Chapter 21: Mitigation

A. INTRODUCTION

In accordance with the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, this chapter considers mitigation measures that are intended to eliminate or reduce the significant adverse impacts generated by the Proposed Actions.

PRINCIPAL CONCLUSIONS

Based on the analysis provided in the preceding chapters, the Proposed Actions are anticipated to result in significant adverse impacts related to community facilities (elementary schools, libraries, and publicly funded early childhood programs), open space, shadows, historic and cultural resources, transportation, air quality, noise and construction period traffic and noise. Mitigation measures to address the significant adverse impacts, where feasible and/or practical, are therefore proposed below. The New York City Department of City Planning (DCP), as the lead agency, will coordinate with City agencies and further examine and refine these recommended mitigation measures between the Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS). If no feasible and practicable mitigation can be identified, the impacts would remain unavoidable significant adverse impacts of the Proposed Actions.

B. COMMUNITY FACILITIES

As detailed in Chapter 4, “Community Facilities,” the Proposed Actions would result in significant adverse impacts to elementary schools, public libraries, and publicly funded early childhood programs.

SCHOOLS

According to the *CEQR Technical Manual*, a significant adverse elementary school impact may result if a proposed action would result in both of the following: (1) a utilization rate of elementary schools that is equal to or greater than 100 percent in the With-Action Condition; and (2) 100 or more new students generated by the Proposed Actions past the 100 percent utilization rate.

As discussed in Chapter 4, “Community Facilities,” in Subdistrict 3/CSD 30, elementary school utilization would exceed 100 percent (143.8 percent) and the Proposed Actions would generate 100 or more students (1,300) past the 100 percent utilization rate. Therefore, the Proposed Actions would result in a significant adverse impact to elementary schools.

The significant adverse impact would occur with completion of approximately 1,125 residential units, and therefore, assuming the development under the Proposed Actions occurs in accordance with the conceptual construction schedule (per Chapter 20,

"Construction"), this significant adverse impact to Subdistrict 3/CSD 30 elementary schools could occur in the 2030-2031 school year.

To mitigate the significant adverse elementary school impact in Subdistrict 3/CSD 30, the number of incremental dwelling units that could be developed would have to be reduced to approximately 1,125, generating approximately 99 elementary school students, as compared to the No Action condition. Alternately, based on the RWCDS for the Proposed Actions, an additional 1,201 elementary school seats would be needed in order to reduce the incremental increase in utilization rates to less than the *CEQR Technical Manual* impact thresholds.

To avoid the impact, the following mitigation measures could be applied in conjunction with the City's monitoring of capacity: (1) restructure or reframe existing school space under the Department of Education's control in order to provide additional capacity; (2) relocate administrative functions to another site, thereby increasing capacity for classrooms; and/or (3) create additional capacity by constructing a new school, building additional capacity at additional schools, or leasing additional school space constructed as part of projected development.

As discussed in Chapter 1, "Project Description," the Proposed Actions include a zoning text amendment that would allow for space occupied by schools to be exempt from floor area calculations within the LIC. This would allow the New York City School Construction Authority (SCA) to work with private property owners to identify sites that may be appropriate for future school siting. The Proposed Actions would also create an authorization that would allow for additional flexibility in building envelopes for developments utilizing the new school floor area exemption. The development of a mixed-use building with an integrated school would be subject to the requirements of the SCA and the New York City Department of Education (DOE), and any such school would require approval from SCA and DOE to be eligible to utilize the proposed authorization. Bulk relief could be sought to accommodate the additional floor area and would be the subject of a future application to the CPC.

These preliminary mitigation measures will be explored between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would fully mitigate, significant adverse impacts would be unmitigated.

PUBLIC LIBRARIES

The population added by the Proposed Actions would represent an increase of 79.44 percent over the No Action condition population at the Hunters Point Branch of the Queens Public Library (QPL) and an increase of 11.56 percent at the Long Island City Branch of the QPL. The increase at these library branches is greater than the 5 percent increase that CEQR defines as the threshold for a potential significant adverse impact. Although residents would have access to a new planned Court Square library branch near the Project Area and residents would have access to the entire QPL network through the inter-library loan system and could have volumes delivered directly to their nearest library branch, there would still be a significant adverse impact on library services in the study area as a result of the Proposed Actions.

Potential mitigation measures include provision of space for a new library of a size and at a location to be determined through additional coordination with the QPL and/or

improvements to a branch facility to support the branch's programming and services year-round.

These preliminary mitigation measures will be explored between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would fully mitigate, significant adverse impacts would be unmitigated.

EARLY CHILDHOOD PROGRAMS

In the With Action condition, early childhood programs in the study area would operate over capacity by approximately 67 slots (102.7 percent utilization) and exhibit an increase in the utilization rate of approximately 27.3 percentage points over the No Action condition. Therefore, the Proposed Actions would result in a significant adverse impact on publicly funded early childhood programs. The addition of approximately 68 slots would be needed to mitigate the significant adverse impact to early childhood programs.

Several factors may reduce the number of children in need of publicly funded early childhood slots in early childhood programs. Families in the study area could make use of alternatives to publicly funded early childhood programs. There are slots at homes licensed to provide family-based child care that families of eligible children could elect to use instead of public center child care. As noted above, these facilities provide additional slots in the study area but are not included in the quantitative analysis. Parents of eligible children are also not restricted to enrolling their children in early childhood programs in a specific geographical area and could use public early childhood programs outside of the study area.

Possible mitigation measures for this significant adverse impact will be developed in consultation with DOE and may include provision of suitable space on-site for a child care center, provision of a suitable location off-site and within a reasonable distance (at a rate affordable to DOE providers), or funding or making program or physical improvements to support adding capacity to existing facilities if determined feasible through consultation with DOE's Division of Early Childhood Education, or providing new early childhood programs within or near the Project Area. As a City agency, DOE does not directly provide new child care facilities, instead it contracts with providers in areas of need. DOE is also working to create public/private partnerships to facilitate the development of new early childhood programs where there is an area of need. As part of that initiative, DOE may be able to contribute capital funding, if it is available, towards such projects to facilitate the provision of new programs.

These preliminary mitigation measures will be explored between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would fully mitigate, significant adverse impacts would be unmitigated.

C. OPEN SPACE

As detailed in Chapter 5, "Open Space," the Proposed Actions would result in a decrease in the residential open space ratio by approximately 5 percent and this would result in a significant adverse impact to open space in the residential study area. The detailed analysis of open space concluded that with the Proposed Actions, the total open space ratio in the residential study area would decrease by approximately 18.6 percent (to 0.546 acres per 1,000 residents); the active open space ratio would decrease by approximately

20.6 percent (to 0.190 acres per 1,000 residents); and the passive open space ratio would decrease by approximately 17.5 percent (to 0.355 acres per 1,000 residents). Typically, a reduction in the open space ratio exceeding 5 percent is considered to be significant. However, in an area that has a very low open space ratio, such as the Project Area, a reduction as small as 1 percent may be considered significant. According to Table 7-5 of the *CEQR Technical Manual*, a decrease in the total open space ratio of 2 percent or more is generally considered a significant adverse impact for a project in a residential open space study area where the total open space ratio is between 0.51 to 1.0, a decrease in active open space ratio of 1 percent or more is generally considered a significant adverse impact where the active open space ratio is less than 0.41, and a decrease in in passive open space ratio of 4 percent or more is generally considered a significant adverse impact where the passive open space ratio is between 0.31 and 0.40. Therefore, based on the decrease in the open space ratios noted above and described in this chapter, the Proposed Actions would result in a significant adverse impact to open space in the residential study area.

To mitigate the identified significant adverse residential study area open space impact, the number of residents that could be introduced on the projected development sites would have to be reduced to less than 4,834 (or less than approximately 2,101 residential units). This would represent an approximately 86 percent reduction in the number of incremental residential units anticipated under the RWCDS. Alternately, in order to mitigate the significant adverse open space impact, the Proposed Actions would have to provide approximately 16.33 acres of additional open space to fully mitigate the impact to total open space in the study area, a minimum of 8.5 acres of passive open space to mitigate the impact to passive open space resources, and a minimum of 6.9 acres of active open space to mitigate the impact to active open space.

