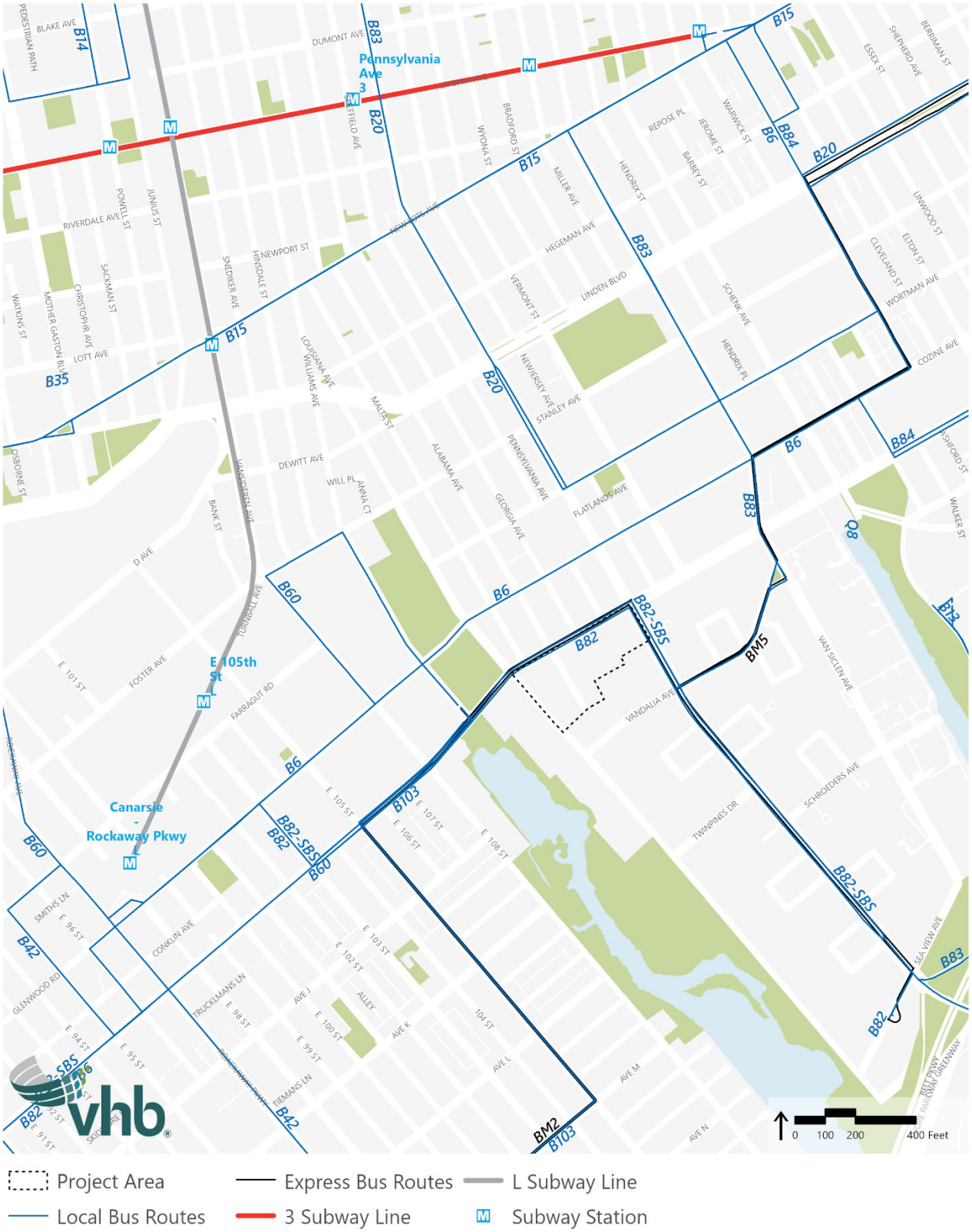
As shown in **Table 13-12**, three bus routes, the B82, B82 SBS, and B83, are expected to experience 50 or more new passenger trips in one direction in at least one peak hour, as a result of project-generated bus trips and bus-to-subway trips, and will therefore require further analysis.

Table 13-12 Project-Generated Bus Trips By Route

		Weekday AM Peak Hour			Weekday PM Peak Hour		
Bus Route	**Direction**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
B6 (west of site)	EB	21	0	21	46	0	46
	WB	0	48	48	0	35	35
B60	EB	21	0	21	46	0	46
	WB	0	48	48	0	35	35
B82	EB	147	0	147	325	0	325
	WB	0	341	341	0	238	238
B82 SBS	EB	94	0	94	325	0	325
	WB	0	219	219	0	153	153
B83 (north of site)	NB	0	127	127	0	88	88
	SB	54	0	54	121	0	121
B103	EB	21	0	21	46	0	46
	WB	0	48	48	0	35	35

Note: Highlighted cells denote 50 or more incremental trips per direction

Figure 13-24 Transit Study Area



Pedestrians

Based on the pedestrian assignments described above, detailed pedestrian level of service analyses are needed at the following pedestrian elements (crosswalks, corners, and sidewalks):

Crosswalk and Corners

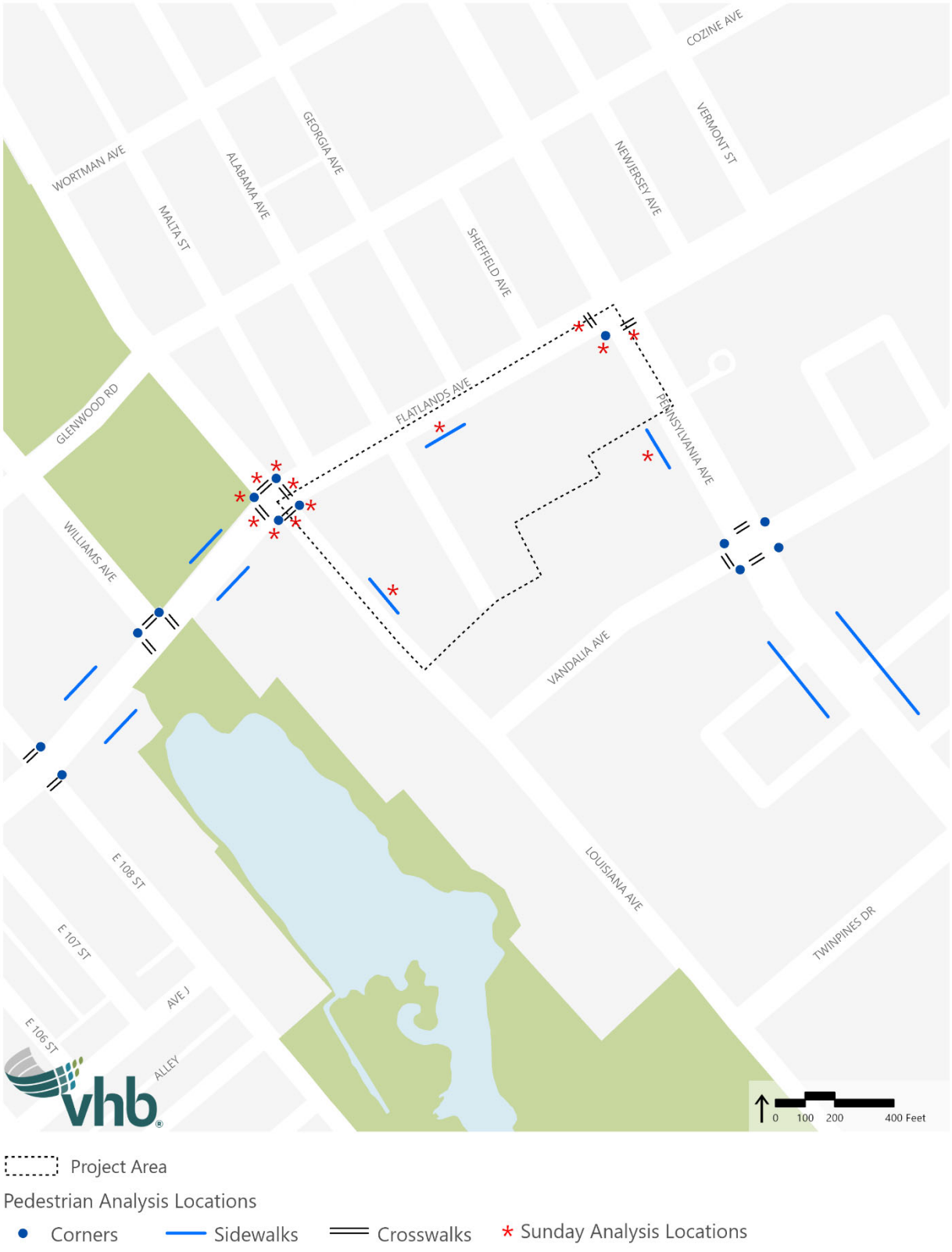
- Pennsylvania Avenue and Flatlands Avenue – south and west crosswalks, and southwest corner
- Pennsylvania Avenue and Vandalia Avenue – north, south and west crosswalks, and all corners
- Flatlands Avenue and Louisiana Avenue – all crosswalks and corners
- Flatlands Avenue and Williams Avenue – all crosswalks and corners
- Flatlands Avenue and East 108th Street – north and south crosswalks, and northeast and southeast corners

Sidewalks

- South sidewalks of Flatlands Avenue between Pennsylvania and Louisiana Avenues
- North and south sidewalks of Flatlands Avenue between Louisiana and Williams Avenues
- North and south sidewalks of Flatlands Avenue between Williams Avenue and East 108th Street
- West sidewalk of Pennsylvania Avenue between Flatlands and Vandalia Avenues
- East and west sidewalks of Pennsylvania Avenue between Vandalia Avenue and Twin Pine Drive
- East sidewalk of Louisiana Avenue between Flatlands and Vandalia Avenues

The pedestrian study area is shown in **Figure 13-25**. Pedestrian analyses will be performed at these elements for the weekday AM, midday, PM, and Saturday peak hours. The sidewalk elements along the Development Site's Flatlands Avenue, Pennsylvania Avenue, and Louisiana Avenue frontages, and crosswalks and corner elements at the intersection of Pennsylvania Avenue and Flatlands Avenue, and Flatlands Avenue and Louisiana Avenue will also be analyzed for the Sunday peak hour (coinciding with church services).

Figure 13-25 Pedestrian Analysis Locations



Detailed Analysis Methodology

This section describes the methodology used for the detailed traffic, subway, bus, and pedestrian analyses.

Traffic

The operation of all signalized and unsignalized intersection analysis locations were assessed using Synchro software which are based on methodologies presented in the *Highway Capacity Manual (HCM)*. The HCM procedures evaluate the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

- LOS A describes operations with very low delays, i.e., 10.0 seconds or less 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 delays in excess of 10.0 seconds up to 20.0 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 delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.
- LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 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 volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.
- LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.
- LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, 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 contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Based on the *CEQR Technical Manual* guidelines, LOS A, B, and C are considered clearly acceptable conditions, LOS D is generally considered tolerably acceptable in dense urban environments, and LOS E and F indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line: LOS A describes operations with very low delay, i.e., 10.0 seconds or less per vehicle; LOS B describes operations with delays in excess of 10.0 seconds up to 15.0 seconds; LOS C has delays in excess of 15.0 seconds up to 25.0 seconds; LOS D, excess of 25.0 seconds up to 35.0 seconds

per vehicle; LOS E, excess of 35.0 seconds up to 50.0 seconds per vehicle. LOS F describes operation with delays in excess of 50.0 seconds per vehicle. This condition exists when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely. Based on *CEQR Technical Manual* guidelines, LOS A, B, C, and D are considered acceptable for unsignalized intersections.

Significant Impact Criteria

The assessment of potential significant traffic impacts of a Proposed Project is based on significant impact criteria defined in the *CEQR Technical Manual*. If a lane group in the future With-Action condition is within acceptable LOS A, B, C, or D, the impact is not considered significant.

For a lane group at With-Action LOS E, an increase in projected delay of 5.0 or more seconds compared to the No-Action condition is considered a significant impact. For a lane group at With-Action LOS F, an increase in projected delay of 4.0 or more seconds compared to the No-Action condition is considered a significant impact. For unsignalized intersections, for the minor street to generate a significant impact, a total approach volume of 90 passenger car equivalents (PCEs) must be identified in the With-Action condition in any peak hour.

Parking

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from additional demand generated by the Proposed Project. This analysis typically encompasses a study area within a quarter mile of the Development Site. If the analysis concludes that there would be a shortfall in parking within the quarter-mile study area, the study area may be extended to a half-mile to identify additional parking supply.

For a Development Site located outside of the New York City Central Business District (CBD) areas, such as this project, a parking shortfall that exceeds the number of available on-street and off-street parking spaces within a quarter-mile of the Development Site may be considered significant. Additional factors, such as the availability and extent of transit in the area and the patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. If there is an adequate parking supply within a half-mile of the Development Site, the projected parking shortfall may not be considered significant.

Transit

The *CEQR Technical Manual* provides methodologies to assess several components of transit operations including the line-haul capacities of bus and subways lines, and the capacity of subway station circulation elements including stairways, escalators, passageway, and fare controls (turnstiles, high entry/exit turnstiles [HEETs], and high exit turnstiles [HXTs]).

Subways

Subway Station Elements

Subway station elements are assessed based on the ratio of passenger volume and the capacity of the element (the v/c ratio). The v/c ratio criteria are used to determine the levels of service which are shown in **Table 13-13**. LOS A and LOS B depict free flow and fluid flow conditions, respectively, at a subway station element. Station elements operating at LOS C still exhibit fluid flow, but pedestrian activities begin to become somewhat restricted. When conditions become crowded and there is restriction to walking speeds, the station element is considered to be operating at LOS D. At LOS E the station element is considered to be congested. There is shuffling and frequent interactions between pedestrians which result in some queueing. Severe congestion with constant queuing signifies that a station element is operating at LOS F.

Table 13-13 Level-of-Service Criteria for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: *CEQR Technical Manual*

Stairways and passageways are analyzed based on the width of the station element and the 15-minute pedestrian flow passing through. These analyses also take into account pedestrian surging resulting from an arriving train or platooning volumes from a major attraction such as a stadium or school (the effect of surging can reduce capacity by up to 25 percent) and friction from pedestrian interactions (the effect of friction can reduce capacity by up to 10 percent). Other station elements including escalators and turnstiles are measured against the operational capacities designated by New York City Transit (NYCT).

Significant Impact Criteria

Significant impacts to stairs and passageways are determined by the width increment threshold (WIT) between the No-Action and With-Action conditions for elements operating at v/c ratios greater than 1.0 in the With-Action condition. The WIT for significant impacts is detailed in **Table 13-14** below. If a stairway or passageway is significantly impacted, mitigation measures identified would need to restore the levels of service back to the No-Action levels of service or to a v/c ratio of 1.0. For escalators and turnstile elements, a With-Action v/c ratio of 1.0 or greater when the No-Action v/c ratio was less than 1.0 is considered a significant impact. For these elements where the No-Action v/c ratio is already in excess of 1.0, an incremental change in the v/c ratio of 0.01 would be considered a significant impact.

Table 13-14 Significant Impact Guidance for Stairs and Passageways

No-Action v/c Ratio	Width Increment Threshold (WIT) for Significant Impacts (Inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Source: *CEQR Technical Manual*

Subway Line-Haul Capacity

Line-haul capacity analyses address the ability of a subway line to accommodate passenger loads at the maximum load point, or the point where the addition of project-generated passengers would be the highest. These analyses are needed when the With-Action increase in passengers surpasses the *CEQR Technical Manual* threshold. For subway cars, the threshold is five or more passengers per subway train car.

NYCT operates six different types of subway train cars with maximum peak period loading capacities ranging from 110 passengers to 175 passengers per car. The capacity of each car assumes full occupancy of all seats and approximately 3 square feet of standing room per passenger.

Significant Impact Criteria

For subway line-haul conditions, *CEQR Technical Manual* criteria specify that any increases in load levels that remain within practical capacity limits are generally not considered significant. However, significant adverse subway line-haul impacts can occur if a Proposed Project is expected to generate an increment averaging five or more riders per subway car on lines projected to carry loads at or exceeding guideline capacity. This is based on the general assumption that when subways are at or above practical capacity, the addition of even five or more riders per car is perceptible.

Buses

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 NYCT loading guidelines of 54 passengers for a 40-foot standard bus and 85 passengers 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.

Significant Impact Criteria

According to the *CEQR Technical Manual* and 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 impact is considered at the route's maximum load point where an increase in bus load levels would exceed the maximum capacity. NYCT's general policy is to provide additional bus service where demand warrants increased service, considering fiscal and operational constraints.

Pedestrians

Pedestrian level of service standards are determined on the basis of walking speed, pedestrian spacing, and probabilities of pedestrian and vehicular conflict, and are assessed based on the methodologies presented in the *2010 Highway Capacity Manual* and the *CEQR Technical Manual*. These standards are primarily based on the space needs of people involved in various activities and are widely used for planning and design of facilities for pedestrians. Analysis of crosswalks, street corners, and sidewalks along key walking paths to and from the Development Site will be performed to assess the adequacy of these pedestrian elements.

To evaluate sidewalks, the pedestrian flow per unit width (p/ft/min) is calculated based on the pedestrian flow and the effective walkway width[3]. The analysis of sidewalk conditions should consider "platoon" flow as is considered more representative of pedestrian activities within New York City. Platooning occurs when pedestrians move in groups or "platoons" as a result of pedestrian metering from a traffic signal or from attractions such as subway stations or bus stops. The ratio of the walking speed[4] over the pedestrian flow per unit width determines the average pedestrian space (sf/p).

Crosswalk conditions are expressed as a measurement of the area available (the area consists of the crosswalk width multiplied by the crossing distance) and available pedestrian crossing time. The pedestrian flow is compared to the "time-space" available to determine the crosswalk level of service, which is expressed as square feet per pedestrian (sf/p). This analysis also takes account of pedestrian conflicts in the crosswalk with turning vehicles.

Similar to crosswalks, street corners must provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the other street or passing around the corner). The analysis applies a measure of time and space availability based on the area of the corner reservoir, pedestrian crossing time available, and the estimated time used by circulating pedestrians.

The level of service standards for pedestrian elements are based on the time and space available per pedestrian during the analysis period. Level of service grades from A to F are assigned, with LOS A representative of free flow conditions without pedestrian conflicts and LOS F depicting significant capacity limitations and inconvenience. **Table 13-15** defines the level of service criteria for crosswalks, corner area, and sidewalk conditions, as per the *2010*

[3] The effective walkway width is the space along the walkway that pedestrians could use that is free of obstruction. This width also takes account of the "shy distance" (the space between pedestrians and the obstacle such as a wall or building façade).

[4] The typical average pedestrian walking speed specified in the *CEQR Technical Manual* is 4.4 feet per second (ft/s). For intersections with school crosswalks or that are located within the Senior Pedestrian Focus Areas, an average pedestrian walking speed of 3.3 ft/s is used.

HCM. The *CEQR Technical Manual* identifies acceptable levels of service in non-CBD areas (such as the area in this study) as LOS C or better, and mid-LOS D or better for CBD areas.

Table 13-15 Level-of-Service Criteria for Pedestrian Elements

LOS	Sidewalks (Platoon Flow)	Corner Reservoirs and Crosswalks
A	> 530 sf/p	> 60 sf/p
B	> 90 and ≤ 530 sf/p	> 40 and ≤ 60 sf/p
C	> 40 and ≤ 90 sf/p	> 24 and ≤ 40 sf/p
D	> 23 and ≤ 40 sf/p	> 15 and ≤ 24 sf/p
E	> 11 and ≤ 23 sf/p	> 8 and ≤ 15 sf/p
F	≤ 11 sf/p	≤ 8 sf/p

Significant Impact Criteria

The identification of significant pedestrian impacts is dependent on the area type (CBD or non-CBD) and is determined by the decrease of time and space available for pedestrians between the No-Action and With-Action conditions. The *CEQR Technical Manual* identifies significant impacts for the pedestrian sidewalk, crosswalk, and corner elements on a sliding scale detailed below. With-Action pedestrian level of service that is considered acceptable (LOS C or better in non-CBD areas, and mid-LOS D or better in CBD areas) would not have a potential for significant impacts.

For sidewalks, the assessment of potential significant impacts is based on a sliding-scale formula provided in the *CEQR Technical Manual*. Consideration as to whether the sidewalk being analyzed is in a CBD or non-CBD condition is necessary.

For sidewalks the formula used to determine the decrease in pedestrian space from the No-Action to With-Action condition that would trigger a significant impact is $Y \geq (X / 9.5) – 0.321$, where Y is the decrease in pedestrian space (sf/p) to be considered a potential significant impact and X is the No-Action pedestrian space (sf/p). If the decrease in pedestrian space is greater than Y and the With-Action level of service is considered to be unacceptable, the sidewalk is considered to be significantly impacted. **Table 13-16** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual*.

For corners and crosswalks, the assessment of potential significant impacts is also based on a sliding-scale formula provided in the *CEQR Technical Manual*. The formula used to determine the decrease in pedestrian space from the No-Action to With-Action condition that would trigger a significant impact is $Y \geq (X / 9.0) – 0.31$, where Y is the decrease in pedestrian space (sf/p) to be considered a potential significant impact and X is the No-Action pedestrian space (sf/p). If the decrease in pedestrian space is greater than Y and the With-Action level of service is considered to be unacceptable, the corner or crosswalk is considered to be significantly impacted. **Table 13-17** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual*.

Table 13-16 Significant Impact Criteria for Sidewalks - Non-CBD Areas

No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)	No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)
>44.3	With-Action Condition <40.0	24.5 to 25.3	≥ 2.3
43.5 to 44.2	≥ 4.3	23.5 to 24.4	≥ 2.2
42.5 to 43.4	≥ 4.2	22.6 to 23.4	≥ 2.1
41.6 to 42.4	≥ 4.1	21.6 to 22.5	≥ 2.0
40.6 to 41.5	≥ 4.0	20.7 to 21.5	≥ 1.9
39.7 to 40.5	≥ 3.9	19.7 to 20.6	≥ 1.8
38.7 to 39.6	≥ 3.8	18.8 to 19.6	≥ 1.7
37.8 to 38.6	≥ 3.7	17.8 to 18.7	≥ 1.6
36.8 to 37.7	≥ 3.6	16.9 to 17.7	≥ 1.5
35.9 to 36.7	≥ 3.5	15.9 to 16.8	≥ 1.4
34.9 to 35.8	≥ 3.4	15.0 to 15.8	≥ 1.3
34.0 to 34.8	≥ 3.3	14.0 to 14.9	≥ 1.2
33.0 to 33.9	≥ 3.2	13.1 to 13.9	≥ 1.1
32.1 to 32.9	≥ 3.1	12.1 to 13.0	≥ 1.0
31.1 to 32.0	≥ 3.0	11.2 to 12.0	≥ 0.9
30.2 to 31.0	≥ 2.9	10.2 to 11.1	≥ 0.8
29.2 to 30.1	≥ 2.8	9.3 to 10.1	≥ 0.7
28.3 to 29.1	≥ 2.7	8.3 to 9.2	≥ 0.6
27.3 to 28.2	≥ 2.6	7.4 to 8.2	≥ 0.5
26.4 to 27.2	≥ 2.5	6.4 to 7.3	≥ 0.4
25.4 to 26.3	≥ 2.4	<6.4	≥ 0.3

Source: 2021 CEQR Technical Manual

Table 13-17 Significant Impact Criteria for Corners and Crosswalks - Non-CBD Areas

No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)	No-Action Ped Space (sf/p)	With-Action Ped Space Reduction (sf/p)
>26.6	With-Action Condition <24.0		
25.8 to 26.6	≥ 2.6	14.1 to 14.9	≥ 1.3
24.9 to 25.7	≥ 2.5	13.2 to 14.0	≥ 1.2
24.0 to 24.8	≥ 2.4	12.3 to 13.1	≥ 1.1
23.1 to 23.9	≥ 2.3	11.4 to 12.2	≥ 1.0
22.2 to 23.0	≥ 2.2	10.5 to 11.3	≥ 0.9
21.3 to 22.1	≥ 2.1	9.6 to 10.4	≥ 0.8
20.4 to 21.2	≥ 2.0	8.7 to 9.5	≥ 0.7
19.5 to 20.3	≥ 1.9	7.8 to 8.6	≥ 0.6
18.6 to 19.4	≥ 1.8	6.9 to 7.7	≥ 0.5
17.7 to 18.5	≥ 1.7	6.0 to 6.8	≥ 0.4
16.8 to 17.6	≥ 1.6	5.1 to 5.9	≥ 0.3
15.9 to 16.7	≥ 1.5	< 5.1	≥ 0.2
15.0 to 15.8	≥ 1.4		

Source: 2021 CEQR Technical Manual

Vehicle and Pedestrian Safety

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high-crash locations, where five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period for which data are available or at locations along a Vision Zero Priority Corridor or Intersection. For these locations, crash trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where the Proposed Project is located, traffic volumes, crash types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified.

Existing Conditions

Traffic

Roadway Network

The Development Site abuts and is surrounded by three roadways in the East New York section of Brooklyn -- Flatlands Avenue, Pennsylvania Avenue, and Louisiana Avenue. Additionally, the Development Site is located near Vandalia Avenue, which extends parallel to Flatlands Avenue just to the south of the Development Site.

The key east-west roadway within the study area is Flatlands Avenue which features a center median that bisects traffic and generally consists of two travel lanes plus a parking lane in each direction with dedicated left turn lanes at selected intersections. The uses along Flatlands Avenue between Rockaway Parkway and Pennsylvania Avenue generally consists of single-story homes, cultural and institutional facilities, retail/commercial uses, and open space. Several bus routes travel along Flatlands Avenue including the B6, B82, and B103.

Pennsylvania Avenue, also referred to as Granville Payne Avenue to the east of the Development Site, is a key north-south roadway in this section of the borough and provides access to the Belt Parkway south of the Development Site and to the Jackie Robinson Parkway to the north. Pennsylvania Avenue generally consists of two travel lanes and a parking lane in each direction with dedicated left turn lanes at selected intersections. The sections of Pennsylvania Avenue south of Flatlands Avenue also feature dedicated bus-only lanes. Within the study area, Pennsylvania Avenue is characterized by low-rise commercial stores including auto body and fast-food establishments between Linden Boulevard and Flatlands Avenue. Between Flatlands Avenue and the Belt Parkway, Pennsylvania Avenue travels through mid-rise and high-rise residential developments including the Starrett City housing complex. Multiple bus routes travel along Pennsylvania Avenue, including the BM2, B82, B82 SBS, and the B83.

Louisiana Avenue runs parallel to Pennsylvania Avenue to the west of the Development Site and provides two-way traffic (generally one travel lane in each direction) with on-street parking from Glenwood Road to Seaview Avenue.

Approximately one-half mile to the north of the Development Site is a key intersection at Linden Boulevard and Pennsylvania Avenue. Linden Boulevard, also known as New York State Route 27, generally has three travel lanes in each direction in the mainline section, for a total of six lanes, with dedicated left turn lanes at selected intersections. On-street parking is permitted along the Linden Boulevard service road, which is generally one travel lane in each direction.

Rockaway Parkway is a north-south roadway located approximately 3/4-mile west of the Development Site. Rockaway Parkway generally consists of one travel lane with parking and a dedicated left turn lane south of Flatlands Avenue. North of Flatlands Avenue, the roadway narrows and features one travel and one dedicated bus-only lane in each direction. The B42 bus route travels along Rockaway Parkway between the Rockaway Parkway L subway station and Canarsie Pier.

Traffic Volumes

Traffic counts were conducted in November 2020 for the weekday AM, midday, PM, and Saturday peak periods using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts during the COVID-19 pandemic. With guidance from NYC DOT and concurrence from DCP, these November 2020 data were adjusted based on historical traffic count data from NYC DOT's traffic database to reflect pre-pandemic levels based on a comparison of traffic volumes between normal pre-pandemic conditions and conditions during the pandemic. An adjustment factor of 1.16 was applied to the with-COVID count data during the weekday AM peak hour based on the comparison with the historical data. However, with-COVID traffic volumes for the weekday midday, PM, and Saturday peak hours were determined to be higher than or similar to the historical data.

Therefore no adjustments were applied for the these peak hours. These volumes were used along with observations of traffic conditions to determine levels of service for the weekday peak hours of 7:30 AM to 8:30 AM, 1:00 PM to 2:00 PM, 4:00 PM to 5:00 PM, and Saturday 2:45 to 3:45 PM.

Due to the pandemic, the CCC church services were held remotely during the November 2020 counts and Sunday peak period counts were not conducted. The CCC resumed in-person services in September 2021, and manual intersection counts and 24-hour ATR machine counts were conducted during the Sunday peak period in September 2021 for the set of seven intersections that experience an increase in traffic due to church services. As church services have not returned to full occupancy, the traffic volumes were adjusted to develop full occupancy, pre-pandemic traffic volumes. An online travel survey was conducted to identify the travel patterns of the CCC's congregation, and used to adjust the September 2021 existing traffic count data, with guidance from NYC DOT and concurrence from DCP, to develop the Sunday peak traffic volume to be used in the analyses. These volumes were compared to the historical data and found to be higher than the historical pre-pandemic levels therefore no further adjustments were needed to the volume. The peak hour of 9:45 AM to 10:45 AM was identified based on the church service times (services are held at 8 AM and 10:30 AM), travel survey results, and historical traffic count data.

During the Sunday church service period, CCC staff are stationed at the Development Site driveways to monitor and direct church-related traffic. During the church service arrival period, traffic cones are implemented to prevent left turns into the site (only right turns are allowed) and the CCC staff direct motorists to areas where parking is available. Entry access for worshippers is provided through the driveways located along Flatlands Avenue while service staff could use the Louisiana Avenue driveway to enter. All three driveways are used for service dismissal to clear out the parking lots as quickly as possible so that arrivals for the next service would have spaces to park. Traffic cones are also implemented during service dismissal so that only right turn exits are allowed.

Northbound Pennsylvania Avenue traffic volumes between Linden Boulevard and Flatlands Avenue range from approximately 1,200 to 1,300 vph during the weekday AM peak hour and 830 vph to 1,000 vph during the weekday midday and PM, and Saturday peak hours. Northbound Pennsylvania Avenue volumes between Flatlands Avenue and the Belt Parkway Ramps range from approximately 1,350 to 1,500 vph during the weekday AM peak hour, and 780 to 910 vph during the weekday midday and PM, and Saturday peak hours. During the Sunday peak hour, northbound Pennsylvania Avenue traffic volumes between Flatlands Avenue and the Belt Parkway ramps range from approximately 930 to 1,130 vph.

Southbound Pennsylvania Avenue traffic volumes between Linden Boulevard and Flatlands Avenue range from approximately 780 to 865 vph during the weekday AM peak hour, 825 to 930 vph during the weekday midday peak hour, 1,025 to 1,130 vph during the weekday PM peak hour and 960 to 1,060 vph during the Saturday peak hour. Southbound Pennsylvania Avenue traffic volumes between Flatlands Avenue and the Belt Parkway Ramps range from approximately 705 to 925 vph during the weekday AM and midday, and Saturday peak hours, and 960 to 1,080 vph during the weekday PM peak hours. During the Sunday peak hour, southbound Pennsylvania Avenue traffic volumes between Flatlands Avenue and the Belt Parkway ramps range from approximately 830 to 960 vph.