As described in Chapter 15, “Air Quality,” the Proposed Actions would result in significant adverse air quality impacts affecting the usability of one existing open space resource, Gordon Triangle. In addition, three new publicly accessible waterfront open spaces (on Projected Development Sites 65, 67, and 71) would be affected by significant adverse air quality impacts. As discussed below in Section G. Air Quality, with the implementation of traffic engineering improvements, it is anticipated that the identified impacts related to mobile source air quality will be avoided. Further review and evaluation will be performed Between the Draft and Final EIS, which is expected to make this determination. Absent the identification and implementation of feasible mitigation measures the impacts could remain unmitigated.

In addition, as described in Chapter 6, “Shadows,” new shadows resulting from the Proposed Actions would be extensive enough to cause significant adverse impacts to two open space resources in Long Island City: Gordon Triangle, a small public open space located on 44th Drive between Vernon Boulevard and 10th Street; and the 44th Drive Pier, a public open space located at the western end of 44th Drive.

Possible measures that could mitigate the Proposed Actions’ indirect significant adverse impact to open space in the residential study area may include the expansion of existing parks, creation of new open space on publicly owned land, incentivizing encouraging owners of privately owned sites to create new open space as part of their redevelopment, making playgrounds accessible to the community after school hours through the Schoolyards to Playgrounds program, establishing new pedestrian plazas in streets

through the City's Plaza program, and/or improving existing parks to allow for more diverse programming.

According to the *CEQR Technical Manual*, possible measures that could mitigate shadow impacts on open spaces may include relocating sunlight-sensitive features within an open space to avoid sunlight loss; relocating, replacing, or monitoring vegetation for a set period of time; undertaking additional maintenance to reduce the likelihood of species loss; or providing for replacement facilities on another nearby site. Other potential mitigation strategies include the redesign or reorientation of the open space to provide for replacement facilities, vegetation, or other features.

These potential mitigation measures are currently being explored in coordination with the lead agency, DCP, and the New York City Department of Parks and Recreation (NYC Parks) and will be refined between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would fully mitigate, significant adverse impacts would be unmitigated.

As discussed in Chapter 27, "Conceptual Analysis," as part of the Proposed Actions, a zoning text amendment is proposed that would create a zoning authorization allowing for the bonus of floor area and bulk modifications with the provision of publicly accessible open space on zoning lots zoned M-16/R9, M1-6/R10, and M1-6A/R10 that are larger than 25,000 sf. If property owners elect to seek this authorization in the future, it is anticipated that new publicly accessible open space would be introduced on inland projected development sites, serving to offset some of the demand introduced by the Proposed Actions.

Although many of the potential mitigation measures being considered would increase the amount and/or usability of open space resources, opportunities to create new publicly accessible open space resources in sufficient amounts within the study area to fully mitigate the identified significant adverse open space impact (approximately 16.33 acres) are very limited. As a consequence, the Proposed Actions' significant adverse open space impact may not be completely eliminated and, as a result, an unavoidable significant adverse open space impact would occur.

D. SHADOWS

As detailed in Chapter 6, "Shadows," new shadows resulting from the Proposed Actions would be extensive enough to cause significant adverse impacts to three open space resources in Long Island City: several Greenstreets medians in Queens Plaza South between Vernon Boulevard and 13th Street; Gordon Triangle, a small public open space located on 44th Drive between Vernon Boulevard and 10th Street; and the 44th Drive Pier, a public open space located at the western end of 44th Drive. Specifically, the shadows cast on Gordon Triangle and the 44th Drive Pier would affect utilization and vegetation on the resources.

According to the *CEQR Technical Manual*, possible measures that could mitigate significant adverse shadow impacts on open spaces may include relocating sunlight-sensitive features within an open space to avoid sunlight loss; relocating, replacing, or monitoring vegetation for a set period of time; undertaking additional maintenance to reduce the likelihood of species loss; or providing for replacement facilities on another

nearby site. Other potential mitigation strategies include the redesign or reorientation of the open space to provide for replacement facilities, vegetation, or other features.

The *CEQR Technical Manual* guidance also discusses other strategies to reduce or eliminate shadow impacts, including modifications to the height, shape, size, or orientation of a proposed development that creates the significant adverse shadow impact. DCP, as lead agency, will explore potential mitigation measures in coordination with NYC Parks between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures, the Proposed Actions would result in unmitigated significant adverse shadows impacts on the Greenstreets medians, Gordon Triangle, and the 44th Drive Pier.

E. HISTORIC AND CULTURAL RESOURCES

As detailed in Chapter 7, "Historic and Cultural Resources," the Proposed Actions would result in significant adverse impacts to architectural resources.

The Proposed Actions would result in significant direct adverse impacts to five S/NR-eligible buildings located on projected development sites, which would be demolished for redevelopment of the projected development sites in the With Action condition. These resources are: the former New York and Queens Electric Light and Power Substation Number 4 (Resource No. 2); the Walter Lippmann Building at 43-42 10th Street (Resource No. 11); 43-50 10th Street (Resource No. 12); the M. Henry Chernay Building at 10-03 44th Avenue (Resource No. 15); and the Jerome Perlstein Building at 43-58 11th Street (Resource No. 16). In addition, the building at 21-23 43rd Avenue (Resource F), which has been identified as a potential architectural resource, would be demolished for redevelopment of Potential Development Site G.

These significant adverse impacts would be unavoidable, as the resources are privately owned and could be demolished and modified to allow for developments constructed as-of-right subsequent to approval of the Proposed Actions.

Potential significant adverse impacts also could occur to 10 known and 8 potential architectural resources located within 90 feet of projected or potential development sites as a result of adjacent construction. The known architectural resources are: the S/NR-eligible former New York and Queens Electric Light and Power Substation Number 4 (Resource No. 2); the S/NR-eligible Steinway Van Storage building at 42-45 12th Street (Resource No. 3); the S/NR-eligible former Silvercup Bakery at 42-22 22nd Street (Resource No. 4); the Queensboro Bridge (Resource No. 7), which is a NYCL and S/NR-listed; the S/NR-eligible Walter Lippmann Building at 43-42 10th Street (Resource No. 11); the S/NR-eligible 43-50 10th Street (Resource No. 12); the S/NR-eligible building at 43-56 10th Street (Resource No. 13); the S/NR-eligible Tom Cat Bakery at 43-05 10th Street (Resource No. 14); the S/NR-eligible M. Henry Chernay Building at 10-03 44th Avenue (Resource No. 15); and the S/NR-eligible Jerome Perlstein Building at 43-58 11th Street (Resource No. 16). The potential architectural resources are: 10-15 and 10-27 46th Avenue (Resource B); 40-18 22nd Street (Resource I); 40-15 22nd Street (Resource J); 44-02 23rd Street (Resource K); 44-01 21st Street (Resource M); 21-49 44th Drive (Resource N); 42-25 Vernon Boulevard (Resource S); and 45-32 to 43-44 11th Street (Resource Z).

It is expected that the New York City Department of Building's (DOB) *Technical Policy and Procedure Notice (TPPN) #10/88* would be implemented for the With Action development on Projected Development Site 51, in relation to the NYCL and S/NR-listed Queensboro Bridge (Resource No. 7). The other resources listed above would be afforded limited protection under DOB regulations applicable to all buildings located adjacent to construction sites (C26-112.4); however, since these resources are not S/NR-listed or designated NYCLs or New York City Historic Districts (NYCHD), they are not afforded special protections under *TPPN #10/88.* Since the projected and potential development sites within 90 feet of these resources are not City-owned and are not anticipated to be developed in accordance with City disposition or development agreements, there is no mechanism to require the implementation of *TPPN #10/88* or preparation of a Construction Protection Plan. Additional protective measures afforded under *TPPN #10/88* would only become applicable if the resources were listed on the S/NR or designated as NYCLs or NYCHDs in the future prior to the initiation of construction. If that does not occur, the resources would not be subject to *TPPN #10/88* and may therefore be adversely impacted by adjacent development resulting from the Proposed Actions.

The Proposed Actions also have the potential to result in indirect significant adverse impacts to five individual historic architectural resources, with new buildings on the projected and potential development sites in close proximity to these resources that could adversely impact their setting. The affected resources are: the S/NR-eligible Steinway Van & Storage Company building at 42-45 12th Street (Resource No. 3); the S/NR-eligible Tom Cat Bakery at 43-05 10th Street (Resource No. 14); the S/NR-eligible building at 43-56 10th Street (Resource No. 13); and the S/NR-eligible Metropolitan Building at 44-01 11th Street (Resource No. 17). In addition, views of the "Silvercup" metal-frame sign above the S/NR-eligible former Silvercup Bakery (Resource No. 4) along Queens Plaza South and from the Queensboro Bridge would be obscured by the new development along Queens Plaza South west of 21st Street in the future with the Proposed Actions.

Measures to partially mitigate these significant adverse impacts will be explored in consultation with LPC between the DEIS and FEIS. If no feasible mitigation is identified, these significant adverse impacts would be unmitigated.

F. TRANSPORTATION

The Proposed Actions would result in significant adverse impacts to: a) vehicular traffic at 44 intersections, b) eight subway stairs, three escalators, and one fare array at two stations, c) subway line haul conditions on four subway routes, d) bus line haul conditions on one bus route, e) ferry line haul conditions on one ferry route, f) ferry landing conditions on one ferry landing, and g) pedestrian elements at 26 sidewalks, 10 corners, and 16 crosswalks. Mitigation measures that could address the significant adverse impacts are discussed below.

TRAFFIC

As described in Chapter 14, "Transportation," the Proposed Actions would result in significant adverse traffic impacts at 44 study area intersections (35 signalized and nine unsignalized) during one or more analyzed peak hours; specifically, 68 lane groups at 38

intersections during the weekday AM peak hour, 48 lane groups at 29 intersections in the midday peak hour, 72 lane groups at 38 intersections in the PM peak hour, and 47 lane groups at 28 intersections during the Saturday peak hour.

As demonstrated below, many of these impacts could be mitigated through the implementation of traffic engineering improvements, including:

- Modification of existing traffic signal phasing and/or timing;
- Installation of new traffic signals or all-way stop controls;
- Elimination of on-street parking to add a travel lane; and
- Modifications to lane striping.

Table 21-1 summarizes the recommended mitigation measures for each of the intersections with significant adverse traffic impacts during the weekday AM, midday, PM, and Saturday peak hours. Implementation of the recommended traffic engineering improvements is subject to review and approval by DOT. If DOT determines that an identified traffic engineering improvement is infeasible, and no alternative and equivalent measure is identified, the Proposed Actions would result in unmitigated significant adverse impacts. Details on the v/c ratios, delays, and levels of service (LOS) for impacted lane groups at each intersection with implementation of the recommended mitigation measures and compares them to No-Action and With-Action conditions are shown in **Table G-4 in Appendix G**. According to *CEQR Technical Manual* criteria, an impact is considered fully mitigated when the resulting LOS degradation under the Action-with-Mitigation Condition compared with the No-Action Condition is no longer deemed significant following the impact criteria described in Chapter 14, “Transportation.” **Table G-4** shows that significant adverse impacts would be fully mitigated at 34 lane groups in the weekday AM peak hour, 36 lane groups in the midday, 39 lane groups in the PM, and 36 lane groups in the Saturday peak hour. Intersections where these impacts would be fully mitigated would total 18, 23, 20, and 22 during these same periods, respectively. In total, impacts to one or more lane group(s) would remain unmitigated in one or more peak hours at 25 intersections (23 signalized and two unsignalized) as shown in **Table 21-2**. Consequently, these impacts would constitute unavoidable significant adverse traffic impacts as a result of the Proposed Actions (see also Chapter 22, “Unavoidable Adverse Impacts”).

Table 21-1
Proposed Traffic Mitigation Measures

#	Intersection	Signal Phase	No-Action/With Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Recommended Mitigation
			AM	MD	PM	SAT	AM	MD	PM	SAT	
1	21st St &	NB/SB	86	80	86	80	86	80	86	82	-Transfer 2s of green time from EB phase to NB/SB phase (SAT peak hour)
	41st Ave	LPI	7	10	7	10	7	10	7	10	
		EB	27	30	27	30	27	30	27	28	
3	11th St &	NB/SB	54	54	54	54	54	53	54	54	-Transfer 1s of green time from NB/SB phase to EB/WB phase (MD peak hour)
	43rd Ave	EB/WB	36	36	36	36	36	37	36	36	
4	12th St &	EB/WB	Unsignalized (Two-Way Stop)				Unsignalized (All-Way Stop)				- Implement all-way stop control at this intersection.
	43rd Ave	SB									
6	21st St &	NB/SB	78	78	78	78	76	76	73	78	- Change NB approach to 1 12' NBLT and 1 12' NBTR (170' storage length, remove on street parking on east side 170' from intersection) - Change EB approach to 1 12' EBL and 1 12' EBTR (remove on street parking on north and south side to 13th St, 190') - Change WB approach to 1 12' WBL and 1 12' WBTR (remove on street parking on north and south side to 22nd St, 260') - Transfer 2s of green time from NB/SB phase to EB/WB phase (AM peak hour) -Transfer 2s of green time from NB/SB phase to EB/WB phase (MD peak hour) -Transfer 5s of green time from NB/SB phase to EB/WB phase (PM peak hour)
	43rd Ave	EB/WB	42	42	42	42	44	44	47	42	
7	Purves St	NB	27	27	27	27	27	27	27	27	- Change SB approach to 1 11' SBLT and 1 11' SBR (43rd Ave)
	/43rd Ave &	SB	30	30	30	30	30	30	30	30	
	Jackson Ave	EB/WB	63	63	63	63	63	63	63	63	
8	Vernon Blvd &	EB	Unsignalized (Two-Way Stop)				42	37	37	37	- Signalize intersection.
	43rd Ave	NB					18	23	23	23	
12	10th St &	EB/WB	Unsignalized (Two-Way Stop)				Unsignalized (All-Way Stop)				- Implement all-way stop control at this intersection.
	44th Ave	NB									
13	11th St &	NB/SB	58	58	58	58	53	53	52	58	- Change EB approach to 1 12' EBLT and 1 12' EBR (remove street parking on south side 180' from intersection) -Transfer 5s of green time from NB/SB phase to EB phase (AM, MD peak hour) -Transfer 6s of green time from NB/SB phase to EB phase (PM peak hour)
	44th Ave	EB	32	32	32	32	37	37	38	32	

Table 21-1 (cont'd)
Proposed Traffic Mitigation Measures

#	Intersection	Signal Phase	No-Action/With Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Recommended Mitigation
			AM	MD	PM	SAT	AM	MD	PM	SAT	
15	9th St & 44th Ave	EB SB	Unsignalized (Two-Way Stop)				Unsignalized (All-Way Stop)				- Implement all-way stop control at this intersection.
16	Vernon Blvd & 44th Ave	NB/SB EB	38 22	38 22	38 22	38 22	38 22	38 22	38 22	38 22	- Change NB approach to 1 11' NBT, 1 11' NBR (75' storage length, remove parking on east side 75' from intersection) - Install signal at this intersection with a 60-second cycle length.
17	10th St & 44th Dr	NB EB/WB	Unsignalized				19 41	29 31	29 31	29 31	- Install signal at this intersection with a 90-second cycle length. -Change NB approach to 1 11' NBLT, 1 11' NBR (75' storage length, remove parking on east side 75' from intersection)
18	11th St & 44th Dr	NBL NB SB EB/WB	12 64 52 26	12 64 52 26	12 64 52 26	12 64 52 26	12 58 46 32	12 58 46 32	12 64 52 26	12 58 46 32	-Change WB approach to 1 11' WBL, 1 11' WBT, and 1 11' WBR (130' storage length, remove north side parking 130' from intersection) -Transfer 6s of green time from NB and SB phase to EB/WB phase (AM, MD, SAT peak hour)
19	21st St & 44th Dr	NB/SB EB/WB	36 24	36 24	36 24	36 24	36 24	36 24	35 25	36 24	-Change NB approach to 1 12' NBLT and 1 12' NBR (75' storage length, remove parking on east side 75' from intersection) -Change SB approach to 1 12' SBLT and 1 12' SBR (80' storage length, remove parking on west side 80' from intersection) -Transfer 1s of green time from NB/SB phase to EB/WB phase (PM peak hour)
20	23rd St & 44th Dr	NB/SB EB/WB LPI	27 26 7	27 26 7	27 26 7	27 26 7	26 27 7	26 27 7	30 23 7	27 26 7	-Change EB approach to 1 11' EBL and 1 11'EBTR (remove bike racks/parking on south side 100' from intersection) -Transfer 1s of green time from NB/SB phase to EB/WB phase (AM and MD peak hours) -Transfer 3s of green time from EB/WB phase to NB/SB phase (PM peak hour)
22	44th Dr & Jackson Ave	WBL/EBL EBT/WBT LPI NB/SB	13 63 7 37	13 63 7 37	13 63 7 37	13 63 7 37	18 58 7 37	13 63 7 37	13 63 7 37	13 63 7 37	- Transfer 5s of green time from EBT/WBT phase to EBL/WBL phase (AM peak hour)
23	Vernon Blvd & 44th Dr	NB/SB EB/WB	38 22	38 22	38 22	38 22	38 22	38 22	38 22	38 22	- Unmitigable
24	10th St & 44th Rd	NB WB	Unsignalized				36 24	36 24	36 24	36 24	- Signalize intersection
26	Vernon Blvd & 44th Rd	NB/SB WB	38 22	38 22	38 22	38 22	38 22	41 19	41 19	40 20	- Change WB approach to 1 12' WBLT and 1 12' WBTR - Transfer 3s of green time from WB phase to NB/SB phase (MD, PM peak hour) - Transfer 2s of green time from WB phase to NB/SB phase (SAT peak hour)
27	Vernon Blvd & 45th Ave (EB)	NB/SB EB	Unsignalized				44 16	39 21	47 13	38 22	-Signalize intersection (cluster with intersection 28)
28	Vernon Blvd & 45th Ave (WB)	NB/SB WB	Unsignalized				44 16	39 21	47 13	38 22	-Change WB approach to 1 11' WBL and 1 11' WBR (120' storage length, remove parking on north side 120' from intersection) -Change NB approach to 1 11' NBT and 1 11' NBR (100' storage length, remove parking on east side 100' from intersection) -Signalize intersection (cluster with intersection 27)
29	Vernon Blvd & 45th Rd	NB SB	Unsignalized				Unsignalized				- Unmitigable
30	Vernon Blvd & 46th Ave	NB/SB WB	45 45	45 45	45 45	45 45	51 39	51 39	51 39	51 39	-Change NB approach to 1 NBL and 1 NBT (remove parking on east side) -Transfer 6s of green time from WB phase to NB/SB phase (AM, MD, PM, SAT peak hour)