Westbound Flatlands Avenue traffic volumes between Pennsylvania Avenue and Rockaway Parkway during the weekday AM and midday peak hours generally range from 585 to 730 vph. During the weekday PM peak hour, volumes range between 800 and 1,030 vph. During the Saturday peak hour, volumes generally range from 850 vph to about 1,200 vph. Approaching Pennsylvania Avenue, westbound Flatlands Avenue volumes are approximately 485 vph in the weekday AM peak hour, 680 vph in the weekday midday and PM peak hours and 840 vph in the Saturday peak hour. During the Sunday peak hour, westbound Flatlands Avenue traffic volumes along the Development Site frontage ranges from approximately 570 to 730 vph.

Eastbound Flatlands Avenue traffic volumes between Pennsylvania Avenue and Rockaway Parkway, during the weekday AM peak hour, range from 450 to 665 vph. During the midday peak hour, traffic volumes range from about 600 to 850 vph. During the weekday PM and Saturday peak hours, traffic volumes range from 700 to 1,050 vph. East of Pennsylvania Avenue, eastbound Flatlands Avenue traffic volumes are approximately 500 vph in the weekday AM peak hour, 700 vph in the weekday midday peak hour, and approximately 950 in the weekday PM and Saturday peak hours. Eastbound Flatlands Avenue traffic volumes are highest during the Sunday peak hour, traffic volumes along the Development Site frontage ranges from approximately 1,160 to 1,400 vph with the highest volumes near the driveway at Georgia Avenue.

Northbound Louisiana Avenue traffic volumes between Glenwood Road/Corzine Avenue and Seaview Avenue, during the weekday AM, midday, and PM peak hours, range from approximately 100 to 330 vph. During the Saturday peak hour, volumes are only slightly higher, ranging from 115 to 405 vph. During the Sunday peak hour, northbound Louisiana Avenue traffic volumes along the Development Site frontage range from approximately 545 to 650 vph.

Southbound Louisiana Avenue traffic volumes between Glenwood Road/Cozine Avenue and Flatlands Avenue are modest during the weekday AM and midday peak hours – approximately 50 vph. South of Flatlands Avenue, traffic volumes during these two peak hours range from 275 to 345 vph. During the weekday PM and Saturday peak hours, volumes are higher, ranging from 245 to 500 vph. During the Sunday peak hour, southbound Louisiana Avenue traffic volumes along the Development Site frontage ranges from approximately 350 to 415 vph.

Westbound Linden Boulevard traffic volumes approaching Pennsylvania Avenue are highest during the weekday AM peak hours (approximately 1785 vph). Traffic volumes along this approach are approximately 1,415 vph during the weekday midday and PM peak hours, and approximately 1,250 vph during the Saturday peak hour. In the eastbound direction, Linden Boulevard traffic approaching Pennsylvania Avenue is highest in the weekday PM peak hour (approximately 2,065 vph). Traffic volumes along this approach is approximately 1,040 vph during the weekday AM peak hour, and 1,390 to 1,475 vph during the weekday midday and Saturday peak hours.

Northbound Rockaway Parkway traffic volumes at the intersection with Flatlands Avenue range from approximately 340 to 485 vph during the weekday AM, midday, PM, and Saturday peak hours. Southbound Rockaway Parkway traffic volumes range from approximately 300 to 385 vph during the same four traffic analysis peak hours.

Vandalia Street, to the south of the Development Site between Pennsylvania Avenue and Louisiana Avenue, carries traffic volumes of 100 to 150 vph in each direction on this basic residential street. Traffic volumes along westbound Vandalia Avenue are highest in the Sunday peak hour (approximately 320 vph) but are similar to other peak hours in the eastbound direction.

Existing traffic volumes are shown in **Figure 13-26** through **Figure 13-33**.

Figure 13-26 Existing Traffic Volumes – Weekday AM Peak Hour (North Study Area)

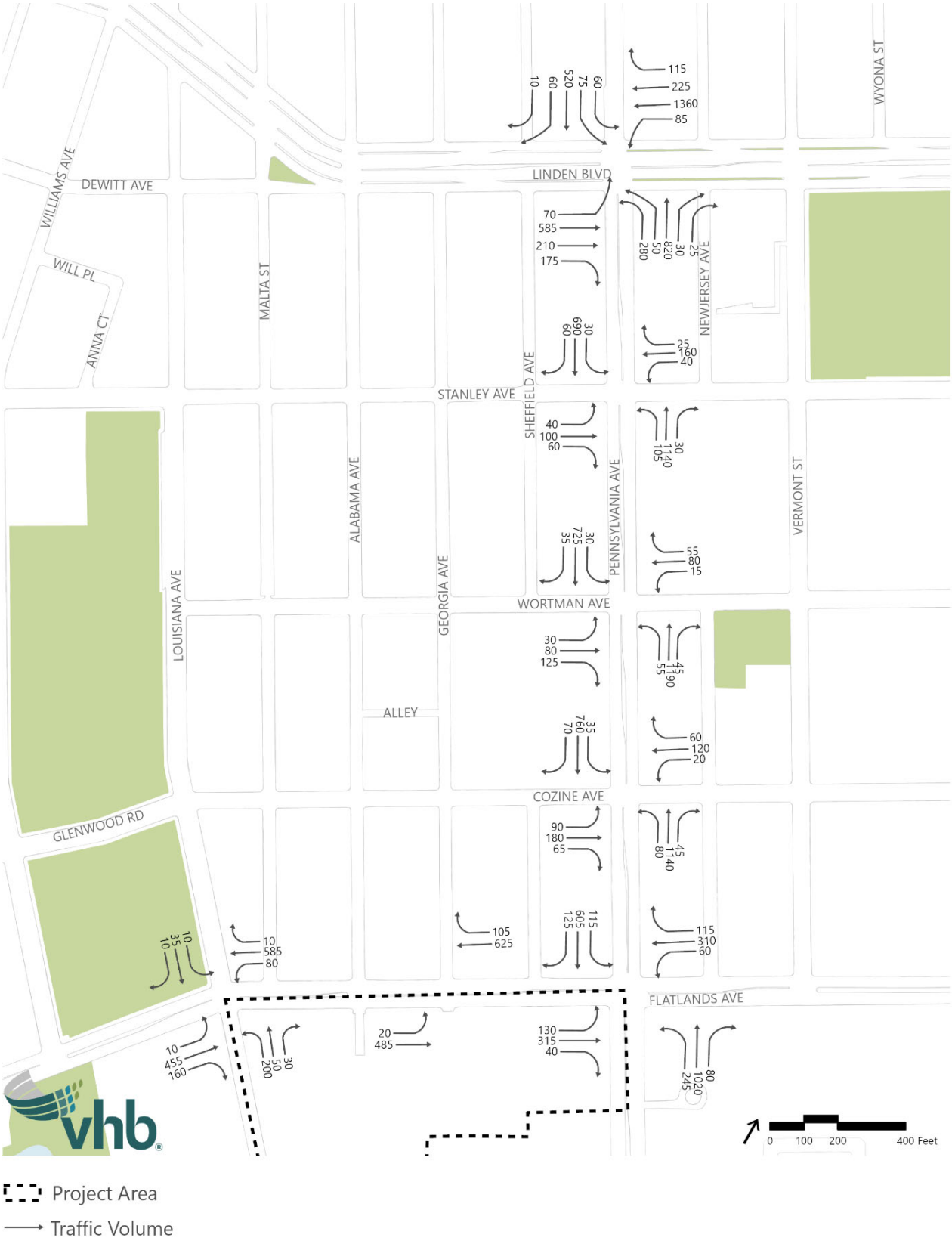


Figure 13-27 Existing Traffic Volumes – Weekday AM Peak Hour (South Study Area)



Figure 13-28 Existing Traffic Volumes – Weekday Midday Peak Hour (North Study Area)



Figure 13-29 Existing Traffic Volumes – Weekday Midday Peak Hour (South Study Area)



Figure 13-30 Existing Traffic Volumes – Weekday PM Peak Hour (North Study Area)



Figure 13-31 Existing Traffic Volumes – Weekday PM Peak Hour (South Study Area)



Figure 13-32 Existing Traffic Volumes – Saturday Peak Hour (North Study Area)



Figure 13-33 Existing Traffic Volumes – Saturday Peak Hour (South Study Area)



Figure 13-34 Existing Traffic Volumes – Sunday Peak Hour



Levels of Service

Table 13-18 and **Table 13-19** provide an overview of the levels of service that characterize existing "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday, PM, Saturday, and Sunday peak hours. Detailed existing traffic levels of service are provided in **Table 13-20** for the weekday and Saturday peak hours, and **Table 13-21** for the Sunday peak hour.

Table 13-18 Year 2020 Existing Traffic Levels of Service Summary – Overall Intersections

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Intersections at Overall LOS A/B/C	11	12	11	11	4
Intersections at Overall LOS D	1	1	1	2	2
Intersections at Overall LOS E	1	0	1	0	0
Intersections at Overall LOS F	0	0	0	0	1

Note: Includes 12 signalized intersections and 1 unsignalized intersection for the weekday and Saturday peak hours, and 6 signalized intersections and 1 unsignalized intersection for the Sunday peak hour

Table 13-19 Year 2020 Existing Traffic Level of Service Summary – Traffic Movements

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Traffic Movements at LOS A/B/C	48	54	45	58	31
Traffic Movements at LOS D	28	25	31	23	11
Traffic Movements at LOS E	10	9	14	9	3
Traffic Movements at LOS F	6	5	3	2	5
Number of Individual Traffic Movements	92	93	93	92	50

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements. The Sunday peak hour analysis addressed a subset of seven out of the 13 traffic analysis locations.

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS																	
Pennsylvania Avenue and Seaview Avenue																	
Seaview Avenue	EB	LT	0.26	40.3	D	LT	0.18	28.9	C	LT	0.22	36.0	D	LT	0.15	17.3	B
		R	0.64	49.9	D	R	0.46	33.1	C	R	0.84	57.7	E	R	0.57	24.8	C
	WB	LTR	0.56	38.4	D	LTR	0.46	35.3	D	LTR	0.50	36.2	D	LTR	0.54	24.1	C
Pennsylvania Avenue	NB	L	0.56	61.3	E	L	0.41	56.8	E	L	0.29	55.6	E	L	0.37	40.4	D
		T	0.78	33.1	C	T	0.44	22.1	C	T	0.41	21.4	C	T	0.58	28.4	C
	SB	L	0.21	72.8	E	L	0.22	70.9	E	L	0.20	50.2	D	L	0.13	52.3	D
		TR	0.59	34.9	C	TR	0.59	27.7	C	TR	0.70	12.2	B	TR	0.73	33.3	C
Shore Parkway Westbound Off-Ramp	NB	TR	0.65	26.0	C	TR	0.33	19.9	B	TR	0.37	20.3	C	TR	0.58	27.1	C
Overall Intersection[2]		-	-	**34.3**	**C**	-	-	**27.1**	**C**	-	-	**24.7**	**C**	-	-	**28.9**	**C**
Pennsylvania Avenue and Twin Pines Drive																	
Twin Pines Drive	EB	LR	0.27	30.5	C	LR	0.61	37.7	D	LR	0.68	41.4	D	LR	0.52	24.1	C
Pennsylvania Avenue	NB	L	0.59	8.7	A	L	0.47	15.7	B	L	0.59	42.1	D	L	0.53	18.9	B
		T	0.77	8.1	A	T	0.43	10.6	B	T	0.38	28.8	C	T	0.50	7.7	A
	SB	T	0.40	18.5	B	T	0.44	5.1	A	T	0.49	8.5	A	T	0.43	6.5	A
		R	0.16	15.8	B	R	0.26	4.8	A	R	0.26	6.2	A	R	0.36	5.9	A
Overall Intersection[2]		-	-	**12.6**	**B**	-	-	**12.5**	**B**	-	-	**21.7**	**C**	-	-	**10.3**	**B**

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Vandalia Avenue																	
Vandalia Avenue	EB	LTR	0.27	38.0	D	LTR	0.40	44.0	D	LTR	0.39	42.5	D	LTR	0.37	25.0	C
	WB	LTR	0.68	46.5	D	LTR	0.70	48.3	D	LTR	0.77	54.9	D	LTR	0.59	31.0	C
Pennsylvania Avenue	NB	L	0.42	44.7	D	L	0.90	106.8	F	L	0.44	36.4	D	L	0.38	50.1	D
		T	0.86	10.6	B	T	0.46	7.3	A	T	0.53	13.8	B	T	0.66	30.2	C
		R	0.17	3.2	A	R	0.20	6.6	A	R	0.19	10.9	B	R	0.23	23.0	C
	SB	L	0.19	29.3	C	L	0.37	66.4	E	L	0.52	39.6	D	L	0.25	46.1	D
		T	0.43	17.1	B	T	0.46	35.8	D	T	0.57	18.7	B	T	0.57	36.5	D
		R	0.08	15.1	B	R	0.08	27.8	C	R	0.06	13.4	B	R	0.07	29.7	C
Overall Intersection[2]		-	-	**17.3**	**B**	-	-	**28.8**	**C**	-	-	**22.6**	**C**	-	-	**32.4**	**C**
Pennsylvania Avenue and Flatlands Avenue																	
Flatlands Avenue	EB	L	0.50	38.8	D	L	0.62	47.8	D	L	0.50	44.8	D	L	0.59	41.6	D
		T	0.39	35.3	D	T	0.56	38.5	D	T	0.73	43.3	D	T	0.61	28.4	C
		R	0.10	24.2	C	R	0.30	27.4	C	R	0.34	28.0	C	R	0.18	18.8	B
	WB	L	0.24	31.8	C	L	0.38	39.0	D	L	0.43	47.1	D	L	0.40	31.8	C
		T	0.43	36.2	D	T	0.51	37.4	D	T	0.59	39.2	D	T	0.70	30.6	C
		R	0.26	26.5	C	R	0.38	28.9	C	R	0.25	26.4	C	R	0.29	20.3	C
Pennsylvania Avenue	NB	L	0.88	39.5	D	L	0.46	45.1	D	L	0.72	36.0	D	L	0.93	67.4	E
		T	0.93	22.6	C	T	0.55	28.0	C	T	0.53	24.5	C	T	0.57	19.0	B
		R	0.20	8.9	A	R	0.29	23.2	C	R	0.33	23.7	C	R	0.36	15.4	B
	SB	L	0.74	62.0	E	L	0.63	38.3	D	L	0.58	23.4	C	L	0.98	64.9	E
		T	0.57	42.7	D	T	0.61	18.3	B	T	0.69	14.6	B	T	0.65	14.0	B
		R	0.35	40.1	D	R	0.39	15.0	B	R	0.50	13.9	B	R	0.65	18.6	B
Overall Intersection[2]		-	-	**33.0**	**C**	-	-	**30.6**	**C**	-	-	**28.9**	**C**	-	-	**28.5**	**C**

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Cozine Avenue																	
Cozine Avenue	EB	LTR	0.86	55.7	E	LTR	0.83	48.5	D	LTR	0.90	58.3	E	LTR	1.03	81.9	F
	WB	LTR	0.48	33.1	C	LTR	0.53	34.6	C	LTR	0.61	36.8	D	LTR	0.83	44.6	D
Pennsylvania Avenue	NB	L	0.43	9.2	A	L	0.30	9.2	A	L	0.27	11.6	B	L	0.38	8.7	A
		TR	0.76	13.4	B	TR	0.58	9.0	A	TR	0.52	10.3	B	TR	0.47	5.7	A
	SB	L	0.41	18.0	B	L	0.26	6.8	A	L	0.29	8.7	A	L	0.26	5.3	A
		TR	0.59	10.6	B	TR	0.62	10.6	B	TR	0.66	16.2	B	TR	0.60	10.0	A
Overall Intersection[2]		-	-	**19.4**	**B**	-	-	**17.9**	**B**	-	-	**23.1**	**C**	-	-	**23.8**	**C**
Pennsylvania Avenue and Wortman Avenue																	
Wortman Avenue	EB	LTR	0.66	43.7	D	LTR	0.67	44.4	D	LTR	0.84	56.8	E	LTR	0.63	32.3	C
	WB	LTR	0.41	35.9	D	LTR	0.40	35.3	D	LTR	0.60	41.4	D	LTR	0.52	28.8	C
Pennsylvania Avenue	NB	L	0.60	81.5	F	L	0.55	57.9	E	L	0.55	57.3	E	L	0.49	35.4	D
		TR	0.91	16.9	B	TR	0.72	33.6	C	TR	0.61	28.7	C	TR	0.70	24.1	C
	SB	L	0.40	57.0	E	L	0.43	73.1	E	L	0.53	72.1	E	L	0.58	42.7	D
		TR	0.60	17.1	B	TR	0.66	9.4	A	TR	0.70	13.2	B	TR	0.77	26.4	C
Overall Intersection[2]		-	-	**23.0**	**C**	-	-	**27.2**	**C**	-	-	**29.1**	**C**	-	-	**27.1**	**C**

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Stanley Avenue																	
Stanley Avenue	EB	LTR	0.83	67.5	E	LTR	0.70	52.8	D	LTR	0.71	52.3	D	LTR	0.71	37.2	D
	WB	LTR	0.79	61.1	E	LTR	0.78	57.2	E	LTR	0.83	65.0	E	LTR	0.91	55.1	E
Pennsylvania Avenue	NB	L	0.72	81.9	F	L	0.54	71.6	E	L	0.55	56.4	E	L	0.51	64.6	E
		TR	0.79	7.0	A	TR	0.61	5.8	A	TR	0.52	11.4	B	TR	0.64	9.9	A
	SB	L	0.25	39.7	D	L	0.46	49.3	D	L	0.48	59.6	E	L	0.44	25.6	C
		TR	0.59	35.2	D	TR	0.54	22.4	C	TR	0.64	15.9	B	TR	0.71	35.6	D
Overall Intersection[2]		-	-	**29.6**	**C**	-	-	**23.9**	**C**	-	-	**24.8**	**C**	-	-	**30.6**	**C**
Pennsylvania Avenue and Linden Boulevard																	
Linden Boulevard Main Line	EB	L	0.65	74.4	E	L	0.96	119.7	F	L	0.73	79.4	E	L	0.75	78.8	E
		T	0.54	36.7	D	T	0.67	39.5	D	T	0.97	59.9	E	T	0.73	32.9	C
	WB	L	0.84	101.6	F	L	0.87	105.3	F	L	0.83	95.4	F	L	0.92	107.4	F
		T	0.92	49.7	D	T	0.74	41.5	D	T	0.56	37.0	D	T	0.70	32.1	C
Pennsylvania Avenue	NB	L	1.05	81.0	F	L	1.02	84.6	F	L	0.98	96.6	F	L	1.00	69.3	E
		T	1.04	82.9	F	T	0.84	32.7	C	T	0.67	48.2	D	T	0.67	45.5	D
		R	0.21	46.4	D	R	0.38	21.2	C	R	0.32	42.6	D	R	0.35	44.0	D
	SB	L	0.85	79.2	E	L	0.72	56.9	E	L	0.66	50.5	D	L	0.62	38.5	D
		TR	0.77	43.9	D	TR	0.66	39.6	D	TR	0.79	44.4	D	TR	0.78	36.0	D
Linden Boulevard Eastbound Service Rd	EB	T	0.54	39.5	D	T	0.55	39.6	D	T	0.76	48.4	D	T	0.60	33.4	C
		R	0.37	27.7	C	R	0.43	28.8	C	R	0.48	30.1	C	R	0.44	23.7	C
Linden Boulevard Westbound Service Rd	WB	TR	0.91	66.7	E	T	1.02	88.9	F	T	1.05	93.6	F	TR	0.78	43.1	D
		-	-	-	-	R	0.19	32.3	C	R	0.17	31.9	C	-	-	-	-
Overall Intersection[2]		-	-	**56.7**	**E**	-	-	**49.3**	**D**	-	-	**56.1**	**E**	-	-	**39.9**	**D**

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Vandalia Avenue																	
Vandalia Avenue	WB	LR	0.31	16.7	B	LR	0.36	21.9	C	LR	0.29	14.4	B	LR	0.35	17.7	B
Louisiana Avenue	NB	TR	0.30	13.3	B	TR	0.27	7.2	A	TR	0.27	9.6	A	TR	0.30	9.1	A
	SB	LT	0.47	11.2	B	LT	0.51	11.8	B	LT	0.71	16.3	B	LT	0.66	14.8	B
Overall Intersection[2]		-	-	**12.9**	**B**	-	-	**12.6**	**B**	-	-	**14.4**	**B**	-	-	**13.8**	**B**
Louisiana Avenue and Flatlands Avenue																	
Flatlands Avenue	EB	L	0.04	20.3	C	L	0.08	19.5	B	L	0.29	30.4	C	L	0.27	35.1	D
		T	0.42	22.8	C	T	0.54	25.0	C	T	0.63	27.1	C	T	0.69	28.9	C
		R	0.35	22.8	C	R	0.44	24.6	C	R	0.35	22.7	C	R	0.38	24.9	C
	WB	L	0.23	21.4	C	L	0.31	26.0	C	L	0.36	31.2	C	L	0.38	30.0	C
		TR	0.50	24.1	C	TR	0.41	22.5	C	TR	0.58	25.7	C	TR	0.89	38.2	D
Louisiana Avenue	NB	L	0.62	42.4	D	L	0.66	43.9	D	L	0.87	70.0	E	L	0.82	49.5	D
		TR	0.25	36.7	D	TR	0.27	37.1	D	TR	0.34	38.2	D	TR	0.39	28.7	C
	SB	L	0.04	28.8	C	L	0.02	29.0	C	L	0.08	31.3	C	L	0.12	21.6	C
		TR	0.16	35.4	D	TR	0.12	34.8	C	TR	0.62	46.4	D	TR	0.64	35.8	D
Overall Intersection[2]		-	-	**26.8**	**C**	-	-	**27.7**	**C**	-	-	**33.0**	**C**	-	-	**34.8**	**C**
Flatlands Avenue and East 108th Street																	
Flatlands Avenue	EB	L	0.11	11.9	B	L	0.16	13.4	B	L	0.18	16.1	B	L	0.27	25.6	C
		TR	0.37	14.9	B	TR	0.49	17.7	B	TR	0.59	19.1	B	TR	0.62	23.2	C
	WB	L	0.31	14.9	B	L	0.41	21.1	C	L	0.71	39.9	D	L	0.92	57.8	E
		TR	0.40	15.4	B	TR	0.39	16.1	B	TR	0.51	17.4	B	TR	0.75	26.5	C
East 108th Street	NB	LTR	0.96	83.1	F	LTR	0.93	77.2	E	LTR	0.84	63.9	E	LTR	0.94	59.2	E
	SB	LTR	0.52	45.1	D	LTR	0.61	48.1	D	LTR	0.81	61.6	E	LTR	0.58	30.6	C
Overall Intersection[2]		-	-	**30.0**	**C**	-	-	**28.9**	**C**	-	-	**29.5**	**C**	-	-	**34.4**	**C**

Table 13-20 Year 2020 Existing Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Flatlands Avenue and Rockaway Parkway																	
Flatlands Avenue	EB	L	0.22	35.6	D	L	0.23	33.4	C	L	0.30	42.6	D	L	0.27	35.5	D
		TR	0.58	34.6	C	TR	0.72	37.3	D	TR	0.85	45.5	D	TR	0.94	50.7	D
	WB	L	0.10	30.0	C	L	0.15	33.0	C	L	0.14	38.2	D	L	0.16	31.3	C
		TR	0.69	37.5	D	TR	0.60	33.6	C	TR	0.79	41.5	D	TR	0.96	52.2	D
Rockaway Parkway	NB	L	0.42	28.5	C	L	0.43	28.5	C	L	0.48	28.4	C	L	0.62	29.1	C
		TR	0.65	32.2	C	TR	0.45	27.8	C	TR	0.42	26.0	C	TR	0.51	22.3	C
	SB	LT	0.83	53.9	D	LT	0.66	43.8	D	LT	0.69	43.3	D	LT	0.94	64.3	E
		R	0.35	34.9	C	R	0.28	34.4	C	R	0.35	34.8	C	R	0.19	26.9	C
Overall Intersection[2]		-	-	**37.8**	**D**	-	-	**35.0**	**D**	-	-	**40.2**	**D**	-	-	**47.0**	**D**
UNSIGNALIZED INTERSECTIONS																	
Flatlands Avenue and Georgia Avenue																	
Flatlands Avenue	EB	LTR	-	1.3	A	LTR	-	1.2	A	LTR	-	1.6	A	LTR	-	1.1	A
	WB	L	-	0.0	A	L	-	0.0	A	L	-	0.0	A	L	-	0.0	A
		TR	-	0.0	A	TR	-	0.0	A	TR	-	0.0	A	TR	-	0.0	A
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**0.3**	**A**	-	-	**0.4**	**A**	-	-	**0.3**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Table 13-21 Year 2020 Existing Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS					
Pennsylvania Avenue and Seaview Avenue					
Seaview Avenue	EB	LT	0.07	16.3	B
		R	0.41	21.1	C
	WB	LTR	0.28	18.9	B
Pennsylvania Avenue	NB	L	0.29	39.9	D
		T	1.00	64.6	E
	SB	L	0.07	53.6	D
		TR	0.91	44.3	D
Shore Parkway Westbound Off-Ramp	NB	TR	0.42	24.3	C
Overall Intersection[2]		-	-	**42.0**	**D**
Pennsylvania Avenue and Twin Pines Drive					
Twin Pines Drive	EB	LR	0.34	20.7	C
Pennsylvania Avenue	NB	L	1.05	90.9	F
		T	0.64	14.6	B
	SB	T	0.54	5.3	A
		R	0.26	3.6	A
Overall Intersection[2]		-	-	**18.0**	**B**
Pennsylvania Avenue and Vandalia Avenue					
Vandalia Avenue	EB	LTR	0.23	22.8	C
	WB	LTR	0.40	26.1	C
Pennsylvania Avenue	NB	L	0.98	101.3	F
		T	0.67	35.5	D
		R	0.18	28.1	C
	SB	L	0.11	39.9	D
		T	0.68	28.8	C
		R	0.37	24.8	C
Overall Intersection[2]		-	-	**34.9**	**C**

Table 13-21 Year 2020 Existing Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue					
Flatlands Avenue	EB	L	1.02	78.4	E
		T	0.63	29.2	C
		R	0.89	46.3	D
	WB	L	0.36	29.0	C
		T	0.36	24.4	C
		R	0.25	19.8	B
Pennsylvania Avenue	NB	L	1.00	76.6	E
		T	0.61	17.4	B
		R	0.28	11.3	B
	SB	L	0.80	53.9	D
		T	0.57	27.5	C
		R	0.55	32.9	C
Overall Intersection[2]		-	-	**37.1**	**D**
Louisiana Avenue and Vandalia Avenue					
Vandalia Avenue	WB	LR	0.72	27.3	C
Louisiana Avenue	NB	TR	0.38	9.9	A
	SB	LT	0.48	11.3	B
Overall Intersection[2]		-	-	**15.8**	**B**
Louisiana Avenue and Flatlands Avenue					
Flatlands Avenue	EB	L	0.10	20.7	C
		T	0.78	32.3	C
		R	0.76	51.8	D
	WB	L	0.49	35.3	D
		TR	0.53	25.6	C
Louisiana Avenue	NB	L	0.85	53.7	D
		TR	1.24[3]	160.0	F
	SB	L	1.45[3]	258.8	F
		TR	0.70	39.4	D
Overall Intersection[2]		-	-	**82.7**	**F**

Table 13-21 Year 2020 Existing Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS					
Flatlands Avenue and Georgia Avenue/Site Driveway					
Flatlands Avenue	EB	LTR	-	4.2	A
	WB	L	-	0.0	A
		TR	-	0.0	A
Site Driveway	NB	LTR	-	73.5	F
Overall Intersection[2]		-	-	**9.9**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] The movement v/c ratio exceeds 1.05 due to demand generated by existing CCC church traffic, per consultation with NYC DOT

The summary overview of existing conditions indicates that:

- In the weekday AM peak hour, one intersection operates at overall LOS E or F. "Overall" LOS E or F means that serious congestion exists – either one specific traffic movement has severe delays or two or more of the specific traffic movements at the intersection are at LOS E or F with significant delays (the overall intersection level of service is a weighted average of all individual traffic movements). Sixteen individual traffic movements out of 92 movements analyzed are at LOS E or F (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.).
- In the weekday midday peak hour, no intersections operate at overall LOS E or F, and 14 out of 93 individual traffic movements operate at LOS E or F.
- In the weekday PM peak hour, one intersection operates at overall LOS E or F, and 17 out of 93 individual traffic movements operate at LOS E or F.
- In the Saturday peak hour, no ~~intersection~~intersections operate at overall LOS E or F, and 11 out of 92 individual traffic movements operate at LOS E or F.
- In the Sunday peak hour, one intersection operates at overall LOS E or F, and eight out of 50 individual traffic movements operate at LOS E or F.

Traffic movements operating at unacceptable levels of service (LOS E or F) are listed below. The majority of these movements are left and right turns from the key roadways in the area (e.g., Pennsylvania Avenue and Flatlands Avenue) or along the minor street approach along these key roadways.

- Pennsylvania Avenue and Seaview Avenue
  - Eastbound Seaview Avenue right turn movement (weekday PM)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
  - Northbound Pennsylvania Avenue through movement (Sunday)
  - Southbound Pennsylvania Avenue left turn movement (weekday AM and midday)
- Pennsylvania Avenue and Twin Pines Drive
  - Northbound Pennsylvania Avenue left turn movement (Sunday)

- Pennsylvania Avenue and Vandalia Avenue
  - Northbound Pennsylvania Avenue left turn movement (weekday midday and Sunday)
  - Southbound Pennsylvania Avenue left turn movement (weekday midday)
- Pennsylvania Avenue and Flatlands Avenue
  - Eastbound Flatlands Avenue left turn movement (Sunday)
  - Northbound Pennsylvania Avenue left turn movement (Saturday and Sunday)
  - Southbound Pennsylvania Avenue left turn movement (weekday AM and Saturday)
- Pennsylvania Avenue and Cozine Avenue
  - Eastbound Cozine Avenue approach (weekday AM, PM, and Saturday)
- Pennsylvania Avenue and Wortman Avenue
  - Eastbound Wortman Avenue approach (weekday PM)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
  - Southbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
- Pennsylvania Avenue and Stanley Avenue
  - Eastbound Stanley Avenue approach (weekday AM)
  - Westbound Stanley Avenue approach (weekday AM, midday, PM, and Saturday)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)
  - Southbound Pennsylvania Avenue left turn movement (weekday PM)
- Pennsylvania Avenue and Linden Boulevard
  - Eastbound Linden Boulevard Main Line left turn movement (weekday AM, midday, PM, and Saturday)
  - Eastbound Linden Boulevard Main Line through movement (weekday PM)
  - Westbound Linden Boulevard Main Line left turn movement (weekday AM, midday, PM, and Saturday)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)
  - Northbound Pennsylvania Avenue through movement (weekday AM)
  - Southbound Pennsylvania Avenue left turn movement (weekday AM and midday)
  - Westbound Linden Boulevard Service Road shared through-right movement (weekday AM)
  - Westbound Linden Boulevard Service Road through movement (weekday midday and PM)
- Louisiana Avenue and Flatlands Avenue
  - Northbound Louisiana Avenue left turn movement (weekday PM)
  - Northbound Louisiana Avenue shared through-right movement (Sunday)
  - Southbound Louisiana Avenue left turn movement (Sunday)

- Flatlands Avenue and East 108th Street
  - Westbound Flatlands Avenue left turn movement (Saturday)
  - Northbound East 108th Street approach (weekday AM, midday, PM, and Saturday)
  - Southbound East 108th Street approach (weekday PM)
- Flatlands Avenue and Rockaway Parkway
  - Southbound Rockaway Parkway shared left-through movement (Saturday)
- Flatlands Avenue and Georgia Avenue/Site Driveway
  - Northbound Site Driveway approach (Sunday)

Parking

A detailed inventory of on-street parking within approximately a quarter mile of the Development Site was conducted on a typical weekday, Saturday, and Sunday when church is in service. Per the *CEQR Technical Manual,* the quarter-mile distance is considered an acceptable walking distance to and from parking.