Table 21-1 (cont'd)
Proposed Traffic Mitigation Measures

#	Intersection	Signal Phase	No-Action/With Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Recommended Mitigation
			AM	MD	PM	SAT	AM	MD	PM	SAT	
31	Vernon Blvd & 46th Rd	NB/SB	45	45	45	45	51	45	51	45	- Change NB approach to 1 11' NBT and 1 11' NBTR lane (remove parking on east side) - Change SB approach to 1 11' SBLT and 1 11' SBT lane (remove parking on west side) - Change EB approach to 1 11' EBLT and 1 11' EBR lane (remove parking for 50' closest to the intersection) - Transfer 6s of green time from EB phase to NB/SB phase (AM and PM peak hour)
		EB	45	45	45	45	39	45	39	45	
32	Van Dam St & 47th Ave	NB/SB	70	48	70	48	76	48	70	48	- Transfer 6s of green time from EB/WB phase to NB/SB phase (AM peak hour)
		LPI	10	10	10	10	10	10	10	10	
		EB/WB	40	32	40	32	34	32	40	32	
33	Vernon Blvd & 47th Ave	NB/SB	45	45	45	45	46	45	45	45	-Change NB approach to 1 11' NBLT and 1 11' NBT (remove parking on east side) -Change SB approach to 1 11' SBT and 1 11' SBTR (remove parking on west side) -Transfer 1s of green time from WB phase to NB/SB phase (AM peak hour)
		WB	45	45	45	45	44	45	45	45	
34	Vernon Blvd & 47th Rd	NB/SB	45	45	45	45	49	45	51	45	-Change SB approach to 1 11' SBLT and 1 11' SBT (relocate citibike docks and parking on west side) -Change NB approach to 1 11' NBT and 1 11' NBTR (remove parking on east side) -Transfer 4s of green time from EB phase to NB/SB phase (AM peak hour) -Transfer 6s of green time from EB phase to NB/SB phase (PM peak hour)
		EB	45	45	45	45	41	45	39	45	
35	11th St & 48th Ave	NB	56	51	51	51	56	54	51	51	-Transfer 3s of green time from WB phase to NB and SB phase, transfer 5s of green time from SB phase to NBL phase (MD peak hour) -Transfer 1s of green time from SB phase to NBL phase (SAT peak hour)
		SB	45	40	40	40	45	38	40	39	
		NBL	11	11	11	11	11	16	11	12	
		WB	64	69	69	69	64	66	69	69	
37	Vernon Blvd & 48th Ave	NB/SB	44	44	44	44	44	44	44	44	-Change SB approach to 1 11' SBLT and 1 11' SBT (remove parking on west side of approach) - Change WB approach to 1 WBLT and 1 WBTR (200' storage length, remove parking on north side of approach 200' from intersection) -Change NB approach to 1 11' NBLT and 1 11' NBT (remove parking on east side of approach)
		WB	23	23	23	23	23	23	23	23	
		EB	23	23	23	23	23	23	23	23	
38	Vernon Blvd & 49th Ave	NB/SB	45	45	45	45	51	45	49	45	-Change SB approach to 1 11' SBLT and 1 11' SBT (remove parking on west side of approach) -Change NB approach to 1 11' NBLT and 1 11' NBT (remove parking on east side of approach) -Transfer 6s of green time from EB phase to NB/SB phase (AM peak hour) -Transfer 4s of green time from EB phase to NB/SB phase (PM peak hour)
		EB	45	45	45	45	39	45	41	45	
39	Vernon Blvd & 50th Ave	NB/SB	43	43	43	43	49	43	49	46	-Change SB approach to 1 11' SBLT and 1 11' SBT (remove parking on west side of approach) -Change NB approach to 1 11' NBLT and 1 11' NBT (remove parking on east side of approach) -Transfer 6s green time from EB phase to NB/SB phase (AM peak hour) -Transfer 6s green time from EB phase to NB/SB phase (PM peak hour) -Transfer 3s green time from EB phase to NB/SB phase (SAT peak hour)
		LPI	7	7	7	7	7	7	7	7	
		EB	40	40	40	40	34	40	34	37	
40	Vernon Blvd & 51st Ave	NB/SB	40	40	40	40	46	43	46	46	-Change SB approach to 1 11' SBLT and 1 11' SBT (remove parking on west side of approach) -Change NB approach to 1 11' NBLT and 1 11' NBT (remove parking on east side of approach) -Change WB approach to 1 WBL and 1 WBTR (remove buffer from north side) -Transfer 6s of green time from WB phase to NB/SB phase (AM, PM, SAT peak hour) -Transfer 3s of green time from WB phase to NB/SB phase (MD peak hour)
		LPI	10	10	10	10	10	10	10	10	
		WB	40	40	40	40	34	37	34	34	