On-street parking regulations, capacities and occupancies were inventoried for a quarter-mile radius on a block-by-block basis. The majority of streets within the study area have non-metered parking or "No Parking" restrictions at certain times due to street cleaning regulations or truck loading (i.e., No Parking 9:30 AM – 11 AM Monday and Thursday). Metered parking spaces are provided on the commercial shopping strip along Pennsylvania Avenue between Flatlands Avenue and Stanley Avenue, and along the minor streets approaching Pennsylvania Avenue. There are approximately 2,800 legal on-street parking spaces within the entire parking study area (with approximately 40 additional spaces available after school hours and during the weekends). On weekdays, approximately 74 percent of on-street parking spaces are occupied during the weekday AM and PM periods, 72 percent are occupied during the weekday midday period, 66 percent are occupied during the weekday overnight period, and 68 percent are occupied during the Saturday period.

Within the Development Site there are about 385 marked surface spaces on the western portion of the site surrounding the CCC, and approximately 350 to 440 unmarked spaces on the undeveloped eastern portion of the site. Existing on-site parking is mainly used during church services which typically occur on Tuesday evenings and Sunday mornings/midday; during other times, on-site parking is lightly utilized. During the Sunday peak hour (10 AM to 11 AM), the on-site parking demand is approximately 810 parking spaces. Approximately 86 percent of the approximately 2,840 on-street parking spaces are occupied during this time.

Subways

The closest subway stations are located over a half-mile from the Development Site. The East 105th Street subway station is the closest station and provides service to the L subway line, while the Rockaway Parkway station (service to the L subway line) and Pennsylvania Avenue station (service to the No. 3 subway line) are within ¾-mile to a mile from the Development Site. Because of this distance to the subway stations, it is expected that all subway trips

would rely on connecting bus service or shuttle service to access the site.[5] Based on the subway transit assignments, the Rockaway Parkway L subway station was identified for analysis during the weekday AM and PM commuter peak hours.

Subway Station Elements

The L subway line operates between the Canarsie-Rockaway Parkway station in Brooklyn and the Eighth Avenue /14th Street station in Manhattan. As discussed in the trip assignments, approximately 80 percent of project-generated subway trips are assumed to use the L subway line connecting to it via the B82 and B82 SBS bus route.

The Rockaway Parkway subway station operates with a single, center platform and was renovated in 2020 with ADA improvements and upgrades to the adjacent bus terminal which serves the B6, B42, B82, and B82 SBS bus routes. That station provides free transfers between the L subway line and the B42 bus route, as well westbound B6, B82, and B82 SBS bus routes.

There are three fare control areas located along Rockaway Parkway, to the Canarsie Municipal Parking Field, and along Glenwood Road; the Rockaway Parkway and Glenwood Road fare controls would be used by project-generated trips and were therefore identified for analysis. The Rockaway Parkway fare control area is split between two sets of turnstile arrays – a five-turnstile array at the station's entrance and a four-turnstile array leading to the bus terminal. The Glenwood Road fare control consists of one high entry-exit turnstile (HEET) and one high exit only turnstile (HXT).

Pedestrian counts were conducted at the subway station elements identified above in June 2021 during the COVID-19 pandemic and were adjusted to reflect pre-pandemic levels based on guidance provided by NYCT. **Table 13-22** shows the results of the level of service analyses at the analyzed fare control areas. The fare control areas generally operate at LOS A during the AM and PM peak hours with the exception of the Glenwood Road fare control which operates at LOS D during the AM peak hour. As part of the recent station renovations, there is no fence or other barrier behind the Glenwood Road fare control and the vast majority of subway riders were observed to not use the fare control and instead walk directly into the station without paying the fare. For the purposes of a conservative analysis, NYCT recommended that all subway riders accessing the station at this fare control be assumed to use the fare control. It is assumed that condition will be resolved in the future conditions.

[5] The Proposed Project would provide shuttle service to the East 105th Street L subway station and the Pennsylvania Avenue No. 3 line subway station. However, as requested by New York City Transit, for the purposes of a conservative transit analysis, it is assumed that all subway trips would use public buses to reach the subway stations.

Table 13-22 Existing Subway Station Levels of Service

Peak Hour	Control Element	Pedestrian Volume (15-min) In	Pedestrian Volume (15-min) Out	Surging Factor	Friction Factor	v/c Ratio	LOS
AM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	91	32	0.75	0.90	0.08	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	411	51	0.75	0.90	0.24	A
	Glenwood Road 1 HEET, 1 HXT	292	23	0.75	0.90	1.30	D
PM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	39	252	0.75	0.90	0.17	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	133	246	0.75	0.90	0.18	A
	Glenwood Road 1 HEET, 1 HXT	60	108	0.75	0.90	0.41	A

Note:
Methodology based on *2021 CEQR Technical Manual* guidelines
Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.
Does not assume fare evasion at the Glenwood Road fare control per NYCT's guidance.

Subway Line-Haul

Existing subway line-haul conditions for the L subway line serving the Rockway Parkway station are summarized in **Table 13-23**. The analysis examines the peak hour load passing through the maximum load point of the subway line in the peak direction. The peak direction of travel on this line is northbound (Manhattan-bound) in the weekday AM peak hour (the maximum load point is at the Bedford Avenue station) and southbound (Brooklyn-bound) in the PM peak hour (the maximum load point is at the First Avenue station). The peak direction subway line operates at a v/c ratio of 0.99 during the AM peak hour and 1.02 during the PM peak hour; a v/c ratio of 1.0 signifies that the subway line haul is at capacity.

Table 13-23 Existing Subway Line-Haul Analysis

Peak Hour	Route and Direction	Max Load Point (leaving station)	Average Passengers Per Hour[1]	Average Trains Per Hour[1]	Average Cars Per Hour[1]	Average Passengers Per Car[1]	Guideline Passengers Per Car[2]	V/C Ratio[3]
AM	L – NB	Bedford Ave	22,633	19.8	158	143	145	0.99
PM	L – SB	First Ave	20,672	17.5	140	148	145	1.02

Notes:
[1] Based on 2017 – 2018 ridership and train throughput data from NYCT
[2] Guideline capacities are based on NYCT rush hour loading guidelines which vary by car type, line, and location based on frequency and type of service.
[3] Volume to guideline capacity ratio

Buses

The study area is served by several MTA-NYCT local bus routes – B6, B60, B82, B82 SBS (which operates on weekdays), B83, and B103 bus routes – and by the BM2 and BM5 express bus routes. Based on the trip assignments, three bus routes were identified for analysis – the B82, B82 SBS, and B83 – during the AM and PM commuter peak hours. The B82 and B82 SBS bus routes operate between Spring Creek and Coney Island, operating along Pennsylvania Avenue and Flatlands Avenue near the Development Site, and provide bus connections between the Development Site and the Rockaway Parkway L subway station. The B83 bus route operates between East New York (starting at the Broadway Junction subway station) and Gateway Center Mall and provides bus connections between the Development Site and the Pennsylvania Avenue No. 3 subway station.

Table 13-24 shows the existing number of buses and ridership at the maximum load points in each direction for the B82, B82 SBS and B83 bus routes in the AM and PM peak hours. Although the maximum load points for the B82 and B82 SBS bus route are located at stops in central sections of Brooklyn, since the vast majority of project-generated bus trips are bus-to-subway transfers, the maximum load points identified are bus stops between the Development Site and Rockaway Parkway L subway station. The bus routes analyzed currently operate with available capacity at their maximum load points during the peak hours analyzed.

Table 13-24 Existing Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[2]	Average Passengers per Bus	Available Peak Hour Capacity[3]
AM	B82	EB	Glenwood Rd & Rockaway Pkwy	6	77	13	247
		WB	Glenwood Rd & E 102 St	7	132	19	246
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	10	224	22	316
		WB	Flatlands Av & E 105 St	9	262	29	224
	B83	NB	Van Siclen Ave & Hegeman Ave	10	473	47	67
		SB	Pennsylvania Av & Livonia Av	7	177	25	201
PM	B82	EB	Glenwood Rd & Rockaway Pkwy	8	143	18	289
		WB	Glenwood Rd & E 102 St	6	89	15	235
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	6	192	32	132
		WB	Flatlands Av & E 105 St	5	93	19	177
	B83	NB	Van Siclen Ave & Hegeman Ave	5	160	32	110
		SB	New Lots Av & Pennsylvania Av	7	240	34	138

Notes:
Based on most currently available timetables (September and October 2018)
[2] Based on most currently available data from NYCT (October 2019)
[3] Available capacities based on NYCT loading guidelines of 54 passengers per standard bus

Pedestrians

Pedestrian counts were conducted in November 2020 at key potential impact locations for the weekday AM, midday, PM, and Saturday peak periods for two typical weekdays and two Saturdays, when NYC public schools were in session. With the guidance of NYC DOT, these 2020 data were adjusted to represent pre-COVID conditions. These adjustments were determined based on a comparison of the 2020 data and historic data that were obtained from NYC DOT's traffic count database. An adjustment factor of 1.65 was applied to the weekday AM peak hour, and a factor of 1.39 was applied to the weekday midday, PM, and Saturday PM peak hours. The pedestrian weekday peak hours of 7:15 AM to 8:15 AM, 12:00 PM to 1:00 PM, and 4:15 PM to 5:15 PM and the Saturday peak hour of 2:45 PM to 3:45 PM were selected for analysis. Pedestrian volumes during these peak hours are shown in **Figure 13-35** through **Figure 13-38**.

Due to the pandemic, the CCC church services were held remotely during the November 2020 counts and Sunday peak period counts were not conducted. The CCC resumed in-person services in September 2021, and pedestrian counts were conducted during the Sunday peak period for pedestrian elements along the Development Site frontages. As church services have not returned to full occupancy, the pedestrian volumes were adjusted to develop full occupancy, pre-pandemic pedestrian volumes. An adjustment factor of 1.39 was applied to the Sunday peak hour pedestrian volumes. An online travel survey was conducted to identify the travel patterns of the CCC's congregation, and used to adjust the existing pedestrian count data, with guidance from NYC DOT and concurrence from DCP, to develop the Sunday peak pedestrian volumes. The peak hour of 9:45 AM to 10:45 AM was identified based on the church service times and travel survey results. Pedestrian volumes during the Sunday peak hour are shown in **Figure 13-39**.

Figure 13-35 Existing Pedestrian Volumes – Weekday AM Peak Hour



Figure 13-36 Existing Pedestrian Volumes – Weekday Midday Peak Hour



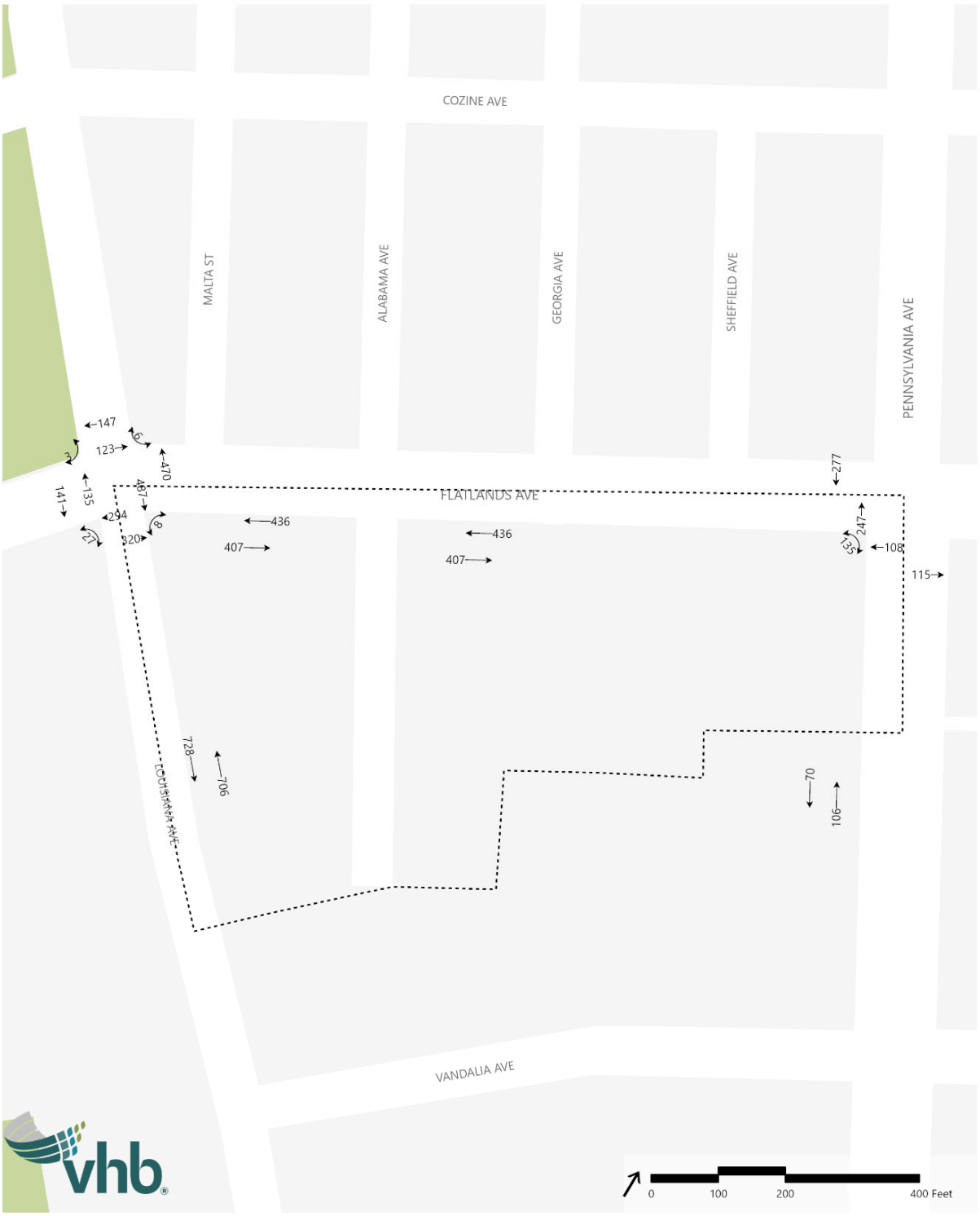
Figure 13-37 Existing Pedestrian Volumes – Weekday PM Peak Hour



Figure 13-38 Existing Pedestrian Volumes – Saturday Peak Hour



Figure 13-39 Existing Pedestrian Volumes – Sunday Peak Hour



As shown in **Table 13-25**, all sidewalk, crosswalk, and corner areas operate at acceptable LOS B or better during the weekday and Saturday peak hours. Six of the 14 pedestrian elements analyzed for the Sunday peak hour operate at unacceptable levels of service (LOS D, E or F) due to the pedestrian activities related to church services.

The existing peak hour volumes and levels of service for each pedestrian element analyzed for the weekday and Saturday peak hours are presented in **Table 13-26** through **Table 13-28,** and **Table 13-29** through **Table 13-31** for the Sunday peak hour.

Table 13-25 Year 2020 Existing Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	PM Peak Weekday Hour	Saturday Peak Hour	Sunday Peak Hour
Sidewalk Elements					
Sidewalks at LOS A/B/C	9	9	9	9	2
Sidewalks at LOS D	0	0	0	0	1
Sidewalks at LOS E	0	0	0	0	0
Sidewalks at LOS F	0	0	0	0	0
Crosswalk Elements					
Crosswalks at LOS A/B/C	14	14	14	14	3
Crosswalks at LOS D	0	0	0	0	2
Crosswalks at LOS E	0	0	0	0	0
Crosswalks at LOS F	0	0	0	0	1
Corner Elements					
Corners at LOS A/B/C	13	13	13	13	3
Corners at LOS D	0	0	0	0	1
Corners at LOS E	0	0	0	0	0
Corners at LOS F	0	0	0	0	1

Note: Includes nine sidewalk, 14 crosswalk, and 13 corner analysis locations for the weekday and Saturday peak hours, and three sidewalks, six crosswalks, and five corner analysis locations for the Sunday peak hour.

Table 13-26 Year 2020 Existing Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	5.5	26	1,815.0	A	33	1,675.4	A	28	1,555.7	A	41	1,555.7	A
Flatlands Avenue between Louisiana Avenue and Williams Avenue (north side)	9.0	26	3,564.0	A	18	3,960.0	A	18	4,455.0	A	65	1,697.1	A
Flatlands Avenue between Louisiana Avenue and Williams Avenue (south side)	11.0	59	1,675.4	A	100	1,405.1	A	99	1,405.1	A	92	1,405.1	A
Flatlands Avenue between Williams Avenue and East 108th Street (north side)	8.5	26	3,366.0	A	27	3,740.0	A	39	2,589.2	A	65	1,602.8	A
Flatlands Avenue between Williams Avenue and East 108th Street (south side)	9.0	54	1,980.0	A	72	1,620.0	A	105	1,018.2	A	92	1,149.6	A
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	41	815.2	A	133	384.9	B	76	554.3	A	84	533.0	A
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (east side)	6.5	71	919.2	A	90	887.5	A	49	1,514.1	A	78	953.3	A

Table 13-26 Year 2020 Existing Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (west side)	5.5	139	435.5	B	139	463.3	B	105	725.9	A	123	473.4	B
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	5.5	13	3,111.4	A	29	1,675.4	A	41	1,361.2	A	20	3,111.4	A

Table 13-27 Year 2020 Existing Pedestrian Levels of Service – Crosswalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Crosswalk	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	18	700.5	A	28	477.4	A	34	461.7	A	33	381.1	A
	West	24	928.9	A	104	347.3	A	73	375.3	A	84	120.5	A
Pennsylvania Avenue and Vandalia Avenue	*North*	48	350.7	A	48	323.3	A	38	455.8	A	64	196.7	A
	South	73	244.1	A	67	240.6	A	66	308.3	A	55	295.1	A
	West	89	640.3	A	101	703.1	A	76	818.4	A	101	420.9	A
Flatlands Avenue and Louisiana Avenue	*North*	22	2,092.5	A	25	1,654.5	A	29	2,026.3	A	28	1,135.0	A
	East	9	1,088.4	A	14	911.0	A	14	755.9	A	13	724.5	A
	South	20	2,087.8	A	29	1,625.7	A	30	1,493.5	A	44	644.6	A
	West	11	881.7	A	22	421.8	A	21	421.8	A	19	409.2	A
Flatlands Avenue and Williams Avenue	*North*	29	1,893.8	A	49	1,302.3	A	29	2,479.2	A	32	1,646.5	A
	East	45	373.5	A	58	405.9	A	34	347.8	A	44	373.2	A
	West	13	1,246.4	A	23	959.0	A	40	298.3	A	35	403.1	A
Flatlands Avenue and East 108th Street	*North*	19	2,004.2	A	35	1,480.5	A	55	852.8	A	40	824.5	A
	South	34	1,498.0	A	113	492.6	A	88	629.1	A	97	232.3	A

Table 13-28 Year 2020 Existing Pedestrian Levels of Service – Corners (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Corner	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*Southwest*	13	1,165.2	A	18	661.0	A	6	777.5	A	13	629.5	A
Pennsylvania Avenue and Vandalia Avenue	*Northeast*	2	781.3	A	4	656.7	A	1	852.9	A	6	493.1	A
	Southeast	20	680.0	A	22	664.4	A	11	790.5	A	19	594.5	A
	Southwest	14	547.5	A	15	619.1	A	7	747.5	A	13	640.1	A
	Northwest	5	421.8	A	11	425.0	A	16	490.0	A	10	342.1	A
Flatlands Avenue and Louisiana Avenue	*Northeast*	0	2,117.1	A	0	1,723.6	A	0	1,832.9	A	0	1,834.1	A
	Southeast	10	1,712.4	A	10	1,532.7	A	5	1,457.0	A	9	1,227.8	A
	Southwest	8	2,336.9	A	7	1,465.3	A	7	1,583.6	A	4	1,518.7	A
	Northwest	2	1,632.9	A	0	1,216.3	A	3	1,284.8	A	1	1,361.3	A
Flatlands Avenue and Williams Avenue	*Northeast*	9	905.5	A	6	791.5	A	0	1,347.1	A	9	945.4	A
	Northwest	20	1,351.8	A	6	1,198.9	A	39	697.1	A	21	953.5	A
Flatlands Avenue and East 108th Street	*Northeast*	8	1,896.5	A	21	1,099.6	A	7	1,036.6	A	10	1,239.4	A
	Southeast	4	1,957.6	A	17	750.4	A	20	810.0	A	20	722.4	A

Table 13-29 Year 2020 Existing Pedestrian Levels of Service – Sidewalks (Sunday Peak Hour)

Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	5.5	843	61.1	C
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	176	231.6	B
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	5.5	1,434	37.6	D

Table 13-30 Year 2020 Existing Pedestrian Levels of Service – Crosswalks (Sunday Peak Hour)

Intersection	Crosswalk	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	223	37.1	C
	West	524	17.5	D
Flatlands Avenue and Louisiana Avenue	*North*	270	73.4	A
	East	957	1.5	F
	South	614	28.1	C
	West	276	19.1	D

Table 13-31 Year 2020 Existing Pedestrian Levels of Service – Corners (Sunday Peak Hour)

Intersection	Corner	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*Southwest*	135	63.7	A
Flatlands Avenue and Louisiana Avenue	*Northeast*	6	17.9	D
	Southeast	8	6.5	F
	Southwest	27	73.5	A
	Northwest	3	65.7	A

No-Action Conditions

Traffic

Traffic Volumes

This section establishes the baseline (No-Action) condition against which potential impacts of the project can be identified. Future year conditions were analyzed for the year 2031. No-Action traffic, pedestrian, and transit volumes were established by applying a background growth rate of 0.50 percent per year for the first five years (years 2020 to 2025) and a growth rate of 0.25 percent per year for the subsequent six years (years 2025 to 2031) in accordance with *CEQR Technical Manual* guidelines for Brooklyn projects. This background growth is applied to existing traffic volumes and accounts for smaller projects and general increases in travel demand.

Several developments are being planned and will be expected to be developed by the year 2031 within the study area. Three projects were identified in consultation with DCP to be incorporated in the 2031 No-Action condition analyses, totaling approximately 4,832

residential units, 223,633 sf of commercial space, 86,016 sf of community facility, 29,746 sf of light manufacturing, and 12,252 sf of office space. These projects are located approximately a half-mile to one mile to the east of the Development Site and a portion of the No-Action's project-generated vehicles would be expected to travel through the traffic study area. These background development projects are detailed in **Table 13-32**. No-Action traffic volume maps for the weekday AM, midday, PM, Saturday, and Sunday peak hours – including annual background traffic growth plus traffic expected to be generated by the three No-Action development projects - are provided in **Figure 13-40** through **Figure 13-47**.

Table 13-32 Background Development Projects

No.	Project Name/Address	Description	Projected Completion Date
1	**Gateway Estates II**	1,040 residential units	Expected to be completed by 2031
2	**Brooklyn ~~Development~~Developmental Center**	2,623 residential units 143,993 sf of commercial space 55,384 sf of community facility 29,746 sf of light manufacturing	2031
3	**Fountain Avenue Land Use Improvement and Residential Project**	1,169 residential units 67,388 sf of local retail 12,252 restaurant space 12,252 sf of medical office 12,252 sf of office space 18,380 sf day care center	2028

Figure 13-40 No-Action Traffic Volumes – Weekday AM Peak Hour (North Study Area)



Figure 13-41 No-Action Traffic Volumes – Weekday AM Peak Hour (South Study Area)



Figure 13-42 No-Action Traffic Volumes – Weekday Midday Peak Hour (North Study Area)



Figure 13-43 No-Action Traffic Volumes – Weekday Midday Peak Hour (South Study Area)



Figure 13-44 No-Action Traffic Volumes – Weekday PM Peak Hour (North Study Area)



Figure 13-45 No-Action Traffic Volumes – Weekday PM Peak Hour (South Study Area)



Figure 13-46 No-Action Traffic Volumes – Saturday Peak Hour (North Study Area)



Figure 13-47 No-Action Traffic Volumes – Saturday Peak Hour (South Study Area)



Figure 13-48 No-Action Traffic Volumes – Sunday Peak Hour



Changes to the Study Street Network

Pedestrian safety and mobility improvements have been identified as a part of the Southern Brooklyn Crosstown (B82) Select Bus Service project. Within the study area, improvements include restriping of crosswalks along the Pennsylvania Avenue and Flatlands Avenue corridors, and extension of the corner curbs at the intersections of Pennsylvania Avenue with Flatlands Avenue and Vandalia Avenue, and Louisiana Avenue and Flatlands Avenue. While the *Gateway Estates II EIS* identified measures to mitigate traffic impacts resulting from the project, these measures are no longer applicable due to recent roadway improvements implemented by NYC DOT as part of bus projects along Pennsylvania Avenue and Rockaway Parkway. The No-Action traffic analysis, however, does reflect signal timing changes proposed at the intersection of Pennsylvania Avenue and Flatlands Avenue as a mitigation measure for the *Brooklyn ~~Development~~Developmental Center Mixed-Use Development FEIS (2021)* during the weekday AM, midday, and PM peak hours, and signal phasing changes (inclusion of a leading pedestrian interval) at the intersection of Pennsylvania Avenue and Cozine Avenue implemented by NYC DOT after the existing conditions.

Levels of Service

Based on the traffic volume increases and traffic operations changes mentioned above, the 2031 No-Action traffic levels of service were determined for the traffic analysis locations. **Table 13-33** and **Table 13-34** provide an overview of the levels of service that are projected to characterize the No-Action "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday, PM, Saturday, and Sunday peak hours. Detailed traffic levels of service are provided in **Table 13-35** for the weekday and Saturday peak hours, and **Table 13-36** for the Sunday peak hour.

Table 13-33 Year 2031 No-Action Traffic Level of Service Summary – Overall Intersections

	Existing					No-Action				
	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Intersections at Overall LOS A/B/C	11	12	11	11	4	10	11	10	8	4
Intersections at Overall LOS D	1	1	1	2	2	2	2	2	4	2
Intersections at Overall LOS E	1	0	1	0	0	1	0	1	1	0
Intersections at Overall LOS F	0	0	0	0	1	0	0	0	0	1

Note: Includes 12 signalized intersections and 1 unsignalized intersection for the weekday and Saturday peak hours, and 6 signalized intersections and 1 unsignalized intersection for the Sunday peak hour

Table 13-34 Year 2031 No-Action Traffic Level of Service Summary – Traffic Movements

	Existing					No-Action				
	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Traffic Movements at LOS A/B/C	48	54	45	58	31	44	50	44	54	29
Traffic Movements at LOS D	28	25	31	23	11	31	27	26	23	10
Traffic Movements at LOS E	10	9	14	9	3	10	9	17	7	3
Traffic Movements at LOS F	6	5	3	2	5	7	7	6	8	8
Number of Individual Traffic Movements	92	93	93	92	50	92	93	93	92	50

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements. The Sunday peak hour analysis addressed a subset of seven of the 13 traffic analysis locations.