Table 21-1 (cont'd)
Proposed Traffic Mitigation Measures

#	Intersection	Signal Phase	No-Action/With Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Recommended Mitigation
			AM	MD	PM	SAT	AM	MD	PM	SAT	
41	Borden Ave & 21st St	EB/WB SB	36 24	36 24	36 24	36 24	37 23	36 24	38 22	36 24	-Transfer 1s of green time from SB phase to EB/WB phase (AM peak hour) -Transfer 2s of green time from SB phase to EB/WB phase (PM peak hour)
43	Borden Ave & 25th St	EB/WB SB	36 24	36 24	36 24	36 24	36 24	36 24	42 18	36 24	-Transfer 6s of green time from SB phase to EB/WB phase (PM peak hour)
44	Borden Ave & 27th St	EB/WB SB	Unsignalized				36 24	36 24	37 23	36 24	-Signalize intersection -Change WB approach to 1 12' WBT and 1 12' WBR (170' storage lange, remove parking on north side of approach 170' from intersection)
45	Borden Ave & Vernon Blvd	EB/WB SB	37 53	37 53	37 53	37 53	37 53	37 53	37 53	37 53	- Prohibit SBU movement, add WBR overlap (only mitigates WBR movement) -Change EB approach to 1 11' EBL and 1 11' EBT (120' storage length, remove parking on south side of approach 120' from intersection)
47	Van Dam St & Hunters Point Ave	NB/SB EB/WB	84 36	57 33	84 36	84 36	85 35	57 33	83 37	84 36	-Change WB approach to 1 10' WBLT and 1 11' WBR (need to move centerline) -Transfer 1s of green time from EB/WB phase to NB/SB phase (AM peak hour) -Transfer 1s of green time from NB/SB phase to EB/WB phase (PM peak hour)
48	Van Dam St & Queens Blvd	EB WB NB/SB	50 110 40	55 85 35	68 113 37	55 85 35	50 110 40	54 84 36	63 106 44	52 82 38	-Transfer 1s of green time from EB/WB phase to NB/SB phase(MD peak hour) -Transfer 5s of green time from EB/WB phase to NB/SB phase(PM peak hour) -Transfer 3s of green time from EB/WB phase to NB/SB phase(SAT peak hour)
49	Van Dam St & Thomson Ave	SWB EB NBL/EBR NB/SB	60 90 20 40	30 65 20 35	45 93 20 37	30 65 20 35	60 90 20 40	30 59 25 36	43 84 22 44	30 57 25 38	-Transfer 5s of green time from EB phase to NBL/EBR phase, transfer 1s of green time from EB phase to NB/SB and SWB phase(MD peak hour) -Transfer 2s of green time from EB phase to NBL/EBR phase, transfer 7s of green time from EB phase to NB/SB and SWB phase(PM peak hour) -Transfer 5s of green time from EB phase to NBL/EBR phase, transfer 3s of green time from EB phase to NB/SB and SWB phase(SAT peak hour)
50	21st St & Queensboro Bridge Off-ramp	NB/SB WB	78 42	52 68	55 65	52 68	78 42	84 36	49 71	51 69	-Transfer 6s of green time from NB/SB phase to WB phase (MD peak hour) -Transfer 1s of green time from NB/SB phase to WB phase (SAT peak hour)
51	21st St & Queens Plaza N	NB/SB WB LPI	78 35 7	78 32 10	78 35 7	78 32 10	78 42 7	72 38 10	78 35 7	78 32 10	-Transfer 6s of green time from NB/SB phase to WB phase (MD peak hour) -Transfer 1s of green time from NB/SB phase to WB phase (SAT peak hour)
55	11st St & Queens Plaza S	NB/SB EB	78 42	90 30	90 30	90 30	78 42	84 36	90 30	86 34	-Change SB approach to 1 11' SBLT, 1 11' SBT, 111' SBR -Transfer 6s of green time from NB/SB phase to EB phase (MD peak hour) -Transfer 4s of green time from NB/SB phase to EB phase (SAT peak hour)
56	21st St & Queens Plaza S	NBL SB NB EB WB WBL LPI	19 70 89 37 51 14 10	19 60 79 47 61 14 10	19 70 89 37 51 14 10	19 60 79 47 61 14 10	18 71 89 37 51 14 10	19 60 79 47 61 14 10	17 72 89 39 51 12 10	16 66 82 44 58 14 10	-Transfer 1s of green time from SB phase to WB phase (AM peak hour) -Transfer 2s of green time from WBL phase to EB phase, transfer 2s of green time from SB phase to WB phase (PM peak hour) -Transfer 3s of green time from WB phase to NB phase, transfer 3s of green time from EB phase to SB phase, transfer 3s of green time from SB phase to WB phase (SAT peak hour)

Table 21-1 (cont'd)
Proposed Traffic Mitigation Measures

#	Intersection	Signal Phase	No-Action/With Action Signal Timing (Seconds) (1)				Proposed Signal Timing (Seconds) (1)				Recommended Mitigation
			AM	MD	PM	SAT	AM	MD	PM	SAT	
58	Thomson Ave &	WB	43	43	43	43	49	43	43	43	
	44th Dr	SB	37	37	37	37	31	37	37	37	-Transfer 6s of green time from SB phase to WB phase (AM peak hour)
		LPI	10	10	10	10	10	10	10	10	
62	Jackson Ave &	NB/SB	78	76	74	76	78	76	71	76	-Change WB approach to 1 WBLR and 1 WBR
	Thomson Ave	LPI	7	10	7	10	7	10	7	10	-Transfer 3s of green time from NB/SB phase to WB phase (PM peak hour)
		WB	35	34	39	34	35	34	42	34	
63	Van Dam St &	NB/SB	60	45	60	60	59	45	60	60	- Change SB approach to 2 11' SBT and 1 11' SBTR (need to move centerline)
	Borden Ave WB	WB	60	45	60	60	61	45	60	60	- Transfer 1s of green time from NB/SB phase to WB phase (AM peak hour)

Notes :

(1) Signal timings shown indicate green plus yellow (including all red) for each phase.

Table 21-2
Action-With-Mitigation Traffic Analysis Summary of Number of Impacted Lane Groups by Peak Hour

Intersections	With Action Impact Locations (lane groups)[1]				No. of Impacted Peak Hours	Action-With-Mitigation Impact Locations (lane groups)[1]				No. of Impacted Peak Hours
	AM	MD	PM	SAT		AM	MD	PM	SAT	
Signalized Intersections										
1. 21st St & 41st Ave	2	0	4	2	3	2	0	4	2	3
3. 11th St & 43rd Ave	0	1	1	0	2	0	0	1	0	1
6. 21st St & 43rd Ave	3	1	2	0	3	0	0	0	0	0
7. Purves St/43rd Ave & Jackson Ave	1	1	1	1	4	0	0	0	0	0
13. 11th St & 44th Ave	1	1	1	0	3	0	0	1	0	1
14. 21st St & 44th Ave	0	0	0	0	0	0	0	0	0	0
16. Vernon Blvd & 44th Ave	2	1	0	0	2	1	0	0	0	1
18. 11th St & 44th Dr	4	4	5	3	4	3	2	5	2	4
19. 21st St & 44th Dr	3	1	2	2	4	2	0	0	0	1
20. 23rd St & 44th Dr	2	2	3	1	4	2	1	1	0	3
22. 44th Dr & Jackson Ave	1	0	0	0	1	0	0	0	0	0
23. Vernon Blvd & 44th Dr	5	4	4	3	4	5	4	4	3	4
26. Vernon Blvd & 44th Rd	2	1	2	1	4	2	0	1	0	2
30. Vernon Blvd & 46th Ave	2	2	2	2	4	2	2	2	2	4
31. Vernon Blvd & 46th Rd	2	2	2	2	4	1	0	1	0	2
32. Van Dam St & 47th Ave	1	0	0	0	1	1	0	0	0	1
33. Vernon Blvd & 47th Ave	2	2	2	2	4	0	0	0	0	0
34. Vernon Blvd & 47th Rd	2	2	2	2	4	0	0	0	0	0
35. 11th St & 48th Ave	1	1	2	1	4	1	0	2	0	2
37. Vernon Blvd & 48th Ave	3	3	3	3	4	0	0	0	0	0
38. Vernon Blvd & 49th Ave	1	0	1	1	3	1	0	0	0	1
39. Vernon Blvd & 50th Ave	1	1	1	1	4	1	0	1	0	2
40. Vernon Blvd & 51st Ave	3	3	3	3	4	1	0	1	0	2
41. Borden Ave & 21st St	1	0	1	0	2	0	0	0	0	0
43. Borden Ave & 25th St	0	0	2	0	1	0	0	0	0	0
45. Borden Ave & Vernon Blvd	3	3	3	3	4	2	2	2	1	4
47. Van Dam St & Hunters Point Ave	2	1	1	1	4	0	0	0	0	0

[1] Number of lane groups that are impacted during the AM, MD, PM, and/or SAT peak hours.

[2] Unsignalized intersection where installation of a traffic signal is proposed as a mitigation measure.