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS																	
Pennsylvania Avenue and Seaview Avenue																	
Seaview Avenue	EB	LT	0.27	41.1	D	LT	0.19	29.4	C	LT	0.23	36.0	D	LT	0.16	17.4	B
		R	0.67	51.8	D	R	0.47	34.0	C	R	0.87	60.3	E	R	0.60	25.5	C
	WB	LTR	0.58	39.3	D	LTR	0.48	35.8	D	LTR	0.52	36.8	D	LTR	0.57	24.8	C
Pennsylvania Avenue	NB	L	0.58	62.6	E	L	0.42	56.9	E	L	0.31	55.8	E	L	0.38	40.4	D
		T	0.81	35.0	C	T	0.46	22.5	C	T	0.43	21.7	C	T	0.60	29.1	C
	SB	L	0.22	76.7	E	L	0.23	67.8	E	L	0.21	50.3	D	L	0.13	54.5	D
		TR	0.61	29.5	C	TR	0.62	27.5	C	TR	0.72	14.3	B	TR	0.76	33.6	C
Shore Parkway Westbound Off-Ramp	NB	TR	0.68	26.7	C	TR	0.35	20.1	C	TR	0.38	20.5	C	TR	0.61	27.7	C
Overall Intersection[2]		-	-	**33.7**	**C**	-	-	**27.3**	**C**	-	-	**26.0**	**C**	-	-	**29.4**	**C**
Pennsylvania Avenue and Twin Pines Drive																	
Twin Pines Drive	EB	LR	0.34	36.0	D	LR	0.77	51.4	D	LR	0.84	57.9	E	LR	0.56	25.8	C
Pennsylvania Avenue	NB	L	0.51	15.3	B	L	0.41	13.7	B	L	0.51	30.1	C	L	0.51	37.8	D
		T	0.75	8.0	A	T	0.41	9.4	A	T	0.37	22.7	C	T	0.54	23.2	C
	SB	T	0.48	27.6	C	T	0.50	9.9	A	T	0.56	10.0	A	T	0.59	8.8	A
		R	0.19	24.1	C	R	0.29	7.9	A	R	0.30	7.7	A	R	0.52	9.4	A
Overall Intersection[2]		-	-	**16.2**	**B**	-	-	**15.9**	**B**	-	-	**22.4**	**C**	-	-	**18.6**	**B**

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Vandalia Avenue																	
Vandalia Avenue	EB	LTR	0.28	38.3	D	LTR	0.42	42.5	D	LTR	0.40	42.9	D	LTR	0.39	25.4	C
	WB	LTR	0.71	48.6	D	LTR	0.74	50.8	D	LTR	0.81	58.6	E	LTR	0.62	32.3	C
Pennsylvania Avenue	NB	L	0.43	46.1	D	L	0.94	117.3	F	L	0.45	46.7	D	L	0.40	38.8	D
		T	0.90	12.4	B	T	0.48	6.8	A	T	0.55	6.2	A	T	0.69	20.3	C
		R	0.18	3.6	A	R	0.21	6.2	A	R	0.20	5.3	A	R	0.24	15.2	B
	SB	L	0.20	33.4	C	L	0.38	64.2	E	L	0.53	41.5	D	L	0.26	44.9	D
		T	0.45	19.2	B	T	0.48	35.9	D	T	0.59	18.1	B	T	0.59	36.8	D
		R	0.08	16.8	B	R	0.08	27.3	C	R	0.06	12.8	B	R	0.08	29.6	C
Overall Intersection[2]		-	-	**19.1**	**B**	-	-	**29.1**	**C**	-	-	**20.2**	**C**	-	-	**28.3**	**C**
Pennsylvania Avenue and Flatlands Avenue																	
Flatlands Avenue	EB	L	0.54	43.5	D	L	0.66	50.8	D	L	0.55	49.7	D	L	0.70	50.6	D
		T	0.51	39.6	D	T	0.70	41.6	D	T	0.95	63.9	E	T	0.75	32.1	C
		R	0.12	26.3	C	R	0.32	28.4	C	R	0.37	29.9	C	R	0.19	18.9	B
	WB	L	0.26	34.3	C	L	0.44	44.1	D	L	0.49	53.6	D	L	0.51	40.6	D
		T	0.57	41.4	D	T	0.58	38.2	D	T	0.72	44.6	D	T	0.79	33.8	C
		R	0.41	31.4	C	R	0.44	30.9	C	R	0.31	28.7	C	R	0.35	21.2	C
Pennsylvania Avenue	NB	L	0.94	47.4	D	L	0.55	49.5	D	L	0.78	39.4	D	L	1.01	81.7	F
		T	0.97	27.3	C	T	0.57	28.4	C	T	0.55	13.2	B	T	0.60	16.5	B
		R	0.20	9.6	A	R	0.30	23.3	C	R	0.35	13.0	B	R	0.38	13.7	B
	SB	L	0.83	66.5	E	L	0.80	49.2	D	L	0.75	28.1	C	L	1.15	109.4	F
		T	0.59	40.3	D	T	0.64	16.5	B	T	0.72	15.0	B	T	0.68	13.1	B
		R	0.36	37.5	D	R	0.41	13.1	B	R	0.52	14.3	B	R	0.68	17.5	B
Overall Intersection[2]		-	-	**36.3**	**D**	-	-	**32.4**	**C**	-	-	**32.9**	**C**	-	-	**33.5**	**C**

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Cozine Avenue																	
Cozine Avenue	EB	LTR	1.05	102.2	F	LTR	1.05	98.2	F	LTR	1.10	113.9	F	LTR	1.29	185.0	F
	WB	LTR	0.56	38.2	D	LTR	0.68	45.0	D	LTR	0.73	45.5	D	LTR	1.01	79.9	E
Pennsylvania Avenue	NB	L	0.52	14.3	B	L	0.39	15.3	B	L	0.36	17.2	B	L	0.59	25.5	C
		TR	0.87	19.1	B	TR	0.65	12.6	B	TR	0.57	12.9	B	TR	0.58	9.0	A
	SB	L	0.63	42.4	D	L	0.34	9.0	A	L	0.35	9.8	A	L	0.37	9.5	A
		TR	0.65	14.1	B	TR	0.70	11.7	B	TR	0.74	16.8	B	TR	0.74	13.6	B
Overall Intersection[2]		-	-	**29.5**	**C**	-	-	**28.0**	**C**	-	-	**33.7**	**C**	-	-	**46.0**	**D**
Pennsylvania Avenue and Wortman Avenue																	
Wortman Avenue	EB	LTR	0.68	44.9	D	LTR	0.70	46.3	D	LTR	0.88	62.1	E	LTR	0.66	33.6	C
	WB	LTR	0.43	36.2	D	LTR	0.42	35.7	D	LTR	0.63	42.7	D	LTR	0.55	29.5	C
Pennsylvania Avenue	NB	L	0.61	79.4	E	L	0.56	62.4	E	L	0.57	60.4	E	L	0.51	36.7	D
		TR	0.99	22.8	C	TR	0.77	31.6	C	TR	0.64	27.2	C	TR	0.75	25.7	C
	SB	L	0.41	54.4	D	L	0.44	70.4	E	L	0.55	73.8	E	L	0.59	42.6	D
		TR	0.63	19.0	B	TR	0.70	11.5	B	TR	0.75	13.5	B	TR	0.81	28.3	C
Overall Intersection[2]		-	-	**26.5**	**C**	-	-	**27.3**	**C**	-	-	**29.3**	**C**	-	-	**28.6**	**C**

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Stanley Avenue																	
Stanley Avenue	EB	LTR	0.89	76.6	E	LTR	0.75	56.1	E	LTR	0.75	55.0	D	LTR	0.76	39.8	D
	WB	LTR	0.85	67.6	E	LTR	0.82	61.5	E	LTR	0.89	72.4	E	LTR	0.96	65.4	E
Pennsylvania Avenue	NB	L	0.73	82.2	F	L	0.56	73.6	E	L	0.57	57.5	E	L	0.53	64.1	E
		TR	0.86	8.3	A	TR	0.65	6.1	A	TR	0.55	12.2	B	TR	0.69	10.4	B
	SB	L	0.25	40.6	D	L	0.48	43.9	D	L	0.50	62.6	E	L	0.45	25.9	C
		TR	0.63	34.4	C	TR	0.57	25.3	C	TR	0.69	13.7	B	TR	0.76	37.5	D
Overall Intersection[2]		-	-	**31.0**	**C**	-	-	**25.6**	**C**	-	-	**25.0**	**C**	-	-	**33.1**	**C**
Pennsylvania Avenue and Linden Boulevard																	
Linden Boulevard Main Line	EB	L	0.68	77.1	E	L	0.99	128.7	F	L	0.75	82.3	F	L	0.79	84.0	F
		T	0.56	37.2	D	T	0.70	40.3	D	T	1.02	70.8	E	T	0.76	33.8	C
	WB	L	0.86	106.3	F	L	0.91	113.3	F	L	0.87	101.6	F	L	0.95	115.8	F
		T	0.96	55.4	E	T	0.77	42.5	D	T	0.58	37.4	D	T	0.73	32.8	C
Pennsylvania Avenue	NB	L	1.23	149.5	F	L	1.14	122.4	F	L	1.13	142.3	F	L	1.14	116.5	F
		T	1.11	107.4	F	T	0.88	34.8	C	T	0.71	48.9	D	T	0.71	47.5	D
		R	0.22	47.2	D	R	0.40	21.5	C	R	0.33	41.9	D	R	0.36	45.0	D
	SB	L	0.94	98.0	F	L	0.79	64.2	E	L	0.72	55.3	E	L	0.68	42.0	D
		TR	0.80	45.6	D	TR	0.69	40.7	D	TR	0.84	47.2	D	TR	0.82	38.1	D
Linden Boulevard Eastbound Service Rd	EB	T	0.56	40.2	D	T	0.58	40.3	D	T	0.80	50.6	D	T	0.62	34.2	C
		R	0.39	28.3	C	R	0.46	29.6	C	R	0.54	31.6	C	R	0.47	24.5	C
Linden Boulevard Westbound Service Rd	WB	TR	0.96	76.4	E	T	1.06	100.7	F	T	1.09	107.9	F	TR	0.82	46.2	D
		-	-	-	-	R	0.20	32.5	C	R	0.18	32.1	C	-	-	-	-
Overall Intersection[2]		-	-	**68.9**	**E**	-	-	**54.1**	**D**	-	-	**63.4**	**E**	-	-	**44.6**	**D**

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Vandalia Avenue																	
Vandalia Avenue	WB	LR	0.33	16.9	B	LR	0.37	23.0	C	LR	0.30	16.0	B	LR	0.36	17.9	B
Louisiana Avenue	NB	TR	0.32	12.8	B	TR	0.28	7.5	A	TR	0.28	9.3	A	TR	0.31	9.2	A
	SB	LT	0.49	11.5	B	LT	0.53	12.2	B	LT	0.75	17.4	B	LT	0.69	15.6	B
Overall Intersection[2]		-	-	**12.9**	**B**	-	-	**13.2**	**B**	-	-	**15.2**	**B**	-	-	**14.3**	**B**
Louisiana Avenue and Flatlands Avenue																	
Flatlands Avenue	EB	L	0.04	22.0	C	L	0.09	21.2	C	L	0.34	34.6	C	L	0.28	37.6	D
		T	0.46	23.5	C	T	0.63	26.9	C	T	0.72	29.7	C	T	0.79	32.6	C
		R	0.37	23.2	C	R	0.46	25.1	C	R	0.36	23.0	C	R	0.40	25.2	C
	WB	L	0.26	23.5	C	L	0.38	31.5	C	L	0.46	39.9	D	L	0.48	37.7	D
		TR	0.56	25.4	C	TR	0.46	23.4	C	TR	0.64	27.1	C	TR	0.97	50.2	D
Louisiana Avenue	NB	L	0.64	43.5	D	L	0.69	45.4	D	L	0.93	80.8	F	L	0.88	56.4	E
		TR	0.26	36.9	D	TR	0.29	37.3	D	TR	0.35	38.5	D	TR	0.40	29.0	C
	SB	L	0.04	28.9	C	L	0.02	29.2	C	L	0.08	31.6	C	L	0.13	21.9	C
		TR	0.16	35.4	D	TR	0.13	34.8	C	TR	0.65	47.7	D	TR	0.67	36.9	D
Overall Intersection[2]		-	-	**27.6**	**C**	-	-	**28.9**	**C**	-	-	**35.4**	**D**	-	-	**41.1**	**D**
Flatlands Avenue and East 108th Street																	
Flatlands Avenue	EB	L	0.13	13.0	B	L	0.18	14.9	B	L	0.20	18.1	B	L	0.30	29.3	C
		TR	0.42	15.5	B	TR	0.58	19.3	B	TR	0.69	21.5	C	TR	0.74	26.3	C
	WB	L	0.35	16.8	B	L	0.50	27.3	C	L	0.87	59.4	E	L	1.11	115.5	F
		TR	0.46	16.2	B	TR	0.44	16.9	B	TR	0.56	18.4	B	TR	0.82	29.5	C
East 108th Street	NB	LTR	0.99	91.8	F	LTR	0.96	85.1	F	LTR	0.87	68.2	E	LTR	0.98	68.1	E
	SB	LTR	0.55	46.2	D	LTR	0.65	50.2	D	LTR	0.88	70.9	E	LTR	0.62	31.9	C
Overall Intersection[2]		-	-	**31.3**	**C**	-	-	**30.7**	**C**	-	-	**33.1**	**C**	-	-	**43.2**	**D**

Table 13-35 Year 2031 No-Action Traffic Levels of Service – Weekday and Saturday Peak Hours

Intersection & Approach		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Flatlands Avenue and Rockaway Parkway																	
Flatlands Avenue	EB	L	0.26	39.1	D	L	0.28	36.6	D	L	0.36	47.6	D	L	0.28	37.7	D
		TR	0.66	36.8	D	TR	0.85	44.2	D	TR	1.02	72.5	E	TR	1.12	101.5	F
	WB	L	0.12	32.1	C	L	0.19	37.6	D	L	0.18	44.7	D	L	0.16	35.2	D
		TR	0.77	40.9	D	TR	0.67	35.5	D	TR	0.89	48.0	D	TR	1.05	76.4	E
Rockaway Parkway	NB	L	0.46	29.9	C	L	0.46	29.5	C	L	0.51	29.8	C	L	0.67	32.2	C
		TR	0.68	33.3	C	TR	0.47	28.3	C	TR	0.44	26.4	C	TR	0.53	22.7	C
	SB	LT	0.91	64.9	E	LT	0.69	45.4	D	LT	0.72	44.9	D	LT	0.99	75.3	E
		R	0.36	35.4	D	R	0.29	34.7	C	R	0.37	35.4	D	R	0.20	27.0	C
Overall Intersection[2]		-	-	**41.4**	**D**	-	-	**38.3**	**D**	-	-	**52.2**	**D**	-	-	**72.8**	**E**
UNSIGNALIZED INTERSECTIONS																	
Flatlands Avenue and Georgia Avenue																	
Flatlands Avenue	EB	LTR	-	1.4	A	LTR	-	1.2	A	LTR	-	1.8	A	LTR	-	1.2	A
	WB	L	-	0.0	A	L	-	0.0	A	L	-	0.0	A	L	-	0.0	A
		TR	-	0.0	A	TR	-	0.0	A	TR	-	0.0	A	TR	-	0.0	A
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**0.3**	**A**	-	-	**0.5**	**A**	-	-	**0.3**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Table 13-36 Year 2031 No-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS					
Pennsylvania Avenue and Seaview Avenue					
Seaview Avenue	EB	LT	0.07	16.4	B
		R	0.42	21.3	C
	WB	LTR	0.29	19.1	B
Pennsylvania Avenue	NB	L	0.30	40.0	D
		T	1.04	75.5	E
	SB	L	0.07	54.9	D
		TR	0.95	47.3	D
Shore Parkway Westbound Off-Ramp	NB	TR	0.44	24.6	C
Overall Intersection[2]		-	-	**46.0**	**D**
Pennsylvania Avenue and Twin Pines Drive					
Twin Pines Drive	EB	LR	0.36	21.8	C
Pennsylvania Avenue	NB	L	0.96	90.4	F
		T	0.69	30.6	C
	SB	T	0.75	9.2	A
		R	0.36	6.7	A
Overall Intersection[2]		-	-	**26.0**	**C**
Pennsylvania Avenue and Vandalia Avenue					
Vandalia Avenue	EB	LTR	0.24	22.9	C
	WB	LTR	0.42	26.5	C
Pennsylvania Avenue	NB	L	1.01	101.2	F
		T	0.70	26.5	C
		R	0.19	21.2	C
	SB	L	0.12	39.5	D
		T	0.71	29.5	C
		R	0.39	25.1	C
Overall Intersection[2]		-	-	**31.9**	**C**

Table 13-36 Year 2031 No-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue					
Flatlands Avenue	EB	L	1.15	123.4	F
		T	0.80	34.9	C
		R	0.93	53.0	D
	WB	L	0.46	36.8	D
		T	0.43	25.4	C
		R	0.31	20.8	C
Pennsylvania Avenue	NB	L	1.06	92.7	F
		T	0.64	15.1	B
		R	0.29	10.4	B
	SB	L	0.96	81.0	F
		T	0.60	28.3	C
		R	0.60	35.4	C
Overall Intersection[2]		-	-	**45.1**	**D**
Louisiana Avenue and Vandalia Avenue					
Vandalia Avenue	WB	LR	0.75	28.9	C
Louisiana Avenue	NB	TR	0.39	10.1	B
	SB	LT	0.50	11.6	B
Overall Intersection[2]		-	-	**16.5**	**B**
Louisiana Avenue and Flatlands Avenue					
Flatlands Avenue	EB	L	0.11	22.3	C
		T	0.91	41.3	D
		R	0.80	57.3	E
	WB	L	0.62	45.0	D
		TR	0.61	27.0	C
Louisiana Avenue	NB	L	0.90	61.2	E
		TR	1.30	184.3	F
	SB	L	1.54	296.5	F
		TR	0.73	40.9	D
Overall Intersection[2]		-	-	**91.9**	**F**

Table 13-36 Year 2031 No-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS					
Flatlands Avenue and Georgia Avenue/Site Driveway					
Flatlands Avenue	EB	LTR	-	4.7	A
	WB	L	-	0.0	A
		TR	-	0.0	A
Site Driveway	NB	LTR	-	138.4	F
Overall Intersection[2]		-	-	**16.9**	**C**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

The summary overview of 2031 No-Action conditions indicates that:

- In the weekday AM peak hour, one intersection would be expected to operate at overall LOS E, the same as the existing conditions. Seventeen movements would operate at LOS E or F, compared to 16 movements in the existing conditions.
- In the weekday midday peak hour, no intersections would be expected to operate at overall LOS E, the same as the existing conditions. Sixteen movements would operate at LOS E or F, compared to 14 movements in the existing conditions.
- In the weekday PM peak hour, one intersection would be expected to operate at LOS E, the same as in existing conditions. Twenty-three movements would operate at LOS E or F, compared to 17 movements in the existing conditions.
- In the Saturday peak hour, one intersection would be expected to operate at LOS E, compared to none in the existing conditions. Fifteen movements would operate at LOS E or F, compared to 11 movements in the existing conditions.
- In the Sunday peak hour, one intersection would be expected to operate at LOS F, the same as in the existing conditions. Eleven movements would operate at LOS E or F, compared to eight movements in the existing conditions.

The intersection of Pennsylvania Avenue and Linden Boulevard would operate at overall LOS E during the weekday AM and PM peak hours. The intersection of Flatlands Avenue and Rockaway Parkway would operate at overall LOS E during the Saturday peak hour. The intersection of Louisiana Avenue and Flatlands Avenue would operate at overall LOS F during the Sunday peak hour.

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable levels of service in the No-Action condition. The majority of the intersections with at least one traffic movement operating at unacceptable levels of service during the peak hours analyzed under existing conditions would continue to do so during the No-Action condition. The following intersections would have at least one movement operating at unacceptable levels of service during at least one peak hour.

- Pennsylvania Avenue and Seaview Avenue
  - Eastbound Seaview Avenue right turn movement (weekday PM)

- Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
- Northbound Pennsylvania Avenue through movement (Sunday)
- Southbound Pennsylvania Avenue left turn movement (weekday AM and midday)

› Pennsylvania Avenue and Twin Pines Drive
- Eastbound Twin Pines Drive approach (weekday PM)
- Northbound Pennsylvania Avenue left turn movement (Sunday)

› Pennsylvania Avenue and Vandalia Avenue
- Westbound Vandalia Avenue approach (weekday PM)
- Northbound Pennsylvania Avenue left turn movement (weekday midday and Sunday)
- Southbound Pennsylvania Avenue left turn movement (weekday midday)

› Pennsylvania Avenue and Flatlands Avenue
- Eastbound Flatlands Avenue left turn movement (Sunday)
- Eastbound Flatlands Avenue through movement (weekday PM)
- Northbound Pennsylvania Avenue left turn movement (Saturday and Sunday)
- Southbound Pennsylvania Avenue left turn movement (weekday AM, Saturday, and Sunday)

› Pennsylvania Avenue and Cozine Avenue
- Eastbound Cozine Avenue approach (weekday AM, midday, PM, and Saturday)
- Westbound Cozine Avenue approach (Saturday)

› Pennsylvania Avenue and Wortman Avenue
- Eastbound Wortman Avenue approach (weekday PM)
- Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
- Southbound Pennsylvania Avenue left turn movement (weekday midday and PM)

› Pennsylvania Avenue and Stanley Avenue
- Eastbound Stanley Avenue approach (weekday AM and midday)
- Westbound Stanley Avenue approach (weekday AM, midday, PM, and Saturday)
- Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)
- Southbound Pennsylvania Avenue left turn movement (weekday PM)

› Pennsylvania Avenue and Linden Boulevard
- Eastbound Linden Boulevard Main Line left turn movement (weekday AM, midday, PM, and Saturday)
- Eastbound Linden Boulevard Main Line through movement (weekday PM)
- Westbound Linden Boulevard Main Line left turn movement (weekday AM, midday, PM, and Saturday)
- Westbound Linden Boulevard Main Line through movement (weekday AM)

- Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)
- Northbound Pennsylvania Avenue through movement (weekday AM)
- Southbound Pennsylvania Avenue left turn movement (weekday AM, midday, and PM)
- Westbound Linden Boulevard Service Road shared through-right movement (weekday AM)
- Westbound Linden Boulevard Service Road through movement (weekday midday and PM)

› Louisiana Avenue and Flatlands Avenue
- Eastbound Flatlands Avenue right turn movement (Sunday)
- Northbound Pennsylvania Avenue left turn movement (weekday PM, Saturday, and Sunday)
- Northbound Pennsylvania Avenue shared through-right movement (Sunday)
- Southbound Pennsylvania Avenue left turn movement (Sunday)

› Flatlands Avenue and East 108th Street
- Westbound Flatlands Avenue left turn movement (weekday PM and Saturday)
- Northbound East 108th Street approach (weekday AM, midday, PM, and Saturday)
- Southbound East 108th Street approach (weekday PM)

› Flatlands Avenue and Rockaway Parkway
- Eastbound Flatlands Avenue shared through-right movement (weekday PM and Saturday)
- Westbound Flatlands Avenue shared through-right movement (Saturday)
- Southbound Rockaway Parkway shared left-through movement (weekday AM and Saturday)

› Flatlands Avenue and Georgia Avenue/Site Driveway
- Northbound Site Driveway approach (Sunday)

Parking

In order to estimate future parking conditions, existing occupancies for on-street parking were increased by the background traffic growth rate in accordance with *CEQR Technical Manual* procedures. Available on-street parking is expected to decrease slightly under the No-Action condition due to the projected increase of traffic in the area. Under the No-Action condition, it is expected that on-street parking would be about 77 percent occupied during the weekday AM and PM periods, 75 percent occupied during the weekday midday period, 69 percent occupied during the weekday overnight period, 70 percent occupied during the Saturday period, and 89 percent occupied during the Sunday period.

Absent the Proposed Project, on-site parking supply and utilization would be similar to the existing conditions.

Subways

Subway Station Elements

Existing subway station volumes were increased based on the background growth rates recommended in the *CEQR Technical Manual* and incorporated subway trips associated with the No-Action background projects to develop the No-Action condition subway volumes. As shown in **Table 13-37**, the subway station elements that operate at acceptable levels of service during the AM and PM peak hours will continue to do so in the No-Action condition; the Glenwood Road fare control elements analyzed would deteriorate to LOS E (v/c ratio of 1.36) during the AM peak hour.

Table 13-37 No-Action Subway Station Levels of Service

Peak Hour	Control Element	Pedestrian Volume (15-min) In	Pedestrian Volume (15-min) Out	Surging Factor	Friction Factor	v/c Ratio	LOS
AM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	95	33	0.75	0.90	0.08	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	428	54	0.75	0.90	0.25	A
	Glenwood Road 1 HEET, 1 HXT	304	24	0.75	0.90	1.36	E
PM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	41	262	0.75	0.90	0.18	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	138	259	0.75	0.90	0.19	A
	Glenwood Road 1 HEET, 1 HXT	62	112	0.75	0.90	0.42	A

Notes:
Methodology based on *2021 CEQR Technical Manual* guidelines
Surging factors only apply to exiting volumes. The surge factor for entry volumes in 1.0.
Does not assume fare evasion at the Glenwood Road fare control per NYCT's guidance.

Subway Line-Haul

Table 13-38 summarizes anticipated 2031 No-Action subway line-haul conditions at the maximum load point of the subway line in the peak direction. The No-Action condition passenger volumes reflect increases in volumes due to background growth based on the recommended rates in the *CEQR Technical Manual* as well as demand from new developments in the vicinity of the Proposed Project. In the No-Action condition, the L subway line would operate at a v/c ratio of 1.03 during the AM peak hour and 1.06 during the PM peak hour, i.e., a modest increase from existing conditions.

Table 13-38 No-Action Subway Line-Haul Analysis

Peak Hour	Route and Direction	Max Load Point (leaving station)	Average Passengers Per Hour[1]	Average Trains Per Hour[1]	Average Cars Per Hour[1]	Average Passengers Per Car[1]	Guideline Passengers Per Car[2]	V/C Ratio[3]
AM	L – NB	Bedford Ave	23,355	19.8	158	149	145	1.03
PM	L – SB	First Ave	21,514	17.5	140	140	145	1.06

Notes:
[1] 2031 No-Action passenger volumes are based on 0.5 percent per year background growth for first five years and 0.25 percent per year background for subsequent years to the year 2031, plus demand from No-Action developments expected by 2031
[2] Guideline capacities are based on NYCT rush hour loading guidelines which vary by car type, line, and location based on frequency and type of service.
[3] Volume to guideline capacity ratio

Buses

Demand on the local bus routes operating near the Proposed Project is expected to increase as a result of background growth as well as demand from new developments in the vicinity of the Proposed Project. **Table 13-39** shows that existing levels of bus service would be sufficient to meet the projected demand in the 2031 No Action condition along the B82 and B82 SBS routes. A capacity shortfall can be expected along the B83 route in the northbound direction during the AM peak hour (seven additional buses would be needed to accommodate the projected No-Action demand), and in both directions during the PM peak hour (two additional buses would be needed in the northbound direction and 12 additional buses would be needed in the southbound direction) primarily due to the demand from the Brooklyn ~~Development~~Developmental Center project and Fountain Avenue Land Use Improvement and Residential Project.

As general policy, MTA-NYCT provides additional bus service where demand warrants, considering 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; through this program, expansion of bus service would be provided as needs are determined. It is therefore anticipated that in the No-Action condition, MTA-NYCT would increase service frequency on the B83 route to address the capacity shortfall.

Table 13-39 No-Action Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[2]	Average Passengers per Bus	Available Peak Hour Capacity[3]
AM	B82	EB	Glenwood Rd & Rockaway Pkwy	6	80	13	244
		WB	Glenwood Rd & E 102 St	7	137	20	241
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	10	233	23	307
		WB	Flatlands Av & E 105 St	9	273	30	213
	B83	NB	Van Siclen Ave & Hegeman Ave	10	901	90	-361
			With Service Increase	**17**	**901**	**53**	**17**
		SB	Pennsylvania Av & Livonia Av	7	334	48	44
PM	B82	EB	Glenwood Rd & Rockaway Pkwy	8	149	19	283
		WB	Glenwood Rd & E 102 St	6	93	16	231
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	6	200	33	124
		WB	Flatlands Av & E 105 St	5	97	19	173
	B83	NB	Van Siclen Ave & Hegeman Ave	5	362	72	-92
			With Service Increase	**7**	**362**	**52**	**16**
		SB	New Lots Av & Pennsylvania Av	7	998	143	-620
			With Service Increase	**19**	**998**	**53**	**28**

Notes:
[1] 2031 No-Action passenger volumes are based on 0.5 percent per year background growth for first five years and 0.25 percent per year background for subsequent years to the year 2031, plus demand from No-Action developments expected by 2031
[2] Based on most currently available data from NYCT (October 2019)
[3] Available capacities based on NYCT loading guidelines of 54 passengers per standard bus
Shading denotes capacity shortfall in the No-Action condition; bold text denotes No-Action conditions with service increases to address the capacity shortfalls

Pedestrians

The 2031 No-Action pedestrian volumes were developed by increasing existing volumes to reflect expected growth in overall travel through and within the study area. Due to distance between the Development and the No-Action development projects, pedestrian trips from these projects would not be expected travel within the pedestrian study area and therefore were not incorporated into the No-Action pedestrian analysis. Signal timing changes

proposed as mitigation measures outlined in the *Brooklyn ~~Development~~Developmental Center Mixed-Use Development FEIS*, inclusion of a leading pedestrian interval at the intersection of Pennsylvania Avenue and Cozine Avenue as part of NYC DOT's improvements, and physical improvements identified as part of the Southern Brooklyn Crosstown (B82) Select Bus Service project were also incorporated into the No-Action pedestrian analysis. Pedestrian volumes are shown in **Figure 13-49** through **Figure 13-53**.

Figure 13-49 No-Action Pedestrian Volumes – Weekday AM Peak Hour



Figure 13-50 No-Action Pedestrian Volumes – Weekday Midday Peak Hour



Figure 13-51 No-Action Pedestrian Volumes – Weekday PM Peak Hour



Figure 13-52 No-Action Pedestrian Volumes – Saturday Peak Hour



Figure 13-53 No-Action Pedestrian Volumes – Sunday Peak Hour



The No-Action pedestrian levels of service were determined for the locations analyzed in the existing conditions. **Table 13-40** provides an overview of the pedestrian levels of service for the peak hours analyzed. Pedestrian volumes and levels of service are provided in **Table 13-41** through **Table 13-43** for the weekday and Saturday peak hours, and **Table 13-44** through **Table 13-46** for the Sunday peak hour. The summary of the No-Action conditions indicates that during the weekday AM, midday, PM, and Saturday peak hours , all sidewalks, crosswalks, and corners can be expected to operate at clearly acceptable level of service A or B, the same as in existing conditions. However, five pedestrian elements would operate at unacceptable levels of service during the Sunday peak hour due to the increased pedestrian activities related to church services. The northeast corner of Flatlands Avenue and Louisiana Avenue would improve to acceptable LOS C from unacceptable levels of service in the existing as a result of improvements (corner curb extension) related to the Brooklyn Crosstown (B82) Select Bus Service project.

Table 13-40 Year 2031 No-Action Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	PM Peak Weekday Hour	Saturday Peak Hour	Sunday Peak Hour
Sidewalk Elements					
Sidewalks at LOS A/B/C	9	9	9	9	2
Sidewalks at LOS D	0	0	0	0	1
Sidewalks at LOS E	0	0	0	0	0
Sidewalks at LOS F	0	0	0	0	0
Crosswalk Elements					
Crosswalks at LOS A/B/C	14	14	14	14	3
Crosswalks at LOS D	0	0	0	0	2
Crosswalks at LOS E	0	0	0	0	0
Crosswalks at LOS F	0	0	0	0	1
Corner Elements					
Corners at LOS A/B/C	13	13	13	13	4
Corners at LOS D	0	0	0	0	0
Corners at LOS E	0	0	0	0	0
Corners at LOS F	0	0	0	0	1

Note: Includes nine sidewalk, 14 crosswalk, and 13 corner analysis locations for the weekday and Saturday peak hours, and three sidewalks, six crosswalks, and five corner analysis locations for the Sunday peak hour.

Table 13-41 Year 2031 No-Action Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	5.5	27	1,747.7	A	35	1,579.6	A	30	1,452.0	A	43	1,483.3	A
Flatlands Avenue between Louisiana Avenue and Williams Avenue (north side)	9.0	27	3,432.0	A	18	3,960.0	A	19	4,220.5	A	68	1,622.2	A
Flatlands Avenue between Louisiana Avenue and Williams Avenue (south side)	11.0	62	1,594.3	A	104	1,351.1	A	103	1,350.6	A	96	1,346.6	A
Flatlands Avenue between Williams Avenue and East 108th Street (north side)	8.5	27	3,241.3	A	28	3,606.4	A	40	2,524.5	A	68	1,532.1	A
Flatlands Avenue between Williams Avenue and East 108th Street (south side)	9.0	56	1,909.3	A	75	1,555.2	A	109	980.9	A	96	1,101.7	A
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	43	777.3	A	139	368.2	B	79	533.2	A	87	514.6	B
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (east side)	6.5	73	894.0	A	94	849.8	A	51	1,454.7	A	81	918.0	A

Table 13-41 Year 2031 No-Action Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (west side)	5.5	144	420.3	B	145	444.1	B	110	692.9	A	128	454.9	B
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	5.5	13	3,111.4	A	31	1,567.3	A	43	1,297.9	A	21	2,963.2	A

Table 13-42 Year 2031 No-Action Pedestrian Levels of Service – Crosswalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Crosswalk	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	18	698.2	A	29	603.7	A	36	453.3	A	34	454.5	A
	West	25	834.7	A	108	311.6	A	76	334.8	A	88	104.8	A
Pennsylvania Avenue and Vandalia Avenue	*North*	50	403.5	A	50	369.5	A	39	531.6	A	66	226.4	A
	South	75	185.8	A	70	177.7	A	69	228.6	A	57	221.3	A
	West	93	612.1	A	105	675.7	A	79	785.8	A	105	404.4	A
Flatlands Avenue and Louisiana Avenue	*North*	22	1,770.8	A	26	1,339.5	A	30	1,650.8	A	29	923.2	A
	East	9	1,178.1	A	14	986.1	A	14	816.4	A	13	780.9	A
	South	21	1,976.7	A	31	1,505.3	A	31	1,430.1	A	46	608.2	A
	West	11	872.3	A	23	398.6	A	22	400.7	A	20	380.6	A
Flatlands Avenue and Williams Avenue	*North*	31	1,630.4	A	51	1,151.0	A	30	2,212.4	A	34	1,421.2	A
	East	47	357.3	A	60	391.6	A	36	327.0	A	46	356.4	A
	West	13	1,243.9	A	24	918.9	A	42	283.2	A	36	386.0	A
Flatlands Avenue and East 108th Street	*North*	19	2,001.6	A	37	1,398.0	A	57	821.1	A	42	783.3	A
	South	36	1,408.6	A	117	472.6	A	92	597.1	A	101	218.3	A

Table 13-43 Year 2031 No-Action Pedestrian Levels of Service – Corners (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Corner	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*Southwest*	14	1,124.9	A	19	635.0	A	6	744.4	A	14	601.0	A
Pennsylvania Avenue and Vandalia Avenue	*Northeast*	2	1,714.1	A	4	1,439.2	A	1	1,874.2	A	6	1,090.4	A
	Southeast	21	1,136.6	A	23	1,103.4	A	11	1,316.5	A	20	992.0	A
	Southwest	15	526.1	A	16	592.2	A	7	718.8	A	14	613.7	A
	Northwest	5	716.8	A	11	728.2	A	17	837.4	A	10	591.5	A
Flatlands Avenue and Louisiana Avenue	*Northeast*	0	3,155.6	A	0	2,500.4	A	0	2,682.7	A	0	2,677.7	A
	Southeast	10	1,676.5	A	10	1,480.6	A	5	1,430.0	A	9	1,193.4	A
	Southwest	8	2,284.6	A	7	1,405.5	A	7	1,535.9	A	4	1,454.0	A
	Northwest	2	1,632.9	A	0	1,165.7	A	3	1,242.2	A	1	1,307.5	A
Flatlands Avenue and Williams Avenue	*Northeast*	9	865.3	A	6	765.3	A	0	1,284.1	A	9	906.1	A
	Northwest	21	1,289.3	A	6	1,158.0	A	41	665.3	A	22	912.6	A
Flatlands Avenue and East 108th Street	*Northeast*	8	1,896.5	A	22	1,060.7	A	7	1,013.8	A	10	1,212.6	A
	Southeast	4	1,886.5	A	18	727.2	A	21	780.9	A	21	698.3	A

Table 13-44 Year 2031 No-Action Pedestrian Levels of Service – Sidewalks (Sunday Peak Hour)

Sidewalk	Effective Width, ft	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	5.5	878	58.6	C
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	183	222.8	B
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	5.5	1,493	36.0	D

Table 13-45 Year 2031 No-Action Pedestrian Levels of Service – Crosswalks (Sunday Peak Hour)

Intersection	Crosswalk	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	232	42.0	B
	West	545	15.3	D
Flatlands Avenue and Louisiana Avenue	*North*	281	58.6	B
	East	996	1.4	F
	South	639	26.6	C
	West	287	17.9	D

Table 13-46 Year 2031 No-Action Pedestrian Levels of Service – Corners (Sunday Peak Hour)

Intersection	Corner	Volume, ped/hr	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*Southwest*	140	60.4	A
Flatlands Avenue and Louisiana Avenue	*Northeast*	6	32.7	C
	Southeast	8	5.3	F
	Southwest	28	70.2	A
	Northwest	3	62.3	A

With-Action Conditions

Traffic

The Proposed Project would consist of approximately 2,050 residential dwelling units (DUs) and approximately 65,670 square feet (sf) of local retail space, 14,300 sf of food store space, 52,820 sf of community facility space, 81,740 sf (1.88 acres) of publicly accessible passive open space, and approximately 312,114 sf of on-site above-grade surface parking and below-grade garage parking (approximately 886 parking spaces). A new internal roadway network would be developed within the Development Site with one driveway along Louisiana Avenue, two driveways along Flatlands Avenue at Georgia Avenue and at Sheffield Avenue, and one driveway (entry only) along Pennsylvania Avenue.

The intersection of Flatlands Avenue and Georgia Avenue would be signalized as part of the project to facilitate vehicular traffic and pedestrian operations; this traffic signal would be expected to be implemented in 2026 when the Georgia Avenue access roadway is open and Buildings 1 and 2 and the 500-space parking garage located next to the CCC are expected to be completed. To facilitate traffic flow during church services, church traffic would be directed to enter from the Louisiana Avenue driveway and exit through the driveway at Flatlands Avenue and Georgia Avenue. "No Standing 9 AM to 12 PM Sunday" regulations would need to be ~~identified~~implemented along the west side of Louisiana Avenue for approximately 525 feet (approximately 22 spaces) south of Flatlands Avenue to facilitate turns at the intersection of Louisiana Avenue and Flatlands Avenue, and at the site access driveway along ~~the~~ Louisiana Avenue. Similar to existing conditions, CCC staff would be stationed at the Development Site driveways to monitor and direct church-related traffic to minimize delays and queues on the surrounding streets. The Applicant is responsible for all costs associated with the design and implementation of the project improvements and mitigation measures.

A traffic signal warrant and all-way stop control warrant were conducted at Louisiana Avenue and the Site Driveway; based on the Proposed Project's trip projections, neither traffic control device would be warranted. However, upon completion of the full buildout of Proposed Project, the Applicant has committed to conducting traffic signal and all-way stop control warrant analyses using actual volumes for the intersection. If warranted, the Applicant will be responsible for the design and installation of the appropriate traffic signal control device.

Traffic Volumes

Overall, the Proposed Project would generate a total of 668 vph (277 "ins" and 442 "outs") in the weekday AM peak hour, 536 vph (268 "ins" and 268 "outs") in the weekday midday peak hour, 722 vph (402 "ins" and 320 "outs") in the weekday PM peak hour, 771 vph (380 "ins" and 391 "outs) in the Saturday peak hour, and 789 vph (379 "ins" and 410 "outs") in the Sunday peak hour. These vehicle trips were distributed as described in the Level 2 screening assessment. The With-Action traffic volumes for the weekday AM, midday, PM, Saturday, and Sunday peak hours are shown in **Figure 13-54** through **Figure 13-67**.

Figure 13-54 With-Action Traffic Volumes – Weekday AM Peak Hour (North Study Area)



Figure 13-55 With-Action Traffic Volumes – Weekday AM Peak Hour (South Study Area)



Figure 13-56 With-Action Traffic Volumes – Weekday AM Peak Hour (Project Area)

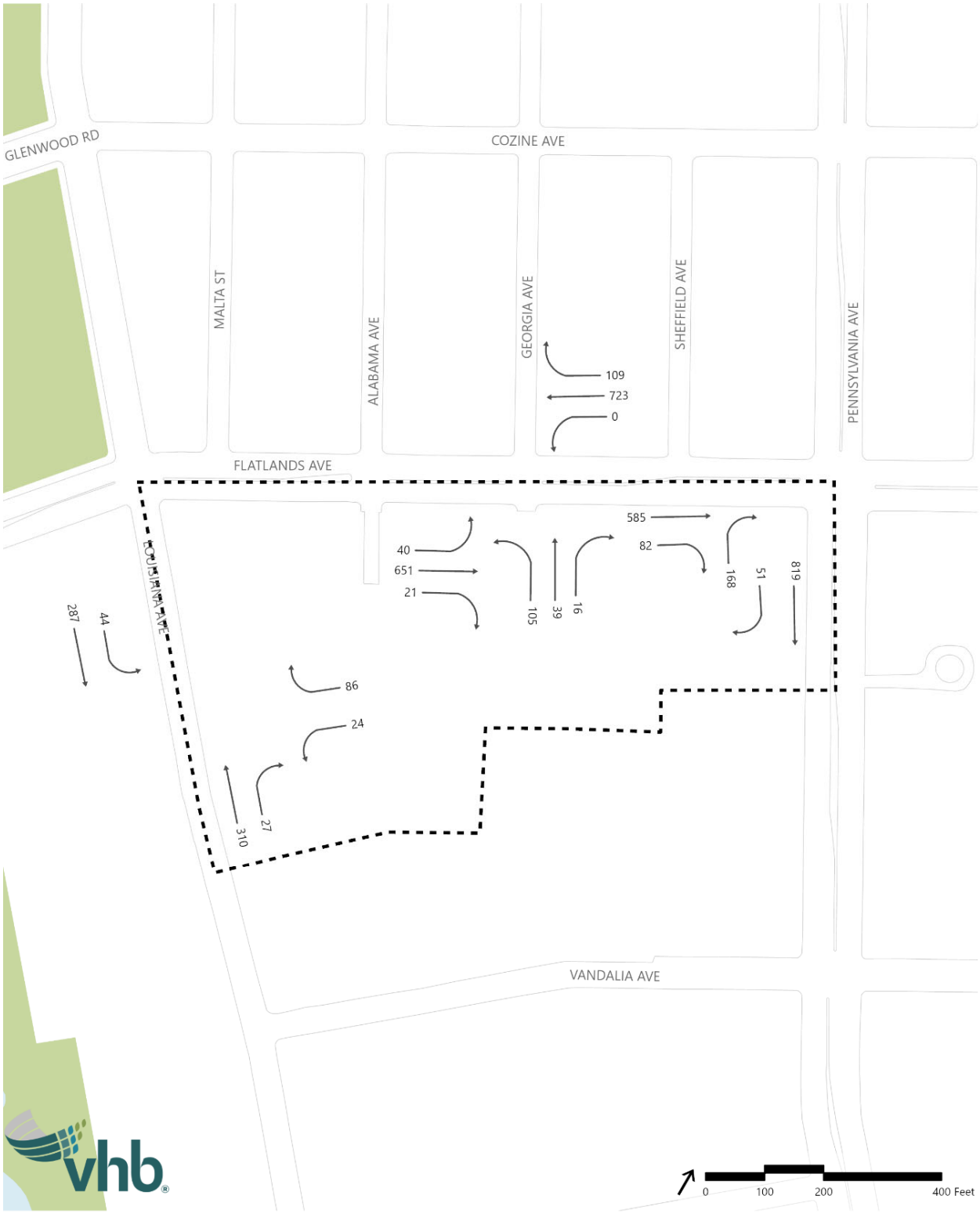


Figure 13-57 With-Action Traffic Volumes – Weekday Midday Peak Hour (North Study Area)



Figure 13-58 With-Action Traffic Volumes – Weekday Midday Peak Hour (South Study Area)



Figure 13-59 With-Action Traffic Volumes – Weekday Midday Peak Hour (Project Area)

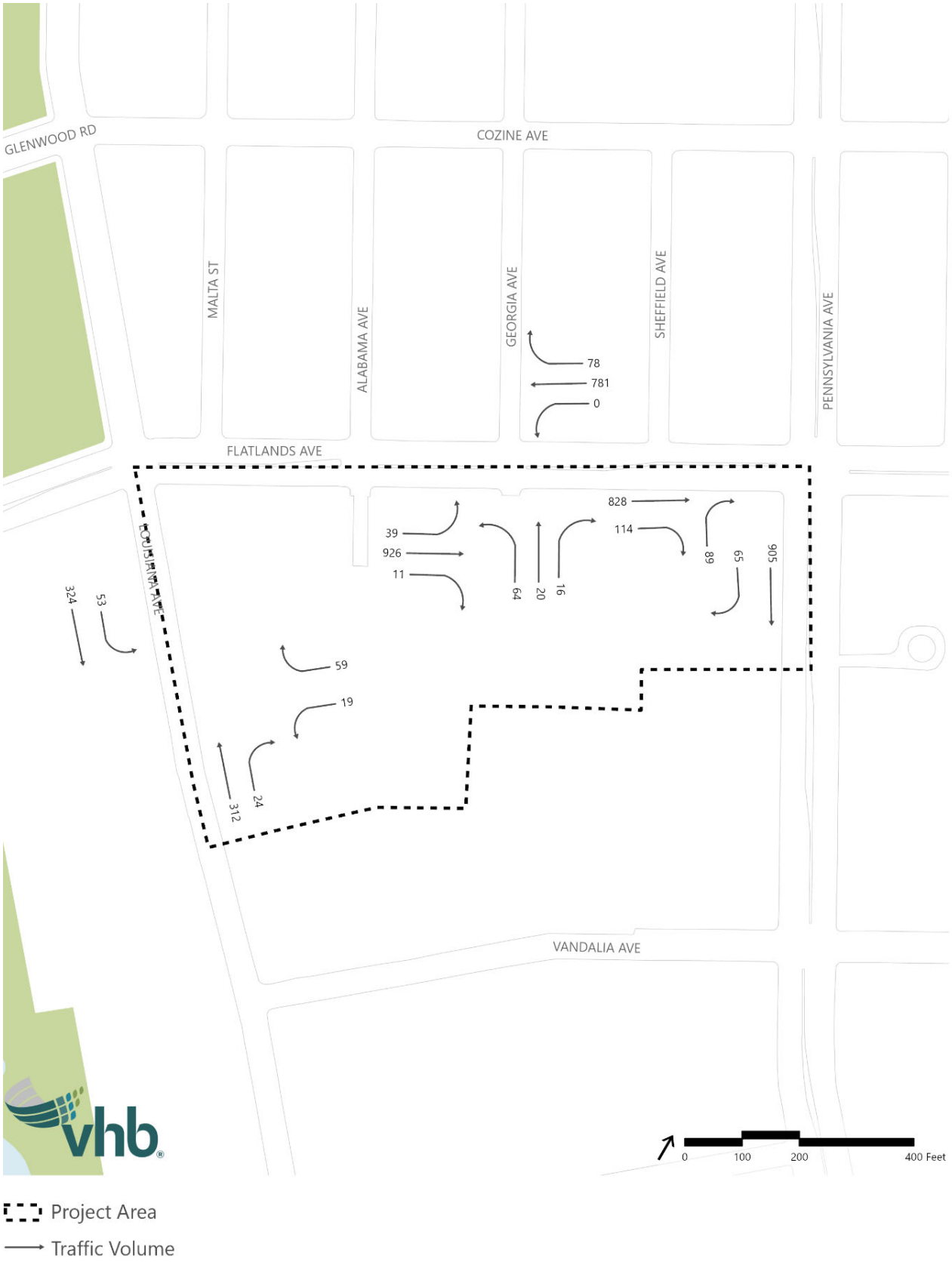


Figure 13-60 With-Action Traffic Volumes – Weekday PM Peak Hour (North Study Area)

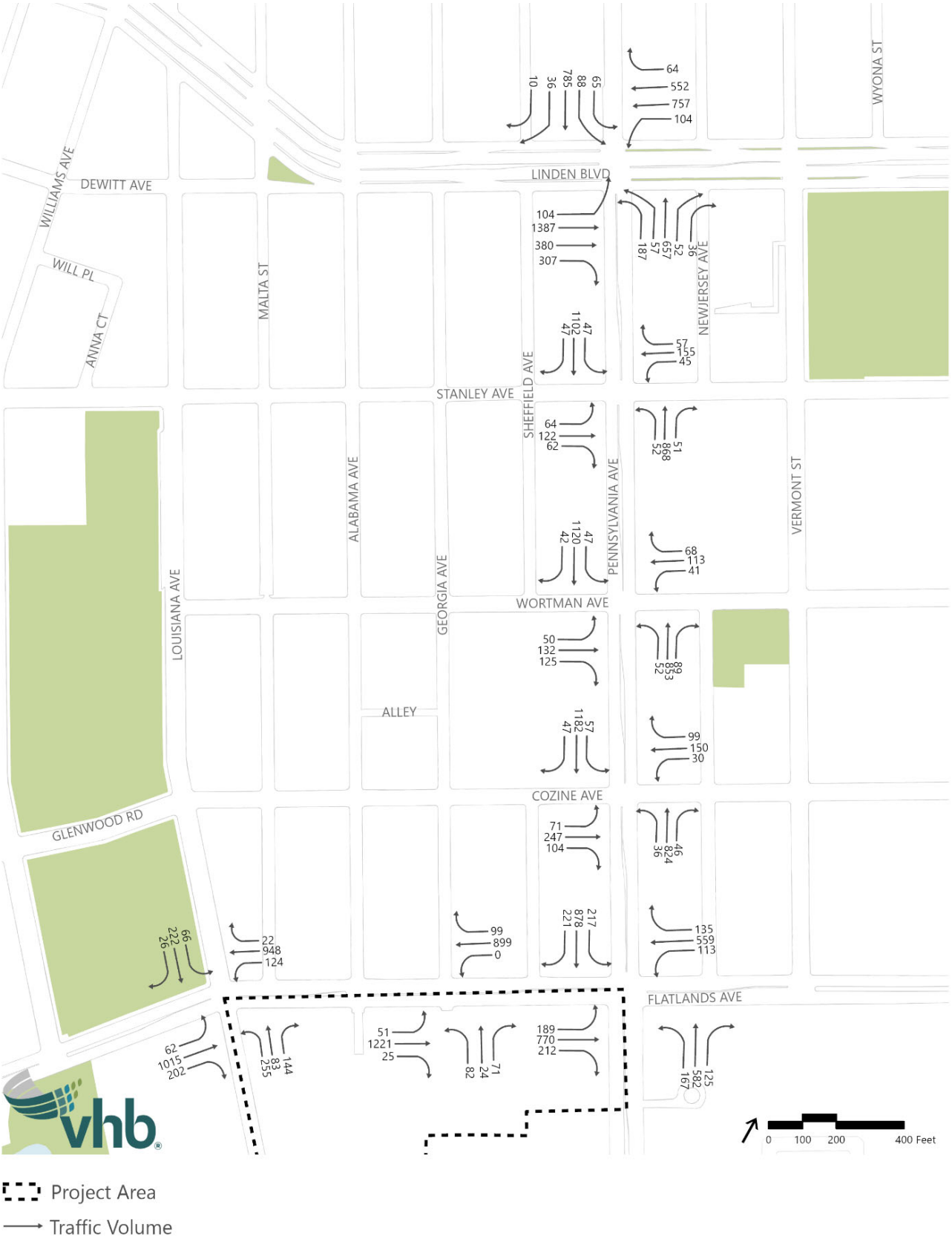


Figure 13-61 With-Action Traffic Volumes – Weekday PM Peak Hour (South Study Area)



Figure 13-62 With-Action Traffic Volumes – Weekday PM Peak Hour (Project Area)

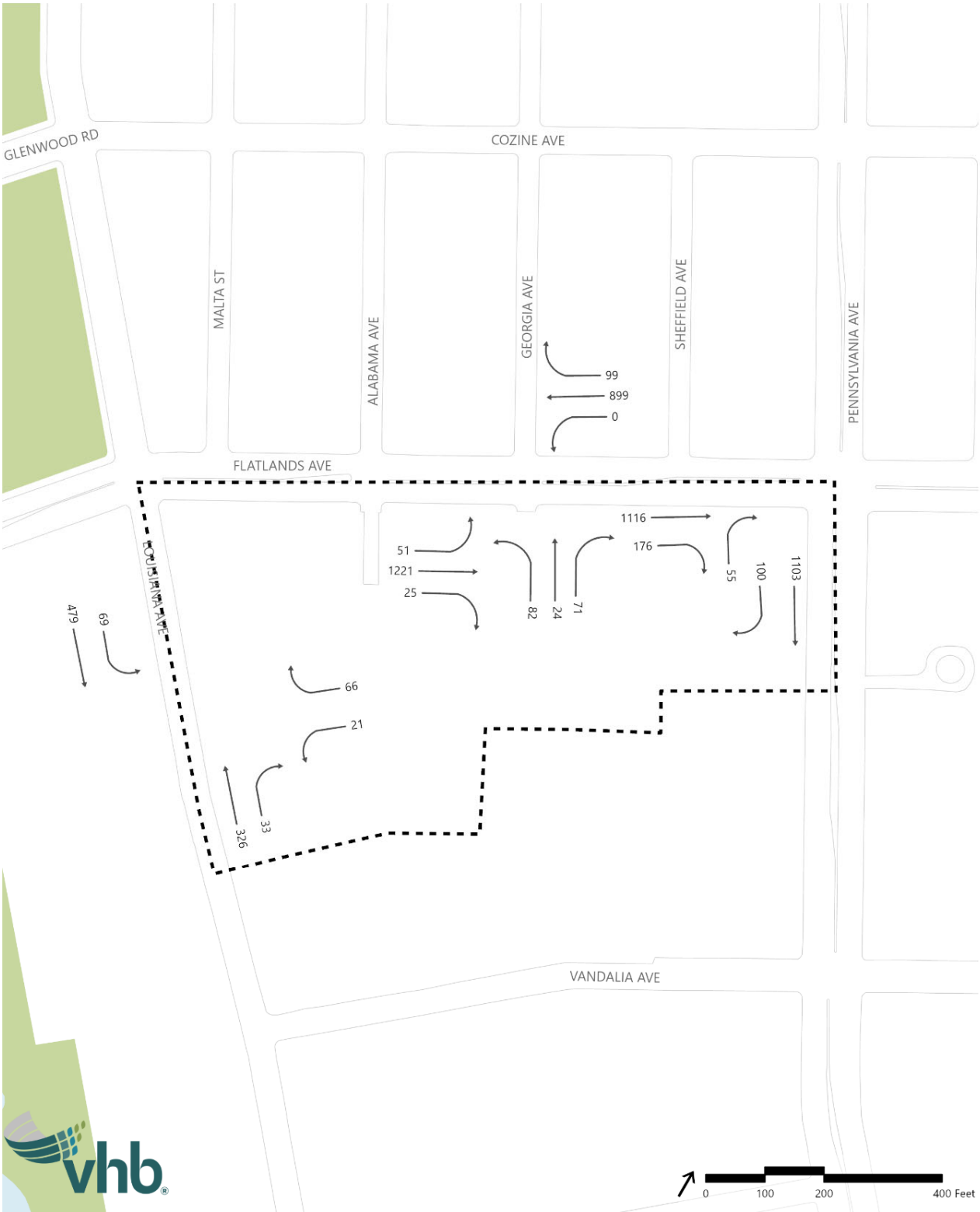


Figure 13-63 With-Action Traffic Volumes – Saturday Peak Hour (North Study Area)



Figure 13-64 With-Action Traffic Volumes – Saturday Peak Hour (South Study Area)



Figure 13-65 With-Action Traffic Volumes – Saturday Peak Hour (Project Area)

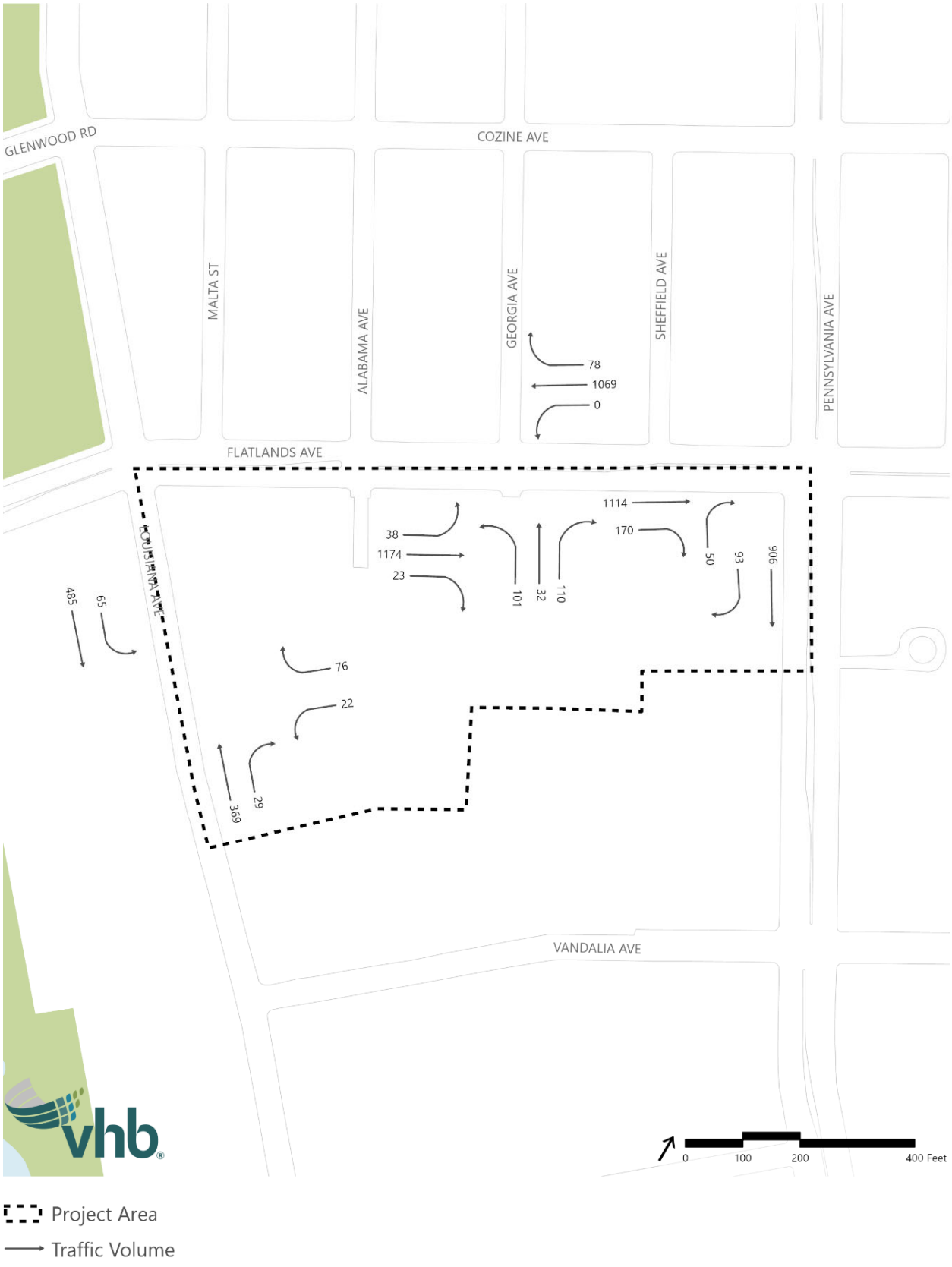
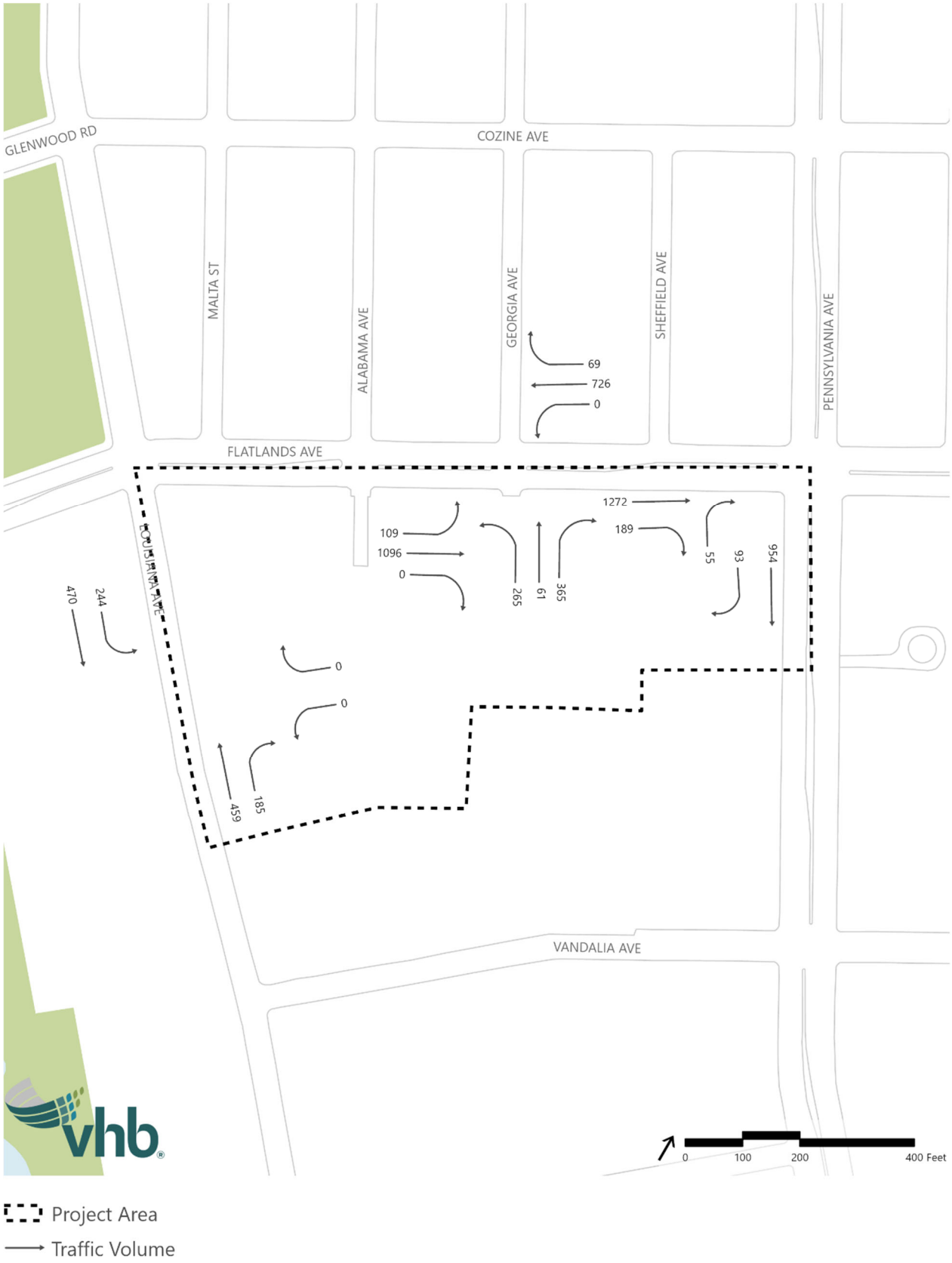


Figure 13-66 With-Action Traffic Volumes – Sunday Peak Hour (Study Area)



Figure 13-67 With-Action Traffic Volumes – Sunday Peak Hour (Project Area)



Levels of Service

Based on the traffic volume increments detailed above, the 2031 With-Action traffic levels of service were determined for the traffic analysis locations. **Table 13-47** and **Table 13-48** provide an overview of the levels of service that characterize 2031 With-Action "overall" intersection conditions and individual traffic movements during the weekday AM, midday, PM, Saturday, and Sunday peak hours. Detailed traffic levels of service comparing the No-Action and With-Action conditions during each peak hour are provided in **Table 13-49** through **Table 13-52**.

Table 13-47 Year 2031 With-Action Traffic Level of Service Summary – Overall Intersections

	No-Action					With-Action				
	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Intersections at Overall LOS A/B/C	10	11	10	8	4	9	12	9	8	4
Intersections at Overall LOS D	2	2	2	4	2	5	3	4	4	3
Intersections at Overall LOS E	1	0	1	1	0	1	1	3	3	2
Intersections at Overall LOS F	0	0	0	0	1	1	0	0	1	1
Number of significantly impacted intersections	-	-	-	-	-	9	7	9	7	4

Note: Includes 12 signalized intersections and 1 unsignalized intersection in the No-Action condition, and 13 signalized intersections and 3 unsignalized intersections in the With-Action condition for the weekday and Saturday peak hours. For the Sunday peak hour, the No-Action condition analysis includes 6 signalized intersections and 1 unsignalized intersection, and 7 signalized intersections and 3 unsignalized intersections in the With-Action condition. The intersection of Flatlands Avenue and Georgia Avenue would be signalized in the With-Action condition.

Table 13-48 Year 2031 With-Action Traffic Level of Service Summary – Traffic Movements

	No-Action					With-Action				
	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Traffic Movements at LOS A/B/C	44	50	44	54	29	44	51	45	50	31
Traffic Movements at LOS D	31	27	26	23	10	30	29	21	29	13
Traffic Movements at LOS E	10	9	17	7	3	16	11	20	5	5
Traffic Movements at LOS F	7	7	6	8	8	10	10	15	16	8
Number of significantly impacted movements	-	-	-	-	-	15	11	22	15	8
Number of Individual Traffic Movements	92	93	93	92	50	100	101	101	100	57

Note: Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements. The Sunday peak hour analysis addressed a subset of seven out of the 13 traffic analysis locations.