Table 21-2 (cont'd)
Action-With-Mitigation Traffic Analysis Summary of Number of Impacted Lane Groups by Peak Hour

Intersections	With Action Impact Locations (lane groups)[1]				No. of Impacted Peak Hours	Action-With-Mitigation Impact Locations (lane groups)[1]				No. of Impacted Peak Hours
	AM	MD	PM	SAT		AM	MD	PM	SAT	
Signalized Intersections										
48. Van Dam St & Queens Blvd	1	0	0	0	1	1	0	0	0	1
49. Van Dam St & Thomson Ave	2	3	3	3	4	2	0	0	0	1
50. 21st St & Queensboro Bridge Off-Ramp	0	0	1	1	2	0	0	1	0	1
51. 21st St & Queens Plaza N	0	1	2	1	3	0	1	2	1	3
55. 11th St & Queens Plaza S	1	1	3	1	4	0	0	2	0	1
56. 21st St & Queens Plaza S	1	0	2	2	3	0	0	0	0	0
58. Thomson Ave & 44th Dr	1	0	0	0	1	0	0	0	0	0
62. Jackson Ave & Thomson Ave	2	0	1	0	2	2	0	0	0	1
63. Van Dam St & Borden Ave WB	2	0	0	1	2	0	0	0	0	0
Unsignalized Intersections										
4. 12th St & 43rd Ave	1	1	1	0	3	0	0	0	0	0
8. Vernon Blvd & 43rd Ave[2]	0	1	1	0	2	0	0	0	0	0
12. 10th St & 44th Ave	1	1	1	1	4	0	0	0	0	0
15. 9th St & 44th Ave	0	0	1	0	1	0	0	0	0	0
17. 10th St & 44th Dr[2]	2	1	2	1	4	0	0	0	0	0
27. Vernon Blvd & 45th Ave (EB)[2]	1	1	1	1	4	1	0	1	0	2
28. Vernon Blvd & 45th Ave (WB)[2]	1	1	1	1	4	0	0	0	0	0
29. Vernon Blvd & 45th Rd	1	0	1	0	2	1	0	1	0	2
44. Borden Ave & 27th St[2]	1	0	1	0	2	0	0	0	0	0
Total Impacted Lane Groups	**68**	**48**	**72**	**47**		**34**	**12**	**33**	**11**	
Total Impacted Intersections	**38**	**29**	**38**	**28**		**20**	**6**	**18**	**6**	

[1] Number of lane groups that are impacted during the AM, MD, PM, and/or SAT peak hours.

[2] Unsignalized intersection where installation of a traffic signal is proposed as a mitigation measure.

PROPOSED SCHEDULE FOR TRAFFIC MITIGATION MEASURES

Subject to the final review and approval of DOT, the mitigation measures summarized in **Table 21-1** would be implemented to mitigate the significant adverse traffic impacts resulting from full build-out of the Proposed Actions in 2035. As the development of the Proposed Actions would be expected to occur over an approximately 10-year period, it is possible that some of the significant adverse traffic impacts could occur prior to full build-out in 2035.

Based on the anticipated construction schedule shown in Chapter 20, "Construction," incremental vehicle trips associated with traffic generated by projected development sites could potentially result in significant adverse traffic impacts beginning in the first quarter of 2029 when completed incremental development on five projected development sites would result in a net increase of 59,341 gsf of local retail space and 125,902 gsf of office, along with the net decrease of 28,500 gsf of office space and 42,997 gsf of light industrial. This level of new development would generate more than the *CEQR Technical Manual* analysis threshold of 50 peak hour vehicle trip ends in all peak periods. At this earlier time, implementation of some or all of the mitigation measures developed for full build-out of the Proposed Actions in 2035 would be considered by DOT at impacted

intersections, likely focusing on those corridors where project-generated traffic would be most concentrated, such as along Vernon Boulevard.

EFFECTS OF TRAFFIC MITIGATION ON PARKING CONDITIONS

As discussed above, the proposed traffic mitigation plan would incorporate a number of modifications to curbside parking regulations. As shown in **Table 21-1**, new restrictions would be implemented along the following:

- The east curb along 21st Street between 44th Avenue and 43rd Avenue;
- The north and south curbs along 43rd Avenue between 13th Street and 21st Street;
- The north and south curbs along 43rd Avenue between 21st Street and 22nd Street;
- The south curb along 44th Avenue between 10th Street and 11th Street;
- The east curb along Vernon Boulevard between 44th Road and 44th Avenue;
- The east curb along 10th Street between 45th Avenue and 44th Drive;
- The north curb along 44th Drive between 11th Street and 21st Street;
- The east curb along 21st Street between 45th Avenue and 44th Drive;
- The west curb along 21st Street between 44th Drive and 44th Road;
- The south curb along 44th Drive between 23rd Street and 21st Street;
- The north curb along 45th Avenue between 11th Street and Vernon Boulevard;
- The east curb along Vernon Boulevard between 45th Avenue and 45th Road;
- The east and west curbs along Vernon Boulevard between 46th Road and 46th Avenue;
- The east and west curbs along Vernon Boulevard between 47th Avenue and 46th Road;
- The south curb along 46th Road between 5th Street and Vernon Boulevard;
- The east and west curb along Vernon Boulevard between 47th Road and 47th Avenue;
- The east and west curbs along Vernon Boulevard between 48th Avenue and 47th Road;
- The north curb along 48th Avenue between Vernon Boulevard and 11th Street;
- The east and west curbs along Vernon Boulevard between 49th Avenue and 48th Avenue;
- The east and west curbs along Vernon Boulevard between 50th Avenue and 49th Avenue;
- The east and west curbs along Vernon Boulevard between 51st Avenue and 50th Avenue;
- The east curb along Vernon Boulevard between Borden Avenue and 51st Avenue;
- The north curb along Borden Avenue between 27th Street and Review Avenue; and
- The south curb along Borden Avenue between 5th Street and Vernon Boulevard.

New “No Standing Anytime” restrictions in these areas would displace a total of approximately 265 on-street parking spaces.

As discussed in Chapter 14, "Transportation," the Proposed Actions would generate a peak net parking demand of approximately 6,086 spaces in the weekday midday period and approximately 5,092 spaces in the Saturday overnight period. With the proposed traffic mitigation, the displacement would increase the demand by up to approximately 265 spaces during each of these periods. As discussed in Chapter 14, "Transportation," the majority of the Project Area is located within Parking Zone 2 and the inability of a proposed project or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant under *CEQR Technical Manual* guidance due to the magnitude of available alternative modes of transportation, As such, given that the Project Area is well served by alternate modes of transportation, any potential parking shortfall would not be considered significant as a result of these traffic mitigation measures.

TRANSIT

SUBWAY

Subway Stations

As summarized in **Table 21-3**, under the Proposed Actions, a total of eight stairs, two escalators, and one fare array at the Court Square – 23rd Street (E/G/M/7) subway station complex and one escalator at the 21st Street – Queensbridge (F) subway station would be significantly adversely impacted by project-generated demand in one or both peak hours.

Table 21-3
Summary of Significant Subway Station Impacts

Subway Station	Station Element	Impacted Time Period
Court Square – 23rd Street (E/G/M/7)	Street Stair S2/M2	AM/PM
	Street Stair S3/M3	AM/PM
	Street Stair S4/M4	AM/PM
	Platform Stair P1 (QBL)	AM/PM
	Platform Stair P2/M1 (QBL)	AM/PM
	Platform Stair P4 (QBL)	AM
	Platform Stair P1/P3 (IRT)	AM/PM
	Platform Stair P2/P4 (IRT)	AM/PM
	Escalator E-461X	AM/PM
	Escalator E-462X	AM/PM
	Fare Array N307	AM/PM
21st Street – Queensbridge (F)	Escalator E-422	AM

Stairway widening is the most common form of mitigation for significant stairway impacts, provided that NYCT deems it practicable (i.e., that it is worthwhile to disrupt service on an existing stairway to widen it and that a given platform and sidewalk affected by such mitigation are wide enough to accommodate the stairway widening). Another potential mitigation measure would be to add vertical capacity (i.e., adding an elevator, escalator or additional stairway) in the vicinity of the impacted stairway.

Table 21-4 shows the minimum stair widening that would be required to fully mitigate the Proposed Actions' significant adverse stair impacts at locations where stair widening is feasible based on *CEQR Technical Manual* criteria – stairs P2/M1 (QBL) and P4 (QBL) at the Court Square-23rd Street (E/G/M/7) subway station. It should be noted that actual stair widening is planned based on NYCT guidance. Typically, stair widths are considered in terms of 30-inch (2.5-foot) pedestrian lanes. Thus, as shown in **Table 21-4**, stairs P2/M1 (QBL) would be ideally widened to 17.5 feet to provide seven pedestrian lanes and stair P4 (QBL) would be ideally widened to 15 feet to provide six pedestrian lanes to return the impacted stairs to LOS C conditions.

Table 21-4
Minimum Required Subway Stairway Widening to Mitigate Impacts at the Court Square – 23rd Street (E/G/M/7) Station

Peak Hour	Station	Stair	With Action						Action-With-Mitigation						Minumum Required Widening[1]
			Total Width (ft.)	Effective Width (ft.)	V/C Ratio	LOS	WIT (in)	Impact Threshold (in)	Total Width (ft.)	Effective Width (ft.)	V/C Ratio	LOS	WIT (in)	Impact Threshold (in)	
AM	Court Sq - 23rd St (E/G/M/7)	P2A/P2B/M1 C/M1D (QBL)	13.00	11.75	1.36	E *	50.91	5.00	17.50	16.25	0.98	C	-	2.00	4 ' 6"
		P4A/P4B (QBL)	13.00	11.75	1.07	D *	9.28	8.00	15.00	13.75	0.91	C	-	2.00	2 ' 0"
PM	Court Sq - 23rd St (E/G/M/7)	P2A/P2B/M1 C/M1D (QBL)	13.00	11.75	1.12	D *	17.32	7.00	17.50	16.25	0.81	C	-	2.00	4 ' 6"

Note:

[1] Minimum required widening proposed to build new stairs in 30-inch increments.

It would be infeasible to widen the stairs at stairs S2/M2, S3/M3, S4/M4, P1 (QBL), P1/P3 (IRT), and P2/P4 (IRT) at the Court Square – 23rd Street (E/G/M/7) subway station complex due to the infrastructure constraints adjacent to the stairs in order to fully mitigate the impact at these stars. Therefore, no feasible mitigation measures were identified at these stairs at the Court Square – 23rd Street (E/G/M/7) subway station complex, and the significant adverse subway stair impacts at these six stairs would remain unmitigated.

Increasing throughput capacity through the installation of additional turnstiles is a common form of mitigation for significant fare array impacts, provided that NYCT deems it practicable (i.e., that sufficient space is available to accommodate the additional fare array elements). It would be infeasible to add additional turnstiles at Control Area N307 at the Court Square – 23rd Street (E/G/M/7) subway station complex due to the infrastructural constraints adjacent to the fare arrays. Therefore, no feasible mitigation measures were identified at the impacted fare array at the Court Square – 23rd Street (E/G/M/7) subway station complex, and the significant adverse subway fare array impacts would remain unmitigated.

Potential measures to mitigate significant escalator impacts include adding appropriate vertical processor capacity (preferably an escalator or elevator), increasing operating speeds for escalators, and increasing escalator tread widths, provided that NYCT deems it practicable. A significant adverse escalator impact is considered mitigated if measures implemented return the anticipated conditions to an acceptable level, following the same criteria used in determining impacts. Another potential mitigation measure would be to increase operating speeds for escalators.

Increasing the operating speed for all impacted escalators is infeasible as all impacted escalators would operate at the maximum allowable operating speed that NYCT uses for escalators (100 fpm (feet per minute)) under the With Action condition. It should also be noted that it would be infeasible to widen the escalator tread widths for E-422 at the 21st Street – Queensbridge (F) subway station due to the escalator and infrastructure constraints adjacent to the escalators. In addition, widening the tread widths for escalators E-461X and E-462X at the Court Square – 23rd Street (E/G/M/7) subway station complex is also infeasible as the tread widths for these escalators are currently the maximum tread width that NYCT uses for escalators (40 inches). Therefore, no feasible mitigation measures were identified at the impacted escalators, and significant adverse subway escalator impacts would remain unmitigated.

These proposed improvements are subject to final review and approval by the NYCT. Absent the identification and implementation of feasible mitigation measures that would mitigate the subway station impacts to the greatest extent practicable, the Proposed Actions would result in unmitigated significant adverse subway station impacts.

Subway Line Haul

As shown in Table 14-44 in Chapter 14, "Transportation," development associated with the Proposed Actions would add approximately 2,166 new subway trips or an average of approximately 8.34 passengers per car, to southbound 7 trains in the AM peak hour, increasing the volume-to-capacity ratio from 0.97 in the No Action condition to 1.05 in the future with the Proposed Actions. The Proposed Actions would also add 1,539 new subway trips (10.71 passengers per car), to southbound E trains in the AM peak hour, increasing the volume-to-capacity ratio from 1.09 in the No Action condition to 1.17 in the future with the Proposed Actions. The Proposed Actions would also add 718 new subway trips (5.43 passengers per car), to southbound F trains in the AM peak hour, increasing the volume-to-capacity ratio from 0.97 in the No Action condition to 1.00 in the future with the Proposed Actions. The southbound G train in the AM peak hour would receive approximately 380 new subway trips (8.80 passengers per car), increasing the volume-to-capacity ratio from 1.04 in the No Action condition to 1.12 in the future with the Proposed Actions. The northbound G train in the PM peak hour would receive approximately 349 new subway trips (8.64 passengers per car), increasing the volume-to-capacity ratio from 1.06 in the No Action condition to 1.13 in the future with the Proposed Actions. As demand on southbound 7, E, F, and G trains in the AM peak hour and northbound G trains in the PM peak hour would exceed practical capacity in the 2035 With Action condition, and as the Proposed Actions would increase this demand by more than the five passengers per car *CEQR Technical Manual* impact threshold, southbound 7, E, F, and G trains in the AM peak hour and northbound G trains in the PM peak hour would be considered significantly adversely impacted by the Proposed Actions based on *CEQR Technical Manual* criteria.

As standard practice, NYCT routinely conducts periodic ridership counts and adjusts subway frequency to meet its service criteria within fiscal and operating constraints. As shown in **Table 21-5**, given the level of new demand generated by the Proposed Actions, the addition of two southbound 7 trains, three southbound E trains, one southbound F train, and two southbound G trains during the AM peak hour would result in below-capacity conditions of 0.97, 0.97, 0.93, and 0.91, respectively, mitigating the potential impacts. The addition of two northbound G trains during the PM peak hour would result

in a below-capacity condition of 0.91, mitigating the potential impact. These proposed improvements are subject to final review and approval by the NYCT. In the absence of the additional frequencies or other mitigation measures, the impacts to the southbound 7, E, F, and G trains in the AM peak hour and northbound G trains in the PM peak hour would remain unmitigated.

Table 21-5
Summary of Significant Subway Line Haul Impacts

Peak Hour	Route	Direction	Maximum Load Point (leaving station)	Average Trains per Hour	Average Cars per Hour	Guideline Passengers per Car[1]	Average Passengers per Hour	Average Passengers per Car	V/C Ratio[2]	Average Additional Passengers per Car
2035 With-Action Condition										
AM	7 (combined)	SB	Vernon Blvd-Jackson Av	23.6	11	110	29,920	115	1.05	8.34*
	E	SB	Court Sq	14.4	10	145	24,304	169	1.17	10.71*
	F	SB	Roosevelt Island	13.2	10	145	19,254	146	1.00	5.43*
	G	SB	Clinton-Washington Avs	8.6	5	115	5,561	129	1.12	8.80*
PM	G	NB	Fulton St	8.1	5	115	5,269	130	1.13	8.64*
2035 Action-With-Mitigation Condition										
AM	7 (combined)	SB	Vernon Blvd-Jackson Av	25.6	11	110	29,920	106	0.97	7.68
	E	SB	Court Sq	17.4	10	145	24,304	140	0.97	8.86
	F	SB	Roosevelt Island	14.2	10	145	19,254	135	0.93	5.05
	G	SB	Clinton-Washington Avs	10.6	5	115	5,561	105	0.91	7.15
PM	G	NB	Fulton St	10.1	5	115	5,269	105	0.91	6.92

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.
* denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

BUS

As discussed in Chapter 14, "Transportation," the Proposed Actions would add approximately 103 and 73 bus trips through the maximum load points of the northbound Q103 bus route in the AM and PM peak hours, respectively. This would result in a passenger capacity shortfall of 43 and 17 northbound Q103 bus services during the AM and PM peak hours, respectively. Therefore, based *on CEQR Technical Manual* criteria, the northbound Q103 service would be significantly adversely impacted in the AM and PM peaks. As shown in **Table 21-6**, the significant adverse impact to the Q103 bus service could be fully mitigated by the addition of one additional bus in northbound direction in both the AM and PM peak hours. The general policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints. These proposed improvements are subject to final review and approval by the NYCT. Absent the identification and implementation of mitigation measures that would mitigate the bus line haul impacts, the Proposed Actions would result in unmitigated significant adverse bus line haul impacts.