Table 13-49 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS									
Pennsylvania Avenue and Seaview Avenue									
Seaview Avenue	EB	LT	0.27	41.1	D	LT	0.27	46.5	D
		R	0.67	51.8	D	R	0.69	57.4	E
	WB	LTR	0.58	39.3	D	LTR	0.58	39.3	D
Pennsylvania Avenue	NB	L	0.58	62.6	E	L	0.58	62.6	E
		T	0.81	35.0	C	T	0.81	35.0	C
	SB	L	0.22	76.7	E	L	0.22	74.5	E
		TR	0.61	29.5	C	TR	0.67	29.9	C
Shore Parkway Westbound Off-Ramp	NB	TR	0.68	26.7	C	TR	0.70	27.5	C
Overall Intersection[2]		-	-	**33.7**	**C**	-	-	**34.5**	**C**
Pennsylvania Avenue and Twin Pines Drive									
Twin Pines Drive	EB	LR	0.34	36.0	D	LR	0.36	36.5	D
Pennsylvania Avenue	NB	L	0.51	15.3	B	L	0.59	25.8	C
		T	0.75	8.0	A	T	0.77	8.3	A
	SB	T	0.48	27.6	C	T	0.53	24.9	C
		R	0.19	24.1	C	R	0.19	21.1	C
Overall Intersection[2]		-	-	**16.2**	**B**	-	-	**16.5**	**B**
Pennsylvania Avenue and Vandalia Avenue									
Vandalia Avenue	EB	LTR	0.28	38.3	D	LTR	0.33	44.5	D
	WB	LTR	0.71	48.6	D	LTR	0.82	60.8	E
Pennsylvania Avenue	NB	L	0.43	46.1	D	L	0.73	60.2	E
		T	0.90	12.4	B	T	0.91	13.2	B
		R	0.18	3.6	A	R	0.20	4.1	A
	SB	L	0.20	33.4	C	L	0.18	37.8	D
		T	0.45	19.2	B	T	0.50	21.1	C
		R	0.08	16.8	B	R	0.19	18.5	B
Overall Intersection[2]		-	-	**19.1**	**B**	-	-	**22.2**	**C**

Table 13-49 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.54	43.5	D	L	0.95	74.5	E
		T	0.51	39.6	D	T	0.55	34.2	C
		R	0.12	26.3	C	R	0.36	24.2	C
	WB	L	0.26	34.3	C	L	0.33	37.3	D
		T	0.57	41.4	D	T	0.58	41.6	D
		R	0.41	31.4	C	R	0.42	31.9	C
Pennsylvania Avenue	NB	L	0.94	47.4	D	L	1.01	64.9	E
		T	0.97	27.3	C	T	0.97	27.9	C
		R	0.20	9.6	A	R	0.22	10.1	B
	SB	L	0.83	66.5	E	L	0.83	65.6	E
		T	0.59	40.3	D	T	0.64	38.7	D
		R	0.36	37.5	D	R	0.44	37.6	D
Overall Intersection[2]		-	-	**36.3**	**D**	-	-	**39.0**	**D**
Pennsylvania Avenue and Cozine Avenue									
Cozine Avenue	EB	LTR	1.05	102.2	F	LTR	1.11	121.4	F
	WB	LTR	0.56	38.2	D	LTR	0.58	39.1	D
Pennsylvania Avenue	NB	L	0.52	14.3	B	L	0.58	18.0	B
		TR	0.87	19.1	B	TR	0.93	24.9	C
	SB	L	0.63	42.4	D	L	0.83	82.0	F
		TR	0.65	14.1	B	TR	0.69	15.3	B
Overall Intersection[2]		-	-	**29.5**	**C**	-	-	**35.0**	**D**
Pennsylvania Avenue and Wortman Avenue									
Wortman Avenue	EB	LTR	0.68	44.9	D	LTR	0.72	47.0	D
	WB	LTR	0.43	36.2	D	LTR	0.45	36.8	D
Pennsylvania Avenue	NB	L	0.61	79.4	E	L	0.61	77.0	E
		TR	0.99	22.8	C	TR	1.06	44.3	D
	SB	L	0.41	54.4	D	L	0.41	54.4	D
		TR	0.63	19.0	B	TR	0.67	20.4	C
Overall Intersection[2]		-	-	**26.5**	**C**	-	-	**37.9**	**D**

Table 13-49 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Stanley Avenue									
Stanley Avenue	EB	LTR	0.89	76.6	E	LTR	1.06	119.9	F
	WB	LTR	0.85	67.6	E	LTR	0.87	71.1	E
Pennsylvania Avenue	NB	L	0.73	82.2	F	L	0.73	78.8	E
		TR	0.86	8.3	A	TR	0.93	8.7	A
	SB	L	0.25	40.6	D	L	0.25	40.2	D
		TR	0.63	34.4	C	TR	0.67	35.2	D
Overall Intersection[2]		-	-	**31.0**	**C**	-	-	**34.8**	**C**
Pennsylvania Avenue and Linden Boulevard									
Linden Boulevard Main Line	EB	L	0.68	77.1	E	L	0.68	77.1	E
		T	0.56	37.2	D	T	0.56	37.2	D
	WB	L	0.86	106.3	F	L	0.91	115.0	F
		T	0.96	55.4	E	T	0.96	55.4	E
Pennsylvania Avenue	NB	L	1.23	149.5	F	L	1.32	188.2	F
		T	1.11	107.4	F	T	1.25	167.8	F
		R	0.22	47.2	D	R	0.24	47.3	D
	SB	L	0.94	98.0	F	L	0.94	100.5	F
		TR	0.80	45.6	D	TR	0.87	50.3	D
Linden Boulevard Eastbound Service Rd	EB	T	0.56	40.2	D	T	0.56	40.2	D
		R	0.39	28.3	C	R	0.39	28.3	C
Linden Boulevard Westbound Service Rd	WB	TR	0.96	76.4	E	TR	0.96	76.4	E
Overall Intersection[2]		-	-	**68.9**	**E**	-	-	**83.7**	**F**
Louisiana Avenue and Vandalia Avenue									
Vandalia Avenue	WB	LR	0.33	16.9	B	LR	0.45	16.0	B
Louisiana Avenue	NB	TR	0.32	12.8	B	TR	0.35	12.6	B
	SB	LT	0.49	11.5	B	LT	0.53	16.5	B
Overall Intersection[2]		-	-	**12.9**	**B**	-	-	**15.1**	**B**

Table 13-49 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.04	22.0	C	L	0.05	24.1	C
		T	0.46	23.5	C	T	0.50	24.3	C
		R	0.37	23.2	C	R	0.89	64.6	E
	WB	L	0.26	23.5	C	L	0.36	27.4	C
		TR	0.56	25.4	C	TR	0.64	27.2	C
Louisiana Avenue	NB	L	0.64	43.5	D	L	0.94	78.0	E
		TR	0.26	36.9	D	TR	0.67	52.9	D
	SB	L	0.04	28.9	C	L	0.18	36.1	D
		TR	0.16	35.4	D	TR	0.20	36.2	D
Overall Intersection[2]		-	-	**27.6**	**C**	-	-	**38.3**	**D**
Flatlands Avenue and East 108th Street									
Flatlands Avenue	EB	L	0.13	13.0	B	L	0.15	14.9	B
		TR	0.42	15.5	B	TR	0.45	16.1	B
	WB	L	0.35	16.8	B	L	0.40	19.0	B
		TR	0.46	16.2	B	TR	0.54	17.7	B
East 108th Street	NB	LTR	0.99	91.8	F	LTR	1.03	100.7	F
	SB	LTR	0.55	46.2	D	LTR	0.58	48.0	D
Overall Intersection[2]		-	-	**31.3**	**C**	-	-	**32.9**	**C**
Flatlands Avenue and Rockaway Parkway									
Flatlands Avenue	EB	L	0.26	39.1	D	L	0.31	43.7	D
		TR	0.66	36.8	D	TR	0.70	38.5	D
	WB	L	0.12	32.1	C	L	0.12	33.1	C
		TR	0.77	40.9	D	TR	0.90	50.8	D
Rockaway Parkway	NB	L	0.46	29.9	C	L	0.48	30.9	C
		TR	0.68	33.3	C	TR	0.68	33.3	C
	SB	LT	0.91	64.9	E	LT	1.04	97.7	F
		R	0.36	35.4	D	R	0.36	35.4	D
Overall Intersection[2]		-	-	**41.4**	**D**	-	-	**50.3**	**D**

Table 13-49 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS									
Flatlands Avenue and Georgia Avenue								**(SIGNALIZED)**	
Flatlands Avenue	EB	LTR	-	1.4	A	L	0.21	10.6	B
		-	-	-	-	TR	0.39	10.4	B
	WB	L	-	0.0	A	L	0.00	0.0	A
		TR	-	0.0	A	TR	0.55	5.4	A
Georgia Access	NB	-	-	-	-	LTR	0.56	44.1	D
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**11.3**	**B**
Flatlands Avenue and Sheffield Avenue/Site Driveway									
Flatlands Avenue	EB	-	-	-	-	TR	0.25	0.0	A
Site Driveway[3]	NB	-	-	-	-	R	1.15	175.1	F
Overall Intersection[2]		-	-	-	-	-	-	**35.3**	**E**
Pennsylvania Avenue and Site Driveway									
Pennsylvania Avenue	SB	-	-	-	-	T	0.35	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**0.0**	**A**
Louisiana Avenue and Site Driveway									
Louisiana Avenue	NB	-	-	-	-	TR	0.22	0.0	A
	SB	-	-	-	-	LT	0.07	2.3	A
Site Driveway	WB	-	-	-	-	LR	0.41	26.1	D
Overall Intersection[2]		-	-	-	-	-	-	**4.7**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Although traffic volumes along the project's driveway approach at Flatlands Avenue and Sheffield Avenue is modest, the Synchro model projects that this approach would operate with poor levels of service due to pedestrian conflicts. The pedestrian conflict inputs assumes that each pedestrian crossing the approach is a conflict and is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process.

Denotes a significantly impacted movement

Table 13-50 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS									
Pennsylvania Avenue and Seaview Avenue									
Seaview Avenue	EB	LT	0.19	29.4	C	LT	0.19	36.5	D
		R	0.47	34.0	C	R	0.48	42.6	D
	WB	LTR	0.48	35.8	D	LTR	0.48	35.8	D
Pennsylvania Avenue	NB	L	0.42	56.9	E	L	0.42	56.9	E
		T	0.46	22.5	C	T	0.46	22.5	C
	SB	L	0.23	67.8	E	L	0.23	70.1	E
		TR	0.62	27.5	C	TR	0.65	28.5	C
Shore Parkway Westbound Off-Ramp	NB	TR	0.35	20.1	C	TR	0.38	20.6	C
Overall Intersection[2]		-	-	**27.3**	**C**	-	-	**28.6**	**C**
Pennsylvania Avenue and Twin Pines Drive									
Twin Pines Drive	EB	LR	0.77	51.4	D	LR	0.79	52.7	D
Pennsylvania Avenue	NB	L	0.41	13.7	B	L	0.48	16.5	B
		T	0.41	9.4	A	T	0.43	8.3	A
	SB	T	0.50	9.9	A	T	0.52	9.5	A
		R	0.29	7.9	A	R	0.29	7.7	A
Overall Intersection[2]		-	-	**15.9**	**B**	-	-	**15.6**	**B**
Pennsylvania Avenue and Vandalia Avenue									
Vandalia Avenue	EB	LTR	0.42	42.5	D	LTR	0.50	35.1	D
	WB	LTR	0.74	50.8	D	LTR	0.85	64.8	E
Pennsylvania Avenue	NB	L	0.94	117.3	F	L	1.46	302.0	F
		T	0.48	6.8	A	T	0.48	7.3	A
		R	0.21	6.2	A	R	0.24	7.0	A
	SB	L	0.38	64.2	E	L	0.38	61.5	E
		T	0.48	35.9	D	T	0.50	33.4	C
		R	0.08	27.3	C	R	0.17	27.2	C
Overall Intersection[2]		-	-	**29.1**	**C**	-	-	**39.9**	**D**

Table 13-50 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.66	50.8	D	L	0.93	65.1	E
		T	0.70	41.6	D	T	0.73	33.8	C
		R	0.32	28.4	C	R	0.51	27.5	C
	WB	L	0.44	44.1	D	L	0.54	49.2	D
		T	0.58	38.2	D	T	0.58	38.4	D
		R	0.44	30.9	C	R	0.46	31.5	C
Pennsylvania Avenue	NB	L	0.55	49.5	D	L	0.59	53.6	D
		T	0.57	28.4	C	T	0.57	27.7	C
		R	0.30	23.3	C	R	0.33	23.4	C
	SB	L	0.80	49.2	D	L	0.80	46.4	D
		T	0.64	16.5	B	T	0.69	16.1	B
		R	0.41	13.1	B	R	0.51	14.4	B
Overall Intersection[2]		-	-	**32.4**	**C**	-	-	**32.1**	**C**
Pennsylvania Avenue and Cozine Avenue									
Cozine Avenue	EB	LTR	1.05	98.2	F	LTR	1.07	105.6	F
	WB	LTR	0.68	45.0	D	LTR	0.70	46.6	D
Pennsylvania Avenue	NB	L	0.39	15.3	B	L	0.45	16.6	B
		TR	0.65	12.6	B	TR	0.69	12.2	B
	SB	L	0.34	9.0	A	L	0.37	9.5	A
		TR	0.70	11.7	B	TR	0.75	11.1	B
Overall Intersection[2]		-	-	**28.0**	**C**	-	-	**28.3**	**C**
Pennsylvania Avenue and Wortman Avenue									
Wortman Avenue	EB	LTR	0.70	46.3	D	LTR	0.73	47.8	D
	WB	LTR	0.42	35.7	D	LTR	0.44	36.3	D
Pennsylvania Avenue	NB	L	0.56	62.4	E	L	0.56	63.5	E
		TR	0.77	31.6	C	TR	0.81	31.6	C
	SB	L	0.44	70.4	E	L	0.44	67.9	E
		TR	0.70	11.5	B	TR	0.75	13.2	B
Overall Intersection[2]		-	-	**27.3**	**C**	-	-	**27.9**	**C**

Table 13-50 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Stanley Avenue									
Stanley Avenue	EB	LTR	0.75	56.1	E	LTR	0.81	62.7	E
	WB	LTR	0.82	61.5	E	LTR	0.85	64.3	E
Pennsylvania Avenue	NB	L	0.56	73.6	E	L	0.56	74.1	E
		TR	0.65	6.1	A	TR	0.68	6.1	A
	SB	L	0.48	43.9	D	L	0.48	40.6	D
		TR	0.57	25.3	C	TR	0.61	27.9	C
Overall Intersection[2]		-	-	**25.6**	**C**	-	-	**27.1**	**C**
Pennsylvania Avenue and Linden Boulevard									
Linden Boulevard Main Line	EB	L	0.99	128.7	F	L	0.99	128.7	F
		T	0.70	40.3	D	T	0.70	40.3	D
	WB	L	0.91	113.3	F	L	0.95	122.3	F
		T	0.77	42.5	D	T	0.77	42.5	D
Pennsylvania Avenue	NB	L	1.14	122.4	F	L	1.22	152.4	F
		T	0.88	34.8	C	T	0.95	43.1	D
		R	0.40	21.5	C	R	0.41	23.0	C
	SB	L	0.79	64.2	E	L	0.84	73.6	E
		TR	0.69	40.7	D	TR	0.75	43.0	D
Linden Boulevard Eastbound Service Rd	EB	T	0.58	40.3	D	T	0.58	40.3	D
		R	0.46	29.6	C	R	0.46	29.6	C
Linden Boulevard Westbound Service Rd	WB	T	1.06	100.7	F	T	1.06	100.7	F
		R	0.20	32.5	C	R	0.20	32.5	C
Overall Intersection[2]		-	-	**54.1**	**D**	-	-	**57.5**	**E**
Louisiana Avenue and Vandalia Avenue									
Vandalia Avenue	WB	LR	0.37	23.0	C	LR	0.49	26.8	C
Louisiana Avenue	NB	TR	0.28	7.5	A	TR	0.31	8.2	A
	SB	LT	0.53	12.2	B	LT	0.57	18.5	B
Overall Intersection[2]		-	-	**13.2**	**B**	-	-	**17.6**	**B**

Table 13-50 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.09	21.2	C	L	0.10	22.5	C
		T	0.63	26.9	C	T	0.67	28.2	C
		R	0.46	25.1	C	R	1.15	139.4	F
	WB	L	0.38	31.5	C	L	0.52	39.2	D
		TR	0.46	23.4	C	TR	0.51	24.3	C
Louisiana Avenue	NB	L	0.69	45.4	D	L	0.97	84.6	F
		TR	0.29	37.3	D	TR	0.67	51.3	D
	SB	L	0.02	29.2	C	L	0.17	35.9	D
		TR	0.13	34.8	C	TR	0.16	35.4	D
Overall Intersection[2]		-	-	**28.9**	**C**	-	-	**47.6**	**D**
Flatlands Avenue and East 108th Street									
Flatlands Avenue	EB	L	0.18	14.9	B	L	0.20	16.3	B
		TR	0.58	19.3	B	TR	0.63	20.4	C
	WB	L	0.50	27.3	C	L	0.57	33.1	C
		TR	0.44	16.9	B	TR	0.49	17.7	B
East 108th Street	NB	LTR	0.96	85.1	F	LTR	1.00	94.5	F
	SB	LTR	0.65	50.2	D	LTR	0.69	52.9	D
Overall Intersection[2]		-	-	**30.7**	**C**	-	-	**32.8**	**C**
Flatlands Avenue and Rockaway Parkway									
Flatlands Avenue	EB	L	0.28	36.6	D	L	0.30	38.8	D
		TR	0.85	44.2	D	TR	0.89	47.4	D
	WB	L	0.19	37.6	D	L	0.20	39.0	D
		TR	0.67	35.5	D	TR	0.73	37.4	D
Rockaway Parkway	NB	L	0.46	29.5	C	L	0.49	30.7	C
		TR	0.47	28.3	C	TR	0.47	28.3	C
	SB	LT	0.69	45.4	D	LT	0.80	52.7	D
		R	0.29	34.7	C	R	0.29	34.7	C
Overall Intersection[2]		-	-	**38.3**	**D**	-	-	**41.1**	**D**

Table 13-50 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS									
Flatlands Avenue and Georgia Avenue								**(SIGNALIZED)**	
Flatlands Avenue	EB	LTR	-	1.2	A	L	0.18	11.0	B
		-	-	-	-	TR	0.57	14.5	B
	WB	L	-	0.0	A	L	0.00	0.0	A
		TR	-	0.0	A	TR	0.49	10.7	B
Georgia Access	NB	-	-	-	-	LTR	0.29	34.5	C
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**14.0**	**B**
Flatlands Avenue and Sheffield Avenue/Site Driveway									
Flatlands Avenue	EB	-	-	-	-	TR	0.35	0.0	A
Site Driveway[3]	NB	-	-	-	-	R	1.07	200.9	F
Overall Intersection[2]		-	-	-	-	-	-	**17.4**	**C**
Pennsylvania Avenue and Site Driveway									
Pennsylvania Avenue	SB	-	-	-	-	T	0.39	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**0.0**	**A**
Louisiana Avenue and Site Driveway									
Louisiana Avenue	NB	-	-	-	-	TR	0.21	0.0	A
	SB	-	-	-	-	LT	0.09	2.7	A
Site Driveway	WB	-	-	-	-	LR	0.35	27.6	D
Overall Intersection[2]		-	-	-	-	-	-	**4.0**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Although traffic volumes along the project's driveway approach at Flatlands Avenue and Sheffield Avenue is modest, the Synchro model projects that this approach would operate with poor levels of service due to pedestrian conflicts. The pedestrian conflict inputs assumes that each pedestrian crossing the approach is a conflict and is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process.

Denotes a significantly impacted movement

Table 13-51 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS									
Pennsylvania Avenue and Seaview Avenue									
Seaview Avenue	EB	LT	0.23	36.0	D	LT	0.23	31.7	C
		R	0.87	60.3	E	R	0.88	55.1	E
	WB	LTR	0.52	36.8	D	LTR	0.52	36.8	D
Pennsylvania Avenue	NB	L	0.31	55.8	E	L	0.31	55.8	E
		T	0.43	21.7	C	T	0.43	21.7	C
	SB	L	0.21	50.3	D	L	0.21	51.6	D
		TR	0.72	14.3	B	TR	0.75	16.1	B
Shore Parkway Westbound Off-Ramp	NB	TR	0.38	20.5	C	TR	0.44	21.3	C
Overall Intersection[2]		-	-	**26.0**	**C**	-	-	**25.8**	**C**
Pennsylvania Avenue and Twin Pines Drive									
Twin Pines Drive	EB	LR	0.84	57.9	E	LR	0.86	60.2	E
Pennsylvania Avenue	NB	L	0.51	30.1	C	L	0.64	36.0	D
		T	0.37	22.7	C	T	0.40	21.8	C
	SB	T	0.56	10.0	A	T	0.59	10.2	B
		R	0.30	7.7	A	R	0.30	8.0	A
Overall Intersection[2]		-	-	**22.4**	**C**	-	-	**22.9**	**C**
Pennsylvania Avenue and Vandalia Avenue									
Vandalia Avenue	EB	LTR	0.40	42.9	D	LTR	0.49	42.9	D
	WB	LTR	0.81	58.6	E	LTR	0.97	89.6	F
Pennsylvania Avenue	NB	L	0.45	46.7	D	L	0.92	97.2	F
		T	0.55	6.2	A	T	0.54	6.5	A
		R	0.20	5.3	A	R	0.25	6.1	A
	SB	L	0.53	41.5	D	L	0.48	41.2	D
		T	0.59	18.1	B	T	0.63	17.3	B
		R	0.06	12.8	B	R	0.18	12.7	B
Overall Intersection[2]		-	-	**20.2**	**C**	-	-	**25.6**	**C**

Table 13-51 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.55	49.7	D	L	0.81	84.1	F
		T	0.95	63.9	E	T	0.99	76.4	E
		R	0.37	29.9	C	R	0.61	43.1	D
	WB	L	0.49	53.6	D	L	0.64	60.8	E
		T	0.72	44.6	D	T	0.73	45.0	D
		R	0.31	28.7	C	R	0.33	29.2	C
Pennsylvania Avenue	NB	L	0.78	39.4	D	L	0.87	53.1	D
		T	0.55	13.2	B	T	0.55	15.3	B
		R	0.35	13.0	B	R	0.39	16.1	B
	SB	L	0.75	28.1	C	L	0.75	25.6	C
		T	0.72	15.0	B	T	0.79	18.1	B
		R	0.52	14.3	B	R	0.68	19.9	B
Overall Intersection[2]		-	-	**32.9**	**C**	-	-	**39.5**	**D**
Pennsylvania Avenue and Cozine Avenue									
Cozine Avenue	EB	LTR	1.10	113.9	F	LTR	1.14	126.8	F
	WB	LTR	0.73	45.5	D	LTR	0.77	48.3	D
Pennsylvania Avenue	NB	L	0.36	17.2	B	L	0.45	21.3	C
		TR	0.57	12.9	B	TR	0.61	12.9	B
	SB	L	0.35	9.8	A	L	0.39	9.8	A
		TR	0.74	16.8	B	TR	0.81	16.7	B
Overall Intersection[2]		-	-	**33.7**	**C**	-	-	**35.2**	**D**
Pennsylvania Avenue and Wortman Avenue									
Wortman Avenue	EB	LTR	0.88	62.1	E	LTR	0.92	67.8	E
	WB	LTR	0.63	42.7	D	LTR	0.68	45.5	D
Pennsylvania Avenue	NB	L	0.57	60.4	E	L	0.57	62.0	E
		TR	0.64	27.2	C	TR	0.69	23.6	C
	SB	L	0.55	73.8	E	L	0.55	75.7	E
		TR	0.75	13.5	B	TR	0.82	15.3	B
Overall Intersection[2]		-	-	**29.3**	**C**	-	-	**29.4**	**C**

Table 13-51 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday PM Peak Hour

		2031 No-Action				2031 With-Action			
Intersection & Approach		**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**	**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**
Pennsylvania Avenue and Stanley Avenue									
Stanley Avenue	EB	LTR	0.75	55.0	D	LTR	0.81	60.7	E
	WB	LTR	0.89	72.4	E	LTR	0.92	79.4	E
Pennsylvania Avenue	NB	L	0.57	57.4	E	L	0.57	57.8	E
		TR	0.55	12.2	B	TR	0.58	13.0	B
	SB	L	0.50	62.6	E	L	0.50	65.1	E
		TR	0.69	13.7	B	TR	0.74	13.5	B
Overall Intersection[2]		-	-	**25.0**	**C**	-	-	**26.0**	**C**
Pennsylvania Avenue and Linden Boulevard									
Linden Boulevard Main Line	EB	L	0.75	82.3	F	L	0.75	82.3	F
		T	1.02	70.8	E	T	1.02	70.8	E
	WB	L	0.87	101.6	F	L	0.87	101.6	F
		T	0.58	37.4	D	T	0.58	37.4	D
Pennsylvania Avenue	NB	L	1.13	142.3	F	L	1.27	199.1	F
		T	0.71	48.9	D	T	0.77	52.3	D
		R	0.33	41.9	D	R	0.33	41.6	D
	SB	L	0.72	55.3	E	L	0.77	62.4	E
		TR	0.84	47.2	D	TR	0.94	58.0	E
Linden Boulevard Eastbound Service Rd	EB	T	0.80	50.6	D	T	0.80	50.6	D
		R	0.54	31.6	C	R	0.54	31.6	C
Linden Boulevard Westbound Service Rd	WB	T	1.09	107.9	F	T	1.09	107.9	F
		R	0.18	32.1	C	R	0.18	32.1	C
Overall Intersection[2]		-	-	**63.4**	**E**	-	-	**67.9**	**E**
Louisiana Avenue and Vandalia Avenue									
Vandalia Avenue	WB	LR	0.30	16.0	B	LR	0.48	19.4	B
Louisiana Avenue	NB	TR	0.28	9.3	A	TR	0.33	9.3	A
	SB	LT	0.75	17.4	B	LT	0.79	15.5	B
Overall Intersection[2]		-	-	**15.2**	**B**	-	-	**14.7**	**B**

Table 13-51 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.34	34.6	C	L	0.38	38.9	D
		T	0.72	29.7	C	T	0.79	32.5	C
		R	0.36	23.0	C	R	1.14	141.3	F
	WB	L	0.46	39.9	D	L	0.69	56.4	E
		TR	0.64	27.1	C	TR	0.71	28.9	C
Louisiana Avenue	NB	L	0.93	80.8	F	L	1.18	158.6	F
		TR	0.35	38.5	D	TR	0.86	63.5	E
	SB	L	0.08	31.6	C	L	0.37	44.8	D
		TR	0.65	47.7	D	TR	0.71	51.3	D
Overall Intersection[2]		-	-	**35.4**	**D**	-	-	**54.6**	**D**
Flatlands Avenue and East 108th Street									
Flatlands Avenue	EB	L	0.20	18.1	B	L	0.22	20.5	C
		TR	0.69	21.5	C	TR	0.76	23.9	C
	WB	L	0.87	59.4	E	L	1.04	100.5	F
		TR	0.56	18.4	B	TR	0.62	19.6	B
East 108th Street	NB	LTR	0.87	68.2	E	LTR	0.91	74.4	E
	SB	LTR	0.88	70.9	E	LTR	0.93	81.1	F
Overall Intersection[2]		-	-	**33.1**	**C**	-	-	**39.0**	**D**
Flatlands Avenue and Rockaway Parkway									
Flatlands Avenue	EB	L	0.36	47.6	D	L	0.37	49.5	D
		TR	1.02	72.5	E	TR	1.07	89.5	F
	WB	L	0.18	44.7	D	L	0.18	46.5	D
		TR	0.89	48.0	D	TR	0.95	56.2	E
Rockaway Parkway	NB	L	0.51	29.8	C	L	0.56	32.4	C
		TR	0.44	26.4	C	TR	0.44	26.4	C
	SB	LT	0.72	44.9	D	LT	0.87	58.8	E
		R	0.37	35.4	D	R	0.37	35.4	D
Overall Intersection[2]		-	-	**52.2**	**D**	-	-	**62.7**	**E**

Table 13-51 Year 2031 No-Action vs With-Action Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS									
Flatlands Avenue and Georgia Avenue								**(SIGNALIZED)**	
Flatlands Avenue	EB	LTR	-	1.8	A	L	0.23	9.6	A
		-	-	-	-	TR	0.68	13.2	B
	WB	L	-	0.0	A	L	0.00	0.0	A
		TR	-	0.0	A	TR	0.50	18.0	B
Georgia Access	NB	-	-	-	-	LTR	0.70	54.3	D
Overall Intersection[2]		-	-	**0.5**	**A**	-	-	**18.4**	**B**
Flatlands Avenue and Sheffield Avenue/Site Driveway									
Flatlands Avenue	EB	-	-	-	-	TR	0.47	0.0	A
Site Driveway[3]	NB	-	-	-	-	R	2.00+	600+	F
Overall Intersection[2]		-	-	-	-	-	-	**39.9**	**E**
Pennsylvania Avenue and Site Driveway									
Pennsylvania Avenue	SB	-	-	-	-	T	0.47	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**0.0**	**A**
Louisiana Avenue and Site Driveway									
Louisiana Avenue	NB	-	-	-	-	TR	0.23	0.0	A
	SB	-	-	-	-	LT	0.16	4.5	A
Site Driveway[3]	WB	-	-	-	-	LR	0.66	69.3	F
Overall Intersection[2]		-	-	-	-	-	-	**8.6**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Although traffic volumes along the project's driveway approaches at Flatlands Avenue and Sheffield Avenue, and along the Louisiana Avenue driveway are modest, the Synchro model projects that these approaches would operate with poor levels of service due to pedestrian conflicts. The pedestrian conflict inputs assumes that each pedestrian crossing the approach is a conflict and is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process.

Denotes a significantly impacted movement

Table 13-52 Year 2031 No-Action vs With-Action Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS									
Pennsylvania Avenue and Seaview Avenue									
Seaview Avenue	EB	LT	0.16	17.4	B	LT	0.16	17.4	B
		R	0.60	25.5	C	R	0.61	25.9	C
	WB	LTR	0.57	24.8	C	LTR	0.57	24.8	C
Pennsylvania Avenue	NB	L	0.38	40.4	D	L	0.38	40.4	D
		T	0.60	29.1	C	T	0.60	29.1	C
	SB	L	0.13	54.5	D	L	0.13	54.5	D
		TR	0.76	33.6	C	TR	0.81	35.9	D
Shore Parkway Westbound Off-Ramp	NB	TR	0.61	27.7	C	TR	0.68	29.5	C
Overall Intersection[2]		-	-	**29.4**	**C**	-	-	**30.7**	**C**
Pennsylvania Avenue and Twin Pines Drive									
Twin Pines Drive	EB	LR	0.56	25.8	C	LR	0.58	26.2	C
Pennsylvania Avenue	NB	L	0.51	37.8	D	L	0.63	45.9	D
		T	0.54	23.2	C	T	0.57	25.8	C
	SB	T	0.59	8.8	A	T	0.65	9.0	A
		R	0.52	9.4	A	R	0.52	9.3	A
Overall Intersection[2]		-	-	**18.6**	**B**	-	-	**20.3**	**C**
Pennsylvania Avenue and Vandalia Avenue									
Vandalia Avenue	EB	LTR	0.39	25.4	C	LTR	0.47	27.4	C
	WB	LTR	0.62	32.3	C	LTR	0.74	40.4	D
Pennsylvania Avenue	NB	L	0.40	38.8	D	L	0.74	51.4	D
		T	0.69	20.3	C	T	0.71	22.3	C
		R	0.24	15.2	B	R	0.35	19.3	B
	SB	L	0.26	44.9	D	L	0.23	43.6	D
		T	0.59	36.8	D	T	0.65	35.2	D
		R	0.08	29.6	C	R	0.25	31.1	C
Overall Intersection[2]		-	-	**28.3**	**C**	-	-	**30.6**	**C**

Table 13-52 Year 2031 No-Action vs With-Action Traffic Levels of Service – Saturday Peak Hour

		2031 No-Action				2031 With-Action			
Intersection & Approach		**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**	**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**
Pennsylvania Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.70	50.6	D	L	1.13	121.8	F
		T	0.75	32.1	C	T	0.78	32.3	C
		R	0.19	18.9	B	R	0.42	25.6	C
	WB	L	0.51	40.6	D	L	0.69	50.9	D
		T	0.79	33.8	C	T	0.80	34.1	C
		R	0.35	21.2	C	R	0.38	21.7	C
Pennsylvania Avenue	NB	L	1.01	81.7	F	L	1.14	127.4	F
		T	0.60	16.5	B	T	0.60	16.6	B
		R	0.38	13.7	B	R	0.45	15.8	B
	SB	L	1.15	109.4	F	L	1.17	111.1	F
		T	0.68	13.1	B	T	0.76	15.6	B
		R	0.68	17.5	B	R	0.91	35.4	D
Overall Intersection[2]		-	-	**33.5**	**C**	-	-	**41.1**	**D**
Pennsylvania Avenue and Cozine Avenue									
Cozine Avenue	EB	LT	1.29	185.0	F	LT	1.35	207.2	F
	WB	LTR	1.01	79.9	E	LTR	1.06	95.4	F
Pennsylvania Avenue	NB	L	0.59	25.5	C	L	0.72	36.1	D
		TR	0.58	9.0	A	TR	0.63	8.6	A
	SB	L	0.37	9.5	A	L	0.43	10.8	B
		TR	0.74	13.6	B	TR	0.80	14.7	B
Overall Intersection[2]		-	-	**46.0**	**D**	-	-	**50.1**	**D**
Pennsylvania Avenue and Wortman Avenue									
Wortman Avenue	EB	LTR	0.66	33.6	C	LTR	0.69	35.0	C
	WB	LTR	0.55	29.5	C	LTR	0.59	30.8	C
Pennsylvania Avenue	NB	L	0.51	36.7	D	L	0.51	36.4	D
		TR	0.75	25.7	C	TR	0.81	29.4	C
	SB	L	0.59	42.6	D	L	0.59	41.3	D
		TR	0.81	28.3	C	TR	0.88	32.6	C
Overall Intersection[2]		-	-	**28.6**	**C**	-	-	**31.8**	**C**

Table 13-52 Year 2031 No-Action vs With-Action Traffic Levels of Service – Saturday Peak Hour

		2031 No-Action				2031 With-Action			
Intersection & Approach		**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**	**Mvt**	**V/C**	**Ctrl Delay[1]**	**LOS**
Pennsylvania Avenue and Stanley Avenue									
Stanley Avenue	EB	LTR	0.76	39.8	D	LTR	0.84	47.4	D
	WB	LTR	0.96	65.4	E	LTR	1.00	75.1	E
Pennsylvania Avenue	NB	L	0.53	64.1	E	L	0.53	64.3	E
		TR	0.69	10.4	B	TR	0.75	11.2	B
	SB	L	0.45	25.9	C	L	0.45	25.1	C
		TR	0.76	37.5	D	TR	0.82	40.6	D
Overall Intersection[2]		-	-	**33.1**	**C**	-	-	**36.4**	**D**
Pennsylvania Avenue and Linden Boulevard									
Linden Boulevard Main Line	EB	L	0.79	84.0	F	L	0.79	84.0	F
		T	0.76	33.8	C	T	0.76	33.8	C
	WB	L	0.95	115.8	F	L	0.96	118.0	F
		T	0.73	32.8	C	T	0.73	32.8	C
Pennsylvania Avenue	NB	L	1.14	116.5	F	L	1.26	166.3	F
		T	0.71	47.5	D	T	0.81	50.9	D
		R	0.36	45.0	D	R	0.36	45.2	D
	SB	L	0.68	42.0	D	L	0.75	48.9	D
		TR	0.82	38.1	D	TR	0.91	46.1	D
Linden Boulevard Eastbound Service Rd	EB	T	0.62	34.2	C	T	0.62	34.2	C
		R	0.47	24.5	C	R	0.47	24.5	C
Linden Boulevard Westbound Service Rd	WB	TR	0.82	46.2	D	TR	0.82	46.2	D
Overall Intersection[2]		-	-	**44.6**	**D**	-	-	**49.6**	**D**
Louisiana Avenue and Vandalia Avenue									
Vandalia Avenue	WB	LR	0.36	17.9	B	LR	0.54	21.1	C
Louisiana Avenue	NB	TR	0.31	9.2	A	TR	0.35	9.6	A
	SB	LT	0.69	15.6	B	LT	0.74	17.2	B
Overall Intersection[2]		-	-	**14.3**	**B**	-	-	**16.0**	**B**

Table 13-52 Year 2031 No-Action vs With-Action Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
Louisiana Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.28	37.6	D	L	0.28	39.3	D
		T	0.79	32.6	C	T	0.88	37.8	D
		R	0.40	25.2	C	R	1.48	283.9	F
	WB	L	0.48	37.7	D	L	0.68	49.4	D
		TR	0.97	50.2	D	TR	1.07	77.1	E
Louisiana Avenue	NB	L	0.88	56.4	E	L	1.10	111.3	F
		TR	0.40	29.0	C	TR	0.90	59.7	E
	SB	L	0.13	21.9	C	L	0.35	31.1	C
		TR	0.67	36.9	D	TR	0.72	39.5	D
Overall Intersection[2]		-	-	**41.1**	**D**	-	-	**73.3**	**E**
Flatlands Avenue and East 108th Street									
Flatlands Avenue	EB	L	0.30	29.3	C	L	0.33	33.5	C
		TR	0.74	26.3	C	TR	0.84	30.7	C
	WB	L	1.11	115.5	F	L	1.32	197.5	F
		TR	0.82	29.5	C	TR	0.93	38.1	D
East 108th Street	NB	LTR	0.98	68.1	E	LTR	1.02	78.7	E
	SB	LTR	0.62	31.9	C	LTR	0.65	33.2	C
Overall Intersection[2]		-	-	**43.2**	**D**	-	-	**57.0**	**E**
Flatlands Avenue and Rockaway Parkway									
Flatlands Avenue	EB	L	0.28	37.7	D	L	0.28	37.7	D
		TR	1.12	101.5	F	TR	1.18	125.1	F
	WB	L	0.16	35.2	D	L	0.16	36.6	D
		TR	1.05	76.4	E	TR	1.15	114.1	F
Rockaway Parkway	NB	L	0.67	32.2	C	L	0.74	38.2	D
		TR	0.53	22.7	C	TR	0.53	22.7	C
	SB	LT	0.99	75.3	E	LT	1.15	126.9	F
		R	0.20	27.0	C	R	0.20	27.0	C
Overall Intersection[2]		-	-	**72.8**	**E**	-	-	**100.8**	**F**

Table 13-52 Year 2031 No-Action vs With-Action Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS									
Flatlands Avenue and Georgia Avenue								**(SIGNALIZED)**	
Flatlands Avenue	EB	LTR	-	1.2	A	L	0.28	12.3	B
		-	-	-	-	TR	0.66	13.2	B
	WB	L	-	0.0	A	L	0.00	0.0	A
		TR	-	0.0	A	TR	0.63	11.7	B
Georgia Access	NB	-	-	-	-	LTR	0.86	53.2	D
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**16.8**	**B**
Flatlands Avenue and Sheffield Avenue/Site Driveway									
Flatlands Avenue	EB	-	-	-	-	TR	0.47	0.0	A
Site Driveway[3]	NB	-	-	-	-	R	2.00+	600+	F
Overall Intersection[2]		-	-	-	-	-	-	**47.7**	**E**
Pennsylvania Avenue and Site Driveway									
Pennsylvania Avenue	SB	-	-	-	-	T	0.39	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**0.0**	**A**
Louisiana Avenue and Site Driveway									
Louisiana Avenue	NB	-	-	-	-	TR	0.25	0.0	A
	SB	-	-	-	-	LT	0.18	5.6	A
Site Driveway[3]	WB	-	-	-	-	LR	0.97	149.1	F
Overall Intersection[2]		-	-	-	-	-	-	**17.0**	**C**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Although traffic volumes along the project's driveway approaches at Flatlands Avenue and Sheffield Avenue, and along the Louisiana Avenue driveway are modest, the Synchro model projects that these approaches would operate with poor levels of service due to pedestrian conflicts. The pedestrian conflict inputs assumes that each pedestrian crossing the approach is a conflict and is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process.

Denotes a significantly impacted movement

Table 13-53 Year 2031 No-Action vs With-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
SIGNALIZED INTERSECTIONS									
Pennsylvania Avenue and Seaview Avenue									
Seaview Avenue	EB	LT	0.07	16.4	B	LT	0.07	16.4	B
		R	0.42	21.3	C	R	0.44	21.7	C
	WB	LTR	0.29	19.1	B	LTR	0.30	19.2	B
Pennsylvania Avenue	NB	L	0.30	40.0	D	L	0.30	40.0	D
		T	1.04	75.5	E	T	1.04	75.5	E
	SB	L	0.07	54.9	D	L	0.07	56.6	E
		TR	0.95	47.3	D	TR	0.99	53.7	D
Shore Parkway Westbound Off-Ramp	NB	TR	0.44	24.6	C	TR	0.51	25.6	C
Overall Intersection[2]		-	-	**46.0**	**D**	-	-	**48.1**	**D**
Pennsylvania Avenue and Twin Pines Drive									
Twin Pines Drive	EB	LR	0.36	21.8	C	LR	0.37	22.0	C
Pennsylvania Avenue	NB	L	0.96	90.4	F	L	1.33	220.6	F
		T	0.69	30.6	C	T	0.69	30.8	C
	SB	T	0.75	9.2	A	T	0.79	11.1	B
		R	0.36	6.7	A	R	0.34	7.6	A
Overall Intersection[2]		-	-	**26.0**	**C**	-	-	**43.0**	**D**
Pennsylvania Avenue and Vandalia Avenue									
Vandalia Avenue	EB	LTR	0.24	22.9	C	LTR	0.30	24.0	C
	WB	LTR	0.42	26.5	C	LTR	0.54	30.4	C
Pennsylvania Avenue	NB	L	1.01	101.2	F	L	1.69	364.3	F
		T	0.70	26.5	C	T	0.64	25.6	C
		R	0.19	21.2	C	R	0.26	22.5	C
	SB	L	0.12	39.5	D	L	0.12	40.9	D
		T	0.71	29.5	C	T	0.73	32.0	C
		R	0.39	25.1	C	R	0.46	30.7	C
Overall Intersection[2]		-	-	**31.9**	**C**	-	-	**63.6**	**E**

Table 13-53 Year 2031 No-Action vs With-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action			
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS
Pennsylvania Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	1.15	123.4	F	L	1.34	186.5	F
		T	0.80	34.9	C	T	0.85	36.1	D
		R	0.93	53.0	D	R	0.84	38.1	D
	WB	L	0.46	36.8	D	L	0.69	49.1	D
		T	0.43	25.4	C	T	0.45	25.7	C
		R	0.31	20.8	C	R	0.39	22.5	C
Pennsylvania Avenue	NB	L	1.06	92.7	F	L	0.77	52.4	D
		T	0.64	15.1	B	T	0.64	28.9	C
		R	0.29	10.4	B	R	0.40	27.6	C
	SB	L	0.96	81.0	F	L	1.02	94.9	F
		T	0.60	28.3	C	T	0.71	30.9	C
		R	0.60	35.4	D	R	1.00	92.1	F
Overall Intersection[2]		-	-	**45.1**	**D**	-	-	**54.3**	**D**
Louisiana Avenue and Vandalia Avenue									
Vandalia Avenue	WB	LR	0.75	28.9	C	LR	0.78	30.9	C
Louisiana Avenue	NB	TR	0.39	10.1	B	TR	0.48	11.2	B
	SB	LT	0.50	11.6	B	LT	0.55	12.5	B
Overall Intersection[2]		-	-	**16.5**	**B**	-	-	**17.4**	**B**
Louisiana Avenue and Flatlands Avenue									
Flatlands Avenue	EB	L	0.11	22.3	C	L	0.15	28.7	C
		T	0.91	41.3	D	T	0.91	41.7	D
		R	0.80	57.3	E	R	1.32	202.9	F
	WB	L	0.62	45.0	D	L	1.27	186.1	F
		TR	0.61	27.0	C	TR	0.85	36.2	D
Louisiana Avenue	NB	L	0.90	61.2	E	L	0.75	51.0	D
		TR	1.30	184.3	F	TR	0.99	75.1	E
	SB	L	1.54	296.5	F	L	0.63	40.5	D
		TR	0.73	40.9	D	TR	1.00	79.6	E
Overall Intersection[2]		-	-	**91.9**	**F**	-	-	**71.2**	**E**

Table 13-53 Year 2031 No-Action vs With-Action Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS
UNSIGNALIZED INTERSECTIONS									
Flatlands Avenue and Georgia Avenue/Site Driveway								**(SIGNALIZED)**	
Flatlands Avenue	EB	LTR	-	4.7	A	L	0.77	47.9	D
		-	-	-	-	TR	0.90	32.9	C
	WB	L	-	0.0	A	L	0.0	0.0	A
		TR	-	0.0	A	TR	0.62	18.5	B
Site Driveway	NB	LTR	-	138.4	F	LT	0.71	27.7	C
		-	-	-	-	R	0.95	54.8	D
Overall Intersection[2]		-	-	**16.9**	**C**	-	-	**32.2**	**C**
Flatlands Avenue and Sheffield Avenue/Site Driveway									
Flatlands Avenue	EB	-	-	-	-	TR	0.54	0.0	A
Site Driveway[3]	NB	-	-	-	-	R	2.00+	600+	F
Overall Intersection[2]		-	-	-	-	-	-	**600+**	**F**
Pennsylvania Avenue and Site Driveway									
Pennsylvania Avenue	SB	-	-	-	-	T	0.41	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**0.0**	**A**
Louisiana Avenue and Site Driveway [4]									
Louisiana Avenue	NB	-	-	-	-	TR	0.47	0.0	A
	SB	-	-	-	-	L	0.75	35.9	E
		-	-	-	-	T	0.35	0.0	A
Overall Intersection[2]		-	-	-	-	-	-	**6.5**	**A**

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Although traffic volumes along the project's driveway approach at Flatlands Avenue and Sheffield Avenue is modest, the Synchro model projects that this approach would operate with poor levels of service due to pedestrian conflicts. The pedestrian conflict inputs assumes that each pedestrian crossing the approach is a conflict and is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process.

[4] Traffic levels of services shown are for the condition without traffic enforcement assistance by CCC staff. The CCC staff would be expected to monitor traffic operations at this intersection to help facilitate inbound traffic further reduce delays and queues along Louisiana Avenue.

Denotes a significantly impacted movement

The summary overview of 2031 With-Action conditions indicates that:

› In the weekday AM peak hour, two intersections would operate at LOS E or F, compared to one in the No-Action condition. Twenty-six individual traffic movements would operate at LOS E or F, compared to 17 movements in the No-Action condition.

- In the weekday midday peak hour, one intersection would operate at LOS E, compared to none in the No-Action condition (none would operate at LOS F in either condition). Twenty-one movements would operate at LOS E or F, compared to 16 movements in the No-Action condition.
- In the weekday PM peak hour, three intersections would operate at LOS E, compared to one in the No-Action condition (none would operate at LOS F in either condition). Thirty-five movements would operate at LOS E or F, compared to 23 movements in the No-Action condition.
- In the Saturday peak hour, four intersections would operate at LOS E or F, compared to one in the No-Action condition. Twenty-one movements would operate at LOS E or F, compared to 15 movements in the No-Action condition.
- In the Sunday peak hour, three intersections would operate at LOS E or F, compared to one at LOS F in the No-Action condition. Thirteen movements would operate at LOS E or F, compared to 11 movements in the No-Action condition.

Traffic movements that operate at unacceptable levels of service under the No-Action condition would continue to do so under the With-Action condition; additional movements that would be expected to operate at unacceptable levels of service as a result of the Proposed Project are listed below.

- Pennsylvania Avenue and Seaview Avenue
  - Eastbound Seaview Avenue right turn movement (weekday AM)
- Pennsylvania Avenue and Vandalia Avenue
  - Westbound Vandalia Avenue approach (weekday AM and midday)
  - Northbound Vandalia Avenue left turn movement (weekday AM, PM)
- Pennsylvania Avenue and Flatlands Avenue
  - Eastbound Flatlands Avenue left turn movement (weekday AM, midday, PM, Saturday)
  - Westbound Flatlands Avenue left turn movement (weekday PM)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM)
  - Southbound Pennsylvania Avenue right turn movement (Sunday)
- Pennsylvania Avenue and Cozine Avenue
  - Southbound Pennsylvania Avenue left turn movement (weekday AM)
- Pennsylvania Avenue and Stanley Avenue
  - Eastbound Stanley Avenue approach (weekday PM)
- Pennsylvania Avenue and Linden Boulevard
  - Southbound Pennsylvania Avenue shared through-right movement (weekday PM)
- Louisiana Avenue and Flatlands Avenue
  - Eastbound Flatlands Avenue right turn movement (weekday AM, midday, PM, Saturday)
  - Westbound Flatlands Avenue left turn movement (weekday PM and Sunday)
  - Westbound Flatlands Avenue shared through-right movement (Saturday)

- Northbound Louisiana Avenue left turn movement (weekday AM and midday)
- Northbound Louisiana Avenue shared through-right movement (weekday PM, Saturday)
- Southbound Louisiana Avenue shared through-right movement (Sunday)

› Flatlands Avenue and Rockaway Parkway

- Westbound Flatlands Avenue shared through-right movement (weekday PM)
- Southbound Rockaway Parkway shared left-through movement (weekday PM)

The following movements are expected to operate at unacceptable LOS E or F in the No-Action conditions during the Sunday peak hour and would be expected to improve to acceptable levels of service as a result of the changes in the Development Site access:

› Northbound Pennsylvania Avenue left turn at Flatlands Avenue;

› Northbound Louisiana Avenue left turn movement at Flatlands Avenue;

› Southbound Louisiana Avenue left turn at Flatlands Avenue; and

› Northbound Site Driveway approach at Flatlands Avenue and Georgia Avenue.

In addition to the movements identified above, the new site access driveway exits at the intersection of Flatlands Avenue and Sheffield Avenue, and along Louisiana Avenue would be expected to operate at LOS F during specific peak hours despite modest traffic volumes. This ~~is~~could be due to how the Synchro model assesses pedestrian conflicts; the pedestrian conflict inputs assumes that each pedestrian crossing the site egress approach is an individual conflict which is a conservative approach since pedestrians typically cross in groups and each group is considered a pedestrian conflict. The Applicant will coordinate with NYC DOT in the driveway design process and commit to a traffic monitoring program for the intersection of Flatlands Avenue and Sheffield Avenue. ~~If~~The traffic monitoring program would be conducted after Buildings 1 through 6 have been completed and would assess the traffic operations at the driveway at the intersection of Flatlands Avenue and Sheffield Avenue. If it is determined that additional egress capacity is ~~determined to be~~ needed, then the Applicant will explore the potential to convert driveway access along Pennsylvania Avenue from a one-way inbound roadway to a two-way roadway. ~~The specifics of the traffic monitoring program will be coordinated with NYC DOT between the Draft and Final EISs.~~

Of the 16 intersections analyzed (including new site access driveway intersections with the street network), the Proposed Project would result in significant adverse traffic impacts at nine intersections (at 15 movements) during the weekday AM peak hour, seven intersections (at 11 movements) during the weekday midday peak hour, nine intersections (at 22 movements) during the weekday PM peak hour, and seven intersections (at 15 movements) during the Saturday peak hour. For the Sunday peak hour, at the 10 intersections analyzed, the Proposed Project would result in significant adverse traffic impacts at four intersections (at eight movements). The majority of the impacted movements are left and right turns from the key roadways in the area (e.g., Pennsylvania Avenue and Flatlands Avenue) or along the minor street approach along these key roadways. The significantly impacted traffic movements are identified below:

› Pennsylvania Avenue and Seaview Avenue

- Eastbound Seaview Avenue right turn movement (weekday AM)

› Pennsylvania Avenue and Twin Pines Drive
  - Northbound Pennsylvania Avenue left turn movement (Sunday)

› Pennsylvania Avenue and Vandalia Avenue
  - Westbound Vandalia Avenue approach (weekday AM, midday, and PM)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Sunday)

› Pennsylvania Avenue and Flatlands Avenue
  - Eastbound Flatlands Avenue left turn movement (weekday AM, midday, PM, Saturday, and Sunday)
  - Eastbound Flatlands Avenue through movement (weekday PM)
  - Westbound Flatlands Avenue left turn movement (weekday PM)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM and Saturday)
  - Southbound Pennsylvania Avenue left turn movement (Sunday)
  - Southbound Pennsylvania Avenue right turn movement (Sunday)

› Pennsylvania Avenue and Cozine Avenue
  - Eastbound Cozine Avenue approach (weekday AM, midday, PM, and Saturday)
  - Westbound Cozine Avenue approach (Saturday)
  - Southbound Cozine Avenue left turn movement (weekday AM)

› Pennsylvania Avenue and Wortman Avenue
  - Eastbound Wortman Avenue approach (weekday PM)

› Pennsylvania Avenue and Stanley Avenue
  - Eastbound Stanley Avenue approach (weekday AM, midday, and PM)
  - Westbound Stanley Avenue approach (weekday PM and Saturday)

› Pennsylvania Avenue and Linden Boulevard
  - Westbound Linden Boulevard Main Line left turn movement (weekday AM and midday)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)
  - Northbound Pennsylvania Avenue through movement (weekday AM)
  - Southbound Pennsylvania Avenue left turn movement (weekday midday and PM)
  - Southbound Pennsylvania shared through-right movement (weekday PM)

› Louisiana Avenue and Flatlands Avenue
  - Eastbound Flatlands Avenue right turn movement (weekday AM, midday, PM, Saturday, and Sunday)
  - Westbound Flatlands Avenue left turn movement (weekday PM and Sunday)
  - Westbound Flatlands Avenue shared through-right movement (Saturday)
  - Northbound Pennsylvania Avenue left turn movement (weekday AM, midday, PM, and Saturday)

- Northbound Pennsylvania Avenue shared through-right movement (weekday PM and Saturday)
- Southbound Pennsylvania Avenue shared through-right movement (Sunday)

› Flatlands Avenue and East 108th Street

- Westbound Flatlands Avenue left turn movement (weekday PM and Saturday)
- Northbound East 108th Street approach (weekday AM, midday, PM, and Saturday)
- Southbound East 108th Street approach (weekday PM)

› Flatlands Avenue and Rockaway Parkway

- Eastbound Flatlands Avenue shared through-right movement (weekday PM and Saturday)
- Westbound Flatlands Avenue shared through-right movement (weekday PM and Saturday)
- Southbound Rockaway Parkway shared left-through movement (weekday AM, PM, and Saturday)

The identification and evaluation of traffic capacity improvements needed to mitigate potential significant adverse traffic impacts created by the Proposed Project are presented in **Chapter 20, Mitigation**.

Parking

The Proposed Project would provide approximately 886 on-site parking spaces between four garages – three underground garages with a total capacity of approximately 386 spaces located under Buildings 1 and 2, Buildings 3 and 4, and Building 9, and an approximately 500-space garage which would be located next to the CCC and performing arts center buildings and would be used for CCC church services, and community facility and commercial uses. **Table 13-54**, **Table 13-55** and **Table 13-56** below show the project's hourly weekday, Saturday, and Sunday parking demand. The peak project-generated parking demand was determined to be 804 spaces during the overnight hours when demand for residential parking would be the highest.

Overall, the Proposed Project would provide enough spaces to accommodate the weekday and Saturday peak project demand. However, as shown in **Table 13-57**, while the project's overall projected parking demand would be accommodated during the day there would be an anticipated residential shortfall of 418 parking spaces during the overnight or early morning hours, 194 parking spaces during the weekday morning and 65 parking spaces during the Saturday afternoon periods. Based on the results of the quarter-mile parking inventory survey, there would be enough available on-street parking to accommodate the projected parking shortfall during these periods. The Proposed Project would also provide shuttle service for residents to the subway station and intends to provide a shared car program which could potentially reduce the residential parking demand. Adequate parking supply would be provided for the other uses.

Table 13-54 Projected Weekday Parking Demand

Hour	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare	Medical Office	Weekday Total
12 AM - 1 AM	782	0	0	0	0	0	0	**782**
1 AM - 2 AM	794	0	0	0	0	0	0	**794**
2 AM - 3 AM	802	0	0	0	0	0	0	**802**
3 AM - 4 AM	804	0	0	0	0	0	0	**804**
4 AM - 5 AM	800	0	0	0	0	0	0	**800**
5 AM - 6 AM	776	0	0	0	0	0	0	**776**
6 AM - 7 AM	719	0	1	0	0	0	0	**720**
7 AM - 8 AM	580	2	3	0	2	1	8	**596**
8 AM - 9 AM	336	6	6	1	11	9	15	**384**
9 AM - 10 AM	229	8	6	3	13	10	23	**289**
10 AM - 11 AM	156	10	7	5	12	10	27	**224**
11 AM - 12 PM	131	10	8	9	10	10	25	**201**
12 PM - 1 PM	131	12	9	11	10	10	23	**203**
1 PM - 2 PM	131	12	10	12	9	10	21	**202**
2 PM - 3 PM	135	13	9	12	8	10	19	**203**
3 PM - 4 PM	162	15	9	10	6	9	21	**230**
4 PM - 5 PM	265	15	9	7	5	1	13	**313**
5 PM - 6 PM	341	15	8	3	3	0	7	**375**
6 PM - 7 PM	367	15	8	3	2	0	0	**393**
7 PM - 8 PM	443	8	7	0	2	0	0	**458**
8 PM - 9 PM	531	5	5	0	2	0	0	**541**
9 PM - 10 PM	618	1	3	0	2	0	0	**622**
10 PM - 11 PM	693	0	2	0	2	0	0	**695**
11 PM - 12 AM	752	0	1	0	2	0	0	**753**

Table 13-55 Projected Saturday Parking Demand

Hour	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare	Medical Office	Saturday Total
12 AM - 1 AM	709	0	0	0	0	0	0	**709**
1 AM - 2 AM	735	0	0	0	0	0	0	**735**
2 AM - 3 AM	767	0	0	0	0	0	0	**767**
3 AM - 4 AM	782	0	0	0	0	0	0	**782**
4 AM - 5 AM	794	0	0	0	0	0	0	**794**
5 AM - 6 AM	790	0	0	0	0	0	0	**790**
6 AM - 7 AM	784	1	1	0	0	0	0	**786**
7 AM - 8 AM	744	2	3	0	1	2	0	**752**
8 AM - 9 AM	675	4	5	0	4	10	5	**703**
9 AM - 10 AM	587	7	6	0	5	11	10	**626**
10 AM - 11 AM	517	8	7	0	6	11	12	**561**
11 AM - 12 PM	464	10	8	1	6	11	11	**511**
12 PM - 1 PM	420	10	8	4	6	11	11	**470**
1 PM - 2 PM	406	12	7	13	5	11	10	**464**
2 PM - 3 PM	412	12	12	13	4	10	7	**470**
3 PM - 4 PM	415	12	12	7	5	2	7	**460**
4 PM - 5 PM	451	12	11	10	5	1	8	**498**
5 PM - 6 PM	488	11	11	12	4	1	4	**531**
6 PM - 7 PM	527	8	10	6	2	0	0	**553**
7 PM - 8 PM	550	4	8	5	1	0	0	**567**
8 PM - 9 PM	586	4	6	3	1	0	0	**599**
9 PM - 10 PM	630	2	3	0	1	0	0	**635**
10 PM - 11 PM	656	0	2	0	1	0	0	**658**
11 PM - 12 AM	678	0	1	0	0	0	0	**679**

Table 13-56 Projected Sunday Parking Demand

Hour	Residential	Local Retail	Food Store	Performing Arts Center	Trade School	Daycare	Medical Office	Sunday Total
12 AM - 1 AM	694	0	0	0	0	0	0	**694**
1 AM - 2 AM	727	0	0	0	0	0	0	**727**
2 AM - 3 AM	760	0	0	0	0	0	0	**760**
3 AM - 4 AM	782	0	0	0	0	0	0	**782**
4 AM - 5 AM	791	0	0	0	0	0	0	**791**
5 AM - 6 AM	792	0	0	0	0	0	0	**792**
6 AM - 7 AM	778	0	1	0	0	0	0	**779**
7 AM - 8 AM	753	0	3	0	1	2	0	**759**
8 AM - 9 AM	707	1	5	0	4	10	5	**732**
9 AM - 10 AM	625	5	7	0	5	11	10	**663**
10 AM - 11 AM	533	7	8	0	6	11	12	**577**
11 AM - 12 PM	465	8	8	1	6	11	12	**511**
12 PM - 1 PM	409	8	8	4	6	11	13	**459**
1 PM - 2 PM	395	11	9	13	5	11	12	**456**
2 PM - 3 PM	381	7	8	13	4	10	9	**432**
3 PM - 4 PM	361	9	9	7	5	2	9	**402**
4 PM - 5 PM	367	11	9	10	5	1	10	**413**
5 PM - 6 PM	385	7	9	12	4	1	7	**425**
6 PM - 7 PM	449	6	6	6	2	0	0	**469**
7 PM - 8 PM	492	5	6	5	0	0	0	**508**
8 PM - 9 PM	550	5	4	3	0	0	0	**562**
9 PM - 10 PM	590	4	2	0	0	0	0	**596**
10 PM - 11 PM	630	2	1	0	0	0	0	**633**
11 PM - 12 AM	662	0	1	0	0	0	0	**663**

Table 13-57 With-Action Parking Demand and Supply

Condition	Peak Period					
	Weekday AM	Weekday Midday	Weekday PM	Saturday	Sunday	Overnight
Proposed Project Parking Demand	596	224	393	498	577	804
Proposed Project Residential Parking Demand	580	156	367	451	533	804
Proposed Project Parking Supply	886 (total spaces) / 386 (residential spaces)					
Residential Parking Shortfall	194	0	0	65	147	418
Non-Residential Parking Shortfall	0	0	0	0	44	0
On-Street Church Parking Demand Increment	-	-	-	-	340	-
No-Action Condition On-Street Parking Availability	639	693	662	842	311	881
With-Action Condition On-Street Parking Availability	445	693	662	777	-220	463

Similar to the weekday and Saturday, the Proposed Project would provide enough overall spaces to accommodate Sunday demand generated by the proposed uses. However, the approximately 500-space parking garage would be developed as part of the project would be used to accommodate the vast majority of the church's on-site parking demand of 810 spaces during the 10 AM to 11 AM Sunday peak hour. The church parking overflow would be accommodated by the surrounding on-street parking within a quarter-mile from the site (a five-minute walk) with a modest projected excess demand of 29 spaces that could be accommodated by surrounding on-street parking just beyond a five-minute walk of the Development Site. As shown in **Table 13-57**, the parking demand for the proposed new uses would be expected to exceed the on-site parking by 191 spaces (147 residential spaces and 44 non-residential use spaces) which would also need to be accommodated by surrounding on-street parking beyond a five-minute walk of the Development Site (total shortfall of 220 spaces). The Proposed Project would provide shuttle bus service for CCC visitors from the subway stations and intends to provide a shared car program for residents which could potentially reduce the amount of church and residential-related parking demand.

Subways

The Proposed Project would generate 865 subway trips (270 "ins" and 595 "outs") during the AM commuter peak hour and 871 subway trips (493 "ins" and 378 "outs") during the PM commuter peak hour. Approximately 80 percent of these trips were assigned to the Rockaway Parkway subway station and would travel to the station using the B82 and B82 SBS bus routes.

Subway Station Elements

As shown in **Table 13-58**, the Rockaway Parkway subway station elements would continue to operate at acceptable levels of service during the AM and PM peak hours, with the

exception of the Glenwood Road fare control elements which would operate at LOS E (v/c ratio of 1.43) during the AM peak hour. The analysis of this fare control area assumes that all subway riders would use the fare control elements and not evade the fare, and the fare control would be significantly impacted as a result of the Proposed Project.

Table 13-58 No-Action vs. With-Action Subway Station Levels of Service

Peak Hour	Control Element	Pedestrian Volume (15-min) In	Pedestrian Volume (15-min) Out	Surging Factor	Friction Factor	No-Action v/c Ratio	No-Action LOS	With-Action v/c Ratio	With-Action LOS
AM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	95	33	0.75	0.90	0.08	A	0.08	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	428	68	0.75	0.90	0.25	A	0.26	A
	Glenwood Road 1 HEET, 1 HXT	304	78	0.75	0.90	1.36	E	1.43	E
PM	Rockaway Parkway (Bus Terminal) 4 Turnstiles	41	262	0.75	0.90	0.18	A	0.18	A
	Rockaway Parkway (Station Entrance) 5 Turnstiles	138	284	0.75	0.90	0.19	A	0.20	A
	Glenwood Road 1 HEET, 1 HXT	62	211	0.75	0.90	0.42	A	0.56	B

Note:
Methodology based on *2021 CEQR Technical Manual* guidelines
Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.
Does not assume fare evasion at the Glenwood Road fare control per NYCT's guidance.
Shading denotes a significant impact.

Subway Line-Haul

Table 13-59 summarizes anticipated 2031 With-Action subway line-haul conditions at the maximum load point of the subway line in the peak direction. In the With Action condition, the L subway line would operate at a v/c ratio of 1.04 during the AM peak hour and 1.07 during the PM peak hour. Although the line would operate at v/c ratios above 1.0, the project would result in an increase of 1.63 passengers per car in the northbound direction during the AM peak hour and 1.53 passengers per car in the southbound direction during the PM peak hour; these increases are below the five subway passenger per car threshold that are considered a significant impact per the *CEQR Technical Manual* criteria. Therefore, significant subway line haul impacts are not expected as a result of the project.

Table 13-59 With-Action Subway Line-Haul Analysis

Peak Hour	Route and Direction	Max Load Point (leaving station)	Average Passengers Per Hour[1]	Average Trains Per Hour[1]	Average Cars Per Hour[1]	Average Passengers Per Car[1]	Guideline Passengers Per Car[2]	V/C Ratio[3]
AM	L – NB	Bedford Ave	23,821	19.8	158	150	145	1.04
PM	L – SB	First Ave	21,734	17.5	140	155	145	1.07

Notes:
[1] Guideline capacities are based on NYCT rush hour loading guidelines which vary by car type, line, and location based on frequency and type of service.
[2] Volume to guideline capacity ratio

Buses

The Proposed Project would generate 363 bus trips (121 "ins" and 242 "outs") during the AM peak hour and 389 bus trips (214 "ins" and 175 "outs") during the PM peak hour. In addition to the bus-only trips, the project would generate bus-to-subway trips (destined for the Rockaway Parkway L and Pennsylvania Avenue No. 3 subway stations). In the AM peak hour, the project would generate 865 bus-to-subway trips (270 "ins" and 595 "outs") and 871 bus-to-subway trips (493 "ins" and 378 "outs") in the PM peak hour. As shown in **Table 13-60**:

- During the AM peak hour, demand on the B82 bus route is expected to increase by 153 eastbound trips at the Glenwood Road and Rockaway Parkway maximum load point and the projected bus service would provide adequate supply. Demand on the B82 bus route is expected to increase by 334 westbound trips at the Glenwood Road and East 102nd Street maximum load point and would result in a capacity shortfall of 93 passenger spaces.
- During the PM peak hour, demand on the B82 bus route is expected to increase by 279 eastbound trips at the Glenwood Road and Rockaway Parkway maximum load points. Demand on the B82 bus route is expected to increase by 215 westbound trips at the Glenwood Road and East 102nd Street maximum load point. The projected bus service would provide adequate supply in both directions during this time.
- During the AM peak hour, demand on the B82 SBS bus route is expected to increase by 99 eastbound trips at the Glenwood Road and Rockaway Parkway maximum load point and the projected bus service would provide adequate supply. Demand on the B82 SBS bus route is expected to increase by 215 westbound trips at the Glenwood Road and East 102nd Street maximum load point and would result in a capacity shortfall of two passenger spaces.
- During the PM peak hour, demand on the B82 SBS bus route is expected to increase by 180 eastbound trips at the Glenwood Road and Rockaway Parkway maximum load points and would result in a capacity shortfall of 56 passenger spaces. Demand on the B82 SBS bus route is expected to increase by 139 westbound trips at the Flatlands Avenue and East 105th Street maximum load point, which would not result in a capacity shortfall .
- During the AM peak hour, demand on the B83 bus route is expected to increase by 124 eastbound trips at the Van Siclen Avenue and Hegeman Avenue maximum load point

and would result in a capacity shortfall of 107 passenger spaces. Demand on the B83 bus route is expected to increase by 56 westbound trips at the Pennsylvania Avenue and Livonia Avenue maximum load point and would result in a capacity shortfall of 12 passenger spaces.

› During the PM peak hour, demand on the B83 bus route is expected to increase by 80 eastbound trips at the van Siclen Avenue and Hegemen Avenue maximum load point and would result in a capacity shortfall of 64 passenger spaces. Demand on the B83 bus route is expected to increase by 103 westbound trips at the New Lots Avenue and Pennsylvania Avenue maximum load point and would result in a capacity shortfall of 75 passenger spaces.

Table 13-60 With-Action Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No-Action Available Capacity[2]	Project Increment	Available Capacity [3]
AM	B82	EB	Glenwood Rd & Rockaway Pkwy	6	244	153	91
		WB	Glenwood Rd & E 102 St	7	241	334	-93
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	10	307	99	208
		WB	Flatlands Av & E 105 St	9	213	215	-2
	B83	NB	Van Siclen Ave & Hegeman Ave	17	17	124	-107
		SB	Pennsylvania Av & Livonia Av	7	44	56	-12
PM	B82	EB	Glenwood Rd & Rockaway Pkwy	8	283	279	4
		WB	Glenwood Rd & E 102 St	6	231	215	16
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	6	124	180	-56
		WB	Flatlands Av & E 105 St	5	173	139	34
	B83	NB	Van Siclen Ave & Hegeman Ave	7	16	80	-64
		SB	New Lots Av & Pennsylvania Av	19	28	103	-75

Notes:
[1] Based on most currently available timetables (September and October 2018) and bus service increase assumed in the No-Action condition analysis
[2] Based on most currently available data from NYCT (October 2019)
[3] Available capacities based on NYCT loading guidelines of 54 passengers per standard bus

The With-Action condition analysis determined that there would be adequate supply for the Proposed Project's projected demand for the B82 and B82 SBS in the eastbound direction during the AM peak hour, and the B82 (both directions) and B82 SBS in the westbound

direction during the PM peak hour. However, the Proposed Project would result in a capacity shortfall for the bus routes listed below; these bus routes would be significantly impacted.

- The B82 bus route in the westbound direction during the AM peak hour
- The B82 SBS bus route in the westbound direction during the AM peak hour, and in the eastbound direction during the PM peak hour
- The B83 bus route in both directions during both the AM and PM peak hours

Pedestrians

The project-generated pedestrian volumes were distributed through the pedestrian network and added to the 2031 No-Action volumes to develop the 2031 With-Action pedestrian volumes. Pedestrian analyses were performed based on these volumes and the With-Action levels of service were determined for the analysis locations. The Proposed Project would also set back the proposed Development Site buildings to provide additional pedestrian space along the site frontages. As shown in **Figure 13-2,** the sidewalk width along the Flatlands Avenue frontage would range from 18 to 22 feet wide, approximately 13 feet wide along Louisiana Avenue, and 13.5 to 19 feet wide along Pennsylvania Avenue. The With-Action pedestrian volumes are shown in **Figure 13-68** through **Figure 13-72**.

Figure 13-68 With-Action Pedestrian Volumes – Weekday AM Peak Hour



Figure 13-69 With-Action Pedestrian Volumes – Weekday Midday Peak Hour



Figure 13-70 With-Action Pedestrian Volumes – Weekday PM Peak Hour



Figure 13-71 With-Action Pedestrian Volumes – Saturday Peak Hour



Figure 13-72 With-Action Pedestrian Volumes – Sunday Peak Hour



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Table 13-61 provides an overview of the pedestrian levels of service for the peak hours analyzed. Pedestrian levels of service are provided in **Table 13-62** through **Table 13-64** for the weekday and Saturday peak hours. The summary of the With-Action condition indicates that for these four peak hours:

- One sidewalk during the Saturday peak hour would be expected to operate at LOS D, compared to none in the No-Action condition.
- One crosswalk during the weekday AM and midday peak hours, two crosswalks during the weekday PM peak hour and three crosswalks during the Saturday peak hour would be expected to operate at LOS D or worse, compared to none in the No-Action condition.
- Similar to the No-Action condition, under With-Action, all corners would continue to operate at LOS C or better

Of the 36 pedestrian elements analyzed, the Proposed Project would result in significant impacts at one pedestrian element (one crosswalk) during the weekday AM and midday peak hours, two pedestrian elements (two crosswalks) during the weekday PM peak hour, and four pedestrian elements (three crosswalks and one sidewalk) during the Saturday peak hour.

Pedestrian levels of service for the Sunday peak hour are provided in **Table 13-65** through **Table 13-67**. Due to the confluence of pedestrian activities from the Proposed Project and the church services, the Proposed Project would result in significant pedestrian impacts at 12 of the 14 pedestrian elements analyzed for the Sunday peak hour (three sidewalks, five crosswalks, and four corner analysis locations).

Mitigation measures that could be implemented to mitigate these significant adverse pedestrian impacts are discussed in **Chapter 20, Mitigation**.

Table 13-61 Year 2031 With-Action Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Sidewalk Elements					
Sidewalks at LOS A/B/C	9	9	9	8	0
Sidewalks at LOS D	0	0	0	1	2
Sidewalks at LOS E	0	0	0	0	1
Sidewalks at LOS F	0	0	0	0	0
Number of significantly impacted sidewalk elements	**0**	**0**	**0**	**1**	**3**
Crosswalk Elements					
Crosswalks at LOS A/B/C	13	13	12	11	0
Crosswalks at LOS D	0	1	1	1	2
Crosswalks at LOS E	1	0	1	2	0
Crosswalks at LOS F	0	0	0	0	4
Number of significantly impacted crosswalk elements	**1**	**1**	**2**	**3**	**5**
Corner Elements					
Corners at LOS A/B/C	13	13	13	13	1
Corners at LOS D	0	0	0	0	1
Corners at LOS E	0	0	0	0	1
Corners at LOS F	0	0	0	0	2
Number of significantly impacted corner elements	**0**	**0**	**0**	**0**	**4**

Note: Includes nine sidewalk, 14 crosswalk, and 13 corner analysis locations for the weekday and Saturday peak hours, and three sidewalks, six crosswalks, and five corner analysis locations for the Sunday peak hour.

Table 13-62 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action	
Sidewalk	Effective Width, ft	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	8.5	1,747.7	A	139.1	B	1,579.6	A	129.4	B	1,452.0	A	75.0	C	1,483.3	A	94.9	B
Flatlands Avenue between Louisiana Avenue and Williams Avenue (north side)	9.0	3,432.0	A	147.4	B	3,960.0	A	109.5	B	4,220.5	A	89.2	C	1,622.2	A	120.2	B
Flatlands Avenue between Louisiana Avenue and Williams Avenue (south side)	11.0	1,594.3	A	242.0	B	1,351.1	A	271.6	B	1,350.6	A	191.9	B	1,346.6	A	219.6	B
Flatlands Avenue between Williams Avenue and East 108th Street (north side)	8.5	3,241.3	A	303.7	B	3,606.4	A	266.2	B	2,524.5	A	192.1	B	1,532.1	A	164.0	B
Flatlands Avenue between Williams Avenue and East 108th Street (south side)	9.0	1,909.3	A	494.9	B	1,555.2	A	366.6	B	980.9	A	239.5	B	1,101.7	A	216.9	B

Table 13-62 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Sidewalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action	
Sidewalk	Effective Width, ft	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	777.3	A	54.6	C	368.2	B	65.1	C	533.2	A	41.8	C	514.6	B	38.8	D
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (east side)	6.5	894.0	A	232.0	B	849.8	A	287.2	B	1,454.7	A	243.0	B	918.0	A	194.4	B
Pennsylvania Avenue between Vandalia Avenue and Croton Loop (west side)	5.5	420.3	B	210.7	B	444.1	B	195.5	B	692.9	A	197.2	B	454.9	B	137.6	B
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	6.0	3,111.4	A	78.4	C	1,567.3	A	78.8	C	1,297.9	A	66.5	C	2,963.2	A	65.9	C

Denotes a significantly impacted pedestrian element

Table 13-63 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Crosswalks (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action	
Intersection	Crosswalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	698.2	A	74.3	A	603.7	A	72.4	A	453.3	A	46.1	B	454.5	A	33.2	C
	West	834.7	A	124.5	A	311.6	A	147.4	A	334.8	A	101.9	A	104.8	A	31.7	C
Pennsylvania Avenue and Vandalia Avenue	*North*	403.5	A	76.1	A	369.5	A	53.4	B	531.6	A	46.5	B	226.4	A	27.1	C
	South	185.8	A	45.4	B	177.7	A	46.8	B	228.6	A	47.4	B	221.3	A	34.8	C
	West	612.1	A	119.9	A	675.7	A	146.0	A	785.8	A	96.6	A	404.4	A	56.6	B
Flatlands Avenue and Louisiana Avenue	*North*	1,770.8	A	101.3	A	1,339.5	A	84.0	A	1,650.8	A	85.1	A	923.2	A	46.2	B
	East	1,178.1	A	12.8	E	986.1	A	27.5	C	816.4	A	15.2	D	780.9	A	11.8	E
	South	1,976.7	A	51.0	B	1,505.3	A	50.6	B	1,430.1	A	32.4	C	608.2	A	21.5	D
	West	872.3	A	24.7	C	398.6	A	21.5	D	400.7	A	12.2	E	380.6	A	13.4	E
Flatlands Avenue and Williams Avenue	*North*	1,630.4	A	139.5	A	1,151.0	A	114.6	A	2,212.4	A	93.0	A	1,421.2	A	57.9	B
	East	357.3	A	281.4	A	391.6	A	321.0	A	327.0	A	203.3	A	356.4	A	258.1	A
	West	1,243.9	A	187.5	A	918.9	A	283.4	A	283.2	A	97.0	A	386.0	A	120.9	A
Flatlands Avenue and East 108th Street	*North*	2,001.6	A	244.5	A	1,398.0	A	209.4	A	821.1	A	131.6	A	783.3	A	84.6	A
	South	1,408.6	A	348.1	A	472.6	A	190.7	A	597.1	A	165.8	A	218.3	A	55.6	B

Denotes a significantly impacted pedestrian element

Table 13-64 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Corners (Weekday/Saturday Peak Hours)

		Weekday AM Peak Hour				Weekday Midday Peak Hour				Weekday PM Peak Hour				Saturday Peak Hour			
		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action		No-Action		With-Action	
Intersection	Corner	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*Southwest*	1,124.9	A	156.0	A	635.0	A	178.2	A	744.4	A	115.5	A	601.0	A	88.7	A
Pennsylvania Avenue and Vandalia Avenue	*Northeast*	1,714.1	A	476.0	A	1,439.2	A	378.2	A	1,874.2	A	311.7	A	1,090.4	A	222.9	A
	Southeast	1,136.6	A	376.6	A	1,103.4	A	396.7	A	1,316.5	A	356.3	A	992.0	A	274.5	A
	Southwest	526.1	A	118.4	A	592.2	A	147.2	A	718.8	A	111.6	A	613.7	A	91.1	A
	Northwest	716.8	A	135.9	A	728.2	A	136.3	A	837.4	A	95.8	A	591.5	A	70.3	A
Flatlands Avenue and Louisiana Avenue	*Northeast*	3,155.6	A	79.9	A	2,500.4	A	105.4	A	2,682.7	A	74.7	A	2,677.7	A	75.5	A
	Southeast	1,676.5	A	25.1	C	1,480.6	A	49.2	B	1,430.0	A	25.9	C	1,193.4	A	27.3	C
	Southwest	2,284.6	A	72.3	A	1,405.5	A	69.1	A	1,535.9	A	40.7	B	1,454.0	A	53.0	B
	Northwest	1,632.9	A	69.6	A	1,165.7	A	57.2	B	1,242.2	A	32.5	C	1,307.5	A	47.5	B
Flatlands Avenue and Williams Avenue	*Northeast*	865.3	A	150.2	A	765.3	A	122.3	A	1,284.1	A	107.7	A	906.1	A	76.7	A
	Northwest	1,289.3	A	180.8	A	1,158.0	A	171.5	A	665.3	A	107.0	A	912.6	A	101.7	A
Flatlands Avenue and East 108th Street	*Northeast*	1,896.5	A	277.0	A	1,060.7	A	211.9	A	1,013.8	A	149.9	A	1,212.6	A	153.8	A
	Southeast	1,886.5	A	458.2	A	727.2	A	284.4	A	780.9	A	211.4	A	698.3	A	190.6	A

Table 13-65 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Sidewalks (Sunday Peak Hour)

		No-Action		With-Action	
Sidewalk	Effective Width, ft	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	8.5	58.6	C	34.6	D
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	3.5	222.8	B	33.0	D
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	6.0	36.0	D	17.2	E

Denotes a significantly impacted pedestrian element

Table 13-66 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Crosswalks (Sunday Peak Hour)

		No-Action		With-Action	
Intersection	Crosswalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS
Pennsylvania Avenue and Flatlands Avenue	*South*	42.0	B	16.3	D
	West	15.3	D	7.8	F
Flatlands Avenue and Louisiana Avenue	*North*	58.6	B	16.9	D
	East	1.4	F	1.3	F
	South	26.6	C	6.0	F
	West	17.9	D	6.4	F

Denotes a significantly impacted pedestrian element

Table 13-67 Year 2031 No-Action vs With-Action Pedestrian Levels of Service – Corners (Weekday/Saturday Peak Hours)

		No-Action		With-Action	
Intersection	**Corner**	**Avg Ped Space, SF/P**	**LOS**	**Avg Ped Space, SF/P**	**LOS**
Pennsylvania Avenue and Flatlands Avenue	***Southwest***	60.4	A	32.5	C
Flatlands Avenue and Louisiana Avenue	***Northeast***	32.7	C	6.3	F
	Southeast	5.3	F	*	F
	Southwest	70.2	A	19.0	D
	Northwest	62.3	A	8.0	E

Denotes a significantly impacted pedestrian element

* The available corner area would not be sufficient to accommodate all pedestrians; some pedestrians would need to wait on the adjacent sidewalk area instead of the corner reservoir to cross the street

Vehicle and Pedestrian Safety

Crash data were obtained for the study area intersections from NYC DOT for the most recent three-year period for which such data are available (2017 through 2019). This information is based on data provided by the New York State Department of Transportation (NYSDOT), New York State Department of Motor Vehicles (NYSDMV), and the New York City Police Department (NYPD).

The crash data details reported crashes (crashes resulting in death, injury, or property damage in excess of $1,000), fatalities, injuries, and pedestrian and bicycle injuries annually. According to the *CEQR Technical Manual*, an intersection is considered a high-crash location when there are five or more pedestrian/bicyclist injury crashes in any consecutive 12 months during the most recent three-year period for which data are available or at locations along a Vision Zero Priority Corridor or Intersection.

Table 13-68 presents a summary of total crashes at the study area intersections during the three-year period of 2017 through 2019, and also shows total fatalities, injuries, and pedestrian and bicycle crashes. The crash data identified the intersections of Pennsylvania Avenue at Linden Boulevard and at Wortman Avenue as high crash locations due to these intersections having at least five pedestrian/bicyclist injury crashes within a consecutive 12-month period. Pedestrian/bicyclist high-crash thresholds are not exceeded at any of the other analysis intersections. These intersections are also Vision Zero Priority intersections. There are three Vision Zero corridors in the study area – Pennsylvania Avenue, Linden Boulevard, and Rockaway Parkway. Therefore, seven other locations are considered high-crash locations (total of nine high-crash locations): Pennsylvania Avenue with Stanley Avenue, Cozine Avenue, Flatlands Avenue, Vandalia Avenue, Twin Pines Drive, and Seaview Avenue, and Flatlands Avenue with Rockaway Parkway.

Table 13-68 Vehicle and Pedestrian Crash Summary

Intersection		Total Crashes by Year					Pedestrian Crashes by Year			Bicycle Crashes by Year		
North-South Roadway	East-West Roadway	2017	2018	2019	Total Fatalities	Total Injuries	2017	2018	2019	2017	2018	2019
Rockaway Parkway	Flatlands Avenue	7	12	12	0	20	1	3	0	0	1	0
East 108th Street	Flatlands Avenue	2	15	12	0	20	0	1	1	0	0	0
Williams Avenue	Flatlands Avenue	2	2	5	0	5	1	0	1	0	0	0
Louisiana Avenue	Flatlands Avenue	10	7	12	1	20	0	0	1	0	0	1
Georgia Avenue	Flatlands Avenue	1	2	5	0	4	0	0	0	0	0	0
Pennsylvania Avenue	Linden Boulevard *	35	65	64	0	111	1	4	1	1	0	1
Pennsylvania Avenue	Stanley Avenue	12	17	21	0	44	1	2	1	0	0	0
Pennsylvania Avenue	Wortman Avenue *	6	14	19	0	23	0	2	5	0	0	0
Pennsylvania Avenue	Cozine Avenue	3	8	10	1	17	1	2	1	1	0	0
Pennsylvania Avenue	Flatlands Avenue	21	35	22	2	53	2	2	2	2	1	1
Pennsylvania Avenue	Vandalia Avenue	7	3	10	0	17	2	0	3	0	0	0
Pennsylvania Avenue	Twin Pines Drive	3	8	7	0	11	1	0	1	1	0	0
Pennsylvania Avenue	Seaview Avenue	14	17	23	0	31	0	1	0	0	0	0
Louisiana Avenue	Vandalia Avenue	0	0	2	0	3	0	0	1	0	0	0

Denotes a high crash location

* Intersection has five or more pedestrian-/bicyclist-related crashes in a consecutive 12-month period

Source: NYSDOT/NYSDMV (2017-2019)

Flatlands Avenue and Rockaway Parkway

The intersection of Flatlands Avenue and Rockaway Parkway is along the Rockaway Parkway Vision Zero Priority corridor and is identified as a high-crash location. A total of 31 crashes, including 20 personal injuries, and five pedestrian/bicyclist-related crashes occurred at this intersection between 2017 and 2019. Based on a review of the crash data, of the five pedestrian/bicycle crashes that occurred from 2017 and 2019, four involved conflicts with turning vehicles, and two occurred during dark hours. The intersection is signalized and operates in five phases (including a leading pedestrian interval crossing Rockaway Parkway, a northbound lead phase, and a protected eastbound/westbound left turn phase) with high visibility crosswalks striped along each approach and with pedestrian countdown signals. Both Flatlands Avenue and Rockaway Parkway are two-way roadways. In 2018, NYC DOT implemented improvements along the Rockaway Parkway corridor between Flatlands Avenue and the Belt Parkway including reducing the number of through lanes along Rockaway Parkway from two lanes to one lane in each direction, and striping a painted median along the northbound Rockaway Parkway approach at this intersection. A pedestrian refuge island was implemented along this approach in 2021. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.

The following intersections are along the Pennsylvania Avenue Vision Zero Priority Corridor and are therefore identified as high-crash locations.

Pennsylvania Avenue and Linden Boulevard

The intersection of Pennsylvania Avenue and Linden Boulevard was identified as a high-crash location due to the five crashes involving pedestrians or bicyclists between June 2018 and June 2019. A total of 164 crashes, including 111 personal injuries, and eight pedestrian/bicyclist-related crashes occurred at this intersection during the three-year period. Based on a review of the crash data, of the prevailing types of crashes that occurred from 2017 to 2019, 46 involved rear end crashes, 26 involved overtakes, and 31 involved conflicts with right turns and angles. Of the eight pedestrian/bicyclist-related crashes that occurred from 2017 to 2019, three involved conflicts with turning vehicles, three occurred during dark hours, and one involved pedestrians crossing against the signal. The intersection is signalized and operates in four phases (including a protected northbound/southbound left turn phase, and eastbound/westbound left turn phase) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Linden Boulevard are two-way roadways; specifically, Linden Boulevard is configured as a main line with eastbound/westbound service roads. The majority of project-generated trips at this intersection would be through volumes (a maximum of about 140 vph between the northbound and southbound Pennsylvania Avenue approaches) and only a modest number of vehicle trips would be turning vehicles (no more than eight vph among all intersection approaches). Measures to improve pedestrian and bicyclist safety at this intersection could include improving the lighting at this intersection for better visibility outside of daylight hours. As part of the Vision Zero initiative, recent projects along Linden Boulevard at similar intersections include the construction or expansion of concrete medians, improved lane striping and lane use designations, and increased area for pedestrian refuge spaces.

Pennsylvania Avenue and Stanley Avenue

During the three-year period mentioned above, a total of 50 crashes, including 44 personal injuries, and four pedestrian/bicyclist-related crashes occurred at this intersection. Based on a review of the crash data, of the four pedestrian/bicycle crashes that occurred from 2017 to 2019, three involved conflicts with turning vehicles; no other prevailing trends were identified as the primary cause for other crashes at this intersection. The intersection is signalized and operates in three phases (including a protected northbound/southbound left turn phase) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Stanley Avenue are two-way roadways. In the spring of 2018, improvements to the intersection were implemented by NYC DOT, including the protected Pennsylvania Avenue left turn phase. As a result of this change, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Wortman Avenue

The intersection of Pennsylvania Avenue and Wortman Avenue was identified as a high-crash location due to the five crashes involving pedestrians or bicyclists in 2019. A total of 39 crashes, including 23 personal injuries and seven pedestrian/bicyclist-related crashes, occurred at the intersection of Pennsylvania Avenue and Wortman Avenue from 2017 to 2019. Based on a review of the crash data, of the seven pedestrian/bicycle crashes that occurred in this time period, five involved conflicts with turning vehicles, and three involved pedestrians crossing during dark hours. The intersection is signalized and operates in three phases (including a protected northbound/southbound left turn phase) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Wortman Avenue are two-way roadways. In the spring of 2018, improvements to the intersection were implemented by NYC DOT, including the protected Pennsylvania Avenue left turn phase. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Cozine Avenue

A total of 21 crashes, including one fatality, 17 personal injuries, and five pedestrian/bicyclist-related crashes, occurred at the intersection of Pennsylvania Avenue and Cozine Avenue from 2017 to 2019. Based on a review of the crash data, of the five pedestrian/bicycle crashes that occurred in this time period, one involved a conflict with a turning vehicle, and two occurred during dark hours; no other prevailing trends were identified as the primary cause for other crashes at this intersection. The intersection is signalized and operates in three phases (including a leading pedestrian interval) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Cozine Avenue are two-way roadways. In the spring of 2021, improvements to the intersection were implemented by NYC DOT, including the leading pedestrian interval. As a result of this change, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Flatlands Avenue

A total of 78 crashes, including two fatalities, 53 personal injuries and ten pedestrian/bicyclist-related crashes, occurred at the intersection of Pennsylvania Avenue and

Flatlands Avenue from 2017 to 2019. Based on a review of the crash data, of the ten pedestrian/bicycle crashes that occurred in this time period, eight involved conflicts with turning vehicles, seven occurred during dark hours, and one involved a pedestrian crossing against the signal. The intersection is signalized and operates in four phases (including a protected northbound/southbound left phase, and a protected eastbound/westbound left turn phase that operates concurrently with northbound/southbound right turns) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Flatlands Avenue are two-way roadways. In 2018, NYC DOT implemented improvements at this intersection as part of the implementation of B82 Selected Bus Service along this corridor. Improvements included striping of high-visibility crosswalks and bus lanes, peg-a-traks to guide vehicle turns, and an extension of the concrete median tip along the northbound Pennsylvania Avenue approach. Additional measures are planned as part of the Southern Brooklyn Crosstown (B82) Select Bus Service project including crosswalk restriping and an extension of the southeast corner curb to provide additional pedestrian space. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Vandalia Avenue

A total of 20 crashes, including 17 personal injuries and five pedestrian/bicyclist-related crashes, occurred at the intersection of Pennsylvania Avenue and Vandalia Avenue from 2017 to 2019. Based on a review of the crash data, of the five pedestrian/bicycle crashes that occurred in this time period, four involved a conflicting with a turning vehicle; no other prevailing trends were identified as the primary cause for other crashes at this intersection. The intersection is signalized and operates in three phases (including a protected northbound/southbound left phase) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. Both Pennsylvania Avenue and Vandalia Avenue are two-way roadways. In 2018, NYC DOT implemented improvements at this intersection as part of the implementation of B82 Selected Bus Service along this corridor which included the widening of the northbound and southbound approach concrete medians. Additional measures are planned as part of the Southern Brooklyn Crosstown (B82) Select Bus Service project including crosswalk restriping and an extension of the northeast, northwest, and southeast corner curbs to provide additional pedestrian space. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Twin Pines Drive

A total of 18 crashes, including 11 personal injuries and three pedestrian/bicyclist-related crashes, occurred at the intersection of Pennsylvania Avenue and Twin Pines Drive from 2017 to 2019. Based on a review of the crash data, there are no prevailing trends identified as the primary cause for the crashes at this intersection. The intersection is signalized and operates in two phases with pedestrian countdown clocks and high visibility crosswalks striped along each approach. The intersection is a T-intersection, and both Pennsylvania Avenue and Twin Pines Drive are two-way roadways. In 2018, NYC DOT implemented improvements at this intersection as part of the implementation of B82 Selected Bus Service along this corridor which included the widening of the northbound approach concrete median. Additional measures are planned as part of the Southern Brooklyn Crosstown (B82) Select Bus Service project including crosswalk restriping and an extension of the northwest and southwest

corner curbs to provide additional pedestrian space. In the fall of 2021, additional improvements to the intersection were implemented, including a Pennsylvania Avenue northbound lead phase. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.

Pennsylvania Avenue and Seaview Avenue

A total of 54 crashes, including 31 personal injuries and one pedestrian-related crashes, occurred at the intersection of Pennsylvania Avenue and Seaview Avenue from 2017 to 2019. Based on a review of the crash data, the pedestrian crash that occurred in 2018 involved a conflict with turning vehicles. The intersection is signalized and operates in three phases (including a protected northbound/southbound left turn phase) with pedestrian countdown clocks and high visibility crosswalks striped along each approach. The intersection is located at the entrance of the Belt Parkway with on- and off-ramp connections. Both Pennsylvania Avenue and Seaview Avenue are two-way roadways. Safety measures are planned as part of the Southern Brooklyn Crosstown (B82) Select Bus Service project including crosswalk restriping and hardscaping the northwest corner curb. As a result of these changes, the overall level of pedestrian and bicyclist safety should improve at this intersection.