Table 21-6
Action-With-Mitigation Local Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No Action Available Capacity[2]	Project Increment	Available Capacity w/ Proposed Actions[2]	Additional Buses Needed to Accommodate Project Demand	Available Capacity With Mitigation
AM	Q103	NB	21 St/41 Av	3	60	103	-43*	1	11
PM	Q103	NB	40 Av/12 St	3	56	73	-17*	1	37

Notes:
1. Assumes service levels adjusted to address capacity shortfalls in the No Action conditions.
2. Available capacity based on MTA/NYCT loading guidelines of 54 passengers per standard bus.
* Denotes a significant adverse impact.

CITYWIDE FERRY SERVICE

Ferry Line Haul

As shown in Table 14-46 in Chapter 14, "Transportation," development associated with the Proposed Actions would add approximately 333 new ferry trips through the maximum load point and ferry departure point of the southbound ferries on the Astoria route in the AM peak hour, increasing the volume-to-capacity ratio from 0.92 in the No Action condition to 1.62 and approximately 178 new ferry trips through the ferry departure point of the northbound ferries on the Astoria route in the PM peak hour, increasing the volume-to-capacity ratio from 0.54 in the No Action condition to 0.94 in the future with the Proposed Actions. As the southbound ferries on the Astoria route in the AM peak hour would have a v/c ratio greater than 0.90 under the No Action condition and a v/c ratio increase of 0.10 or more between the No Action and With Action conditions at the maximum load point and ferry departure point, southbound ferries on the Astoria route would be considered significantly adversely impacted by the Proposed Actions at the maximum load point and ferry departure points based on *CEQR Technical Manual* criteria. In addition, as the northbound ferries on the Astoria route in the PM peak hour would have a v/c ratio greater than 0.90 under the With Action condition and a v/c ratio less than 0.10 under the No Action condition at the ferry departure point, northbound ferries on the Astoria route would be considered significantly adversely impacted by the Proposed Actions at the ferry departure points based on *CEQR Technical Manual* criteria.

As standard practice, adjustments in ferry frequency to meet its service criteria within fiscal and operating constraints. **Tables 21-7** show line haul conditions at the impacted ferry routes with the proposed mitigation measures discussed below at the maximum load and ferry departure points, respectively.

Table 21-7
Summary of Significant Citywide Ferry Line Haul Impacts – Maximum Load Point & Point of Departure from Long Island City Landing

Peak Hour	Route	Direction	Peak Load Segment	Average Boats per Hour[1]	Average Capacity per Boat[2]	Passengers Volume at Peak Hour	Passenger Volume per Boat at Peak Hour	V/C Ratio[3]
2035 No Action Condition at Max Load Point								
AM	Astoria	SB	Long Island City – East 34th Street	1.6	299	439	275	0.92
2035 With Action Condition at Max Load Point								
AM	Astoria	SB	Long Island City – East 34th Street	1.6	299	772	483	1.62*
2035 Action-With-Mitigation Condition at Max Load Point								
AM	Astoria	SB	Long Island City – East 34th Street	2.2	350	772	351	1.00
Mitigation: increase operating service to every 27 minutes and increase the vessel capacity to 350 passengers per vessel on the southbound ferries on the Astoria route during the AM peak hour.								
2035 No Action Condition at Point of Departure from Long Island City Landing								
AM	Astoria	SB	Long Island City – East 34th Street	1.6	299	439	275	0.92
PM	Astoria	NB	Long Island City – Roosevelt Island	1.5	299	242	162	0.54
2035 With Action Condition at Point of Departure from Long Island City Landing								
AM	Astoria	SB	Long Island City – East 34th Street	1.6	299	772	483	1.62*
PM	Astoria	NB	Long Island City – Roosevelt Island	1.5	299	420	2871	0.94*
2035 Action-With-Mitigation Condition at Point of Departure from Long Island City Landing								
AM	Astoria	SB	Long Island City – East 34th Street	2.2	350	772	351	1.00
PM	Astoria	NB	Long Island City – Roosevelt Island	1.6	299	420	263	0.88
Mitigation: increase operating service to every 27 minutes and increase the vessel capacity to 350 passengers per vessel on the southbound ferries on the Astoria route during the AM peak hour. And increase operating service to every 38 minutes on the northbound ferries on the Astoria route during the PM peak hour.								

Notes:
(2) The point of departure and maximum peak load point are the same during the AM peak hour in the southbound direction. Also, increase vessel capacity to 350 passengers per vessel on the SB ferries on Astoria route in the AM.
(3) [1] Based on September 2024 ferry service schedule from EDC, which operates with a 38-minute headway during the AM peak hour per direction and a 39-minute headway during the PM peak hour per direction.
(4) [2] Guideline capacities are based on data from EDC. The Astoria route typically operates with 299 passenger capacity vessels in September.
(5) [3] Volume to guideline capacity ratio.
***** Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

As shown in **Tables 21-7**, given the level of new demand generated by the Proposed Actions, increasing the operating service from every 38 minutes to every 27 minutes and increasing the vessel capacity to 350 passengers per vessel on the southbound ferries on the Astoria route during the AM peak hour would result in a v/c ratio of 1.00, mitigating the potential impact. In addition, as shown in **Table 21-7**, given the level of new demand generated by the Proposed Actions, increasing the operating service from every 39 minutes to every 38 minutes on the northbound ferries on the Astoria route during the PM

peak hour would result in a v/c ratio of 0.88, mitigating the potential impact. In the absence of the additional frequencies, additional vessel capacity, or other mitigation measures, the impact to southbound ferry service on the Astoria route at the maximum load point and ferry departure point in the AM peak hour and to the northbound ferry service on the Astoria route at the ferry departure point in the PM peak hour would remain unmitigated.

These proposed improvements are subject to final review and approval by the EDC. If EDC determines that an identified improvement is infeasible, and no alternative and equivalent measure is identified, then that impact would remain unmitigated and would constitute an unavoidable adverse impact.

Ferry Landing

As described in Chapter 14, "Transportation," the Proposed Actions would result in significant citywide ferry landing adverse impacts to the Long Island City ferry landing in both the AM and PM peak hours. Generally, significant ferry landing impacts may be mitigated by increasing ferry service on existing routes. As standard practice, adjustments in ferry frequency to meet its service criteria within fiscal and operating constraints.

As shown in **Table 21-8,** given the level of new demand generated by the Proposed Actions, increasing the operating service from every 38 minutes to every 27 minutes on the northbound and southbound ferries on the Astoria route during the AM peak hour and from every 39 minutes to every 38 minutes on the northbound ferries on the Astoria route during the PM peak hour, and adding a gangway or extending the gangway by 50 feet by 19 feet would be able to fully mitigate the Proposed Actions' significant adverse ferry landing impacts at the Long Island City ferry landing in both peak hours. These proposed improvements are subject to final review and approval by the EDC. Absent the identification and implementation of feasible mitigation measures that would mitigate the ferry landing impacts to the greatest extent practicable, the Proposed Actions would result in unmitigated significant adverse ferry landing impacts.

Table 21-8
Summary of Significant Citywide Ferry Landing Impacts

Peak Hour	Ferry Landing	Direction	Average Boats per Hour	Project Increment Queue Length (person)	Landing Area[1] (sf)	Average Queue per Boat	Average Queue Area[2] (sf)	V/C Ratio[3]
2035 No Action Condition								
AM	Long Island City	Total	3.2	- - - -	1,706	121	968	0.57
PM	Long Island City	Total	3.0	- - - -	1,706	49	392	0.23
2035 With Action Condition								
AM	Long Island City	Total	3.2	240	1,706	361	2,888	1.69*
PM	Long Island City	Total	3.2	212	1,706	261	2,088	1.22*
2035 Action-With-Mitigation Condition								
AM	Long Island City	Total	4.4	174	2,656	295	2,360	0.89
PM	Long Island City	Total	3.1	204	2,656	253	2,024	0.76

Mitigation: increase operating service to every 27 minutes on the northbound and southbound (proposed for line haul) ferries during the AM peak hour and to every 38 minutes on the northbound (proposed for line haul) ferries during the PM peak hour, and add a gangway or extend gangway by 50 feet by 19 feet.
Notes: (6) [1] Based on the as-builts from EDC for the Long Island City landing, which has a 35 ft by 90 ft barge and 50 ft by 10 ft gangway. Excludes the obstructions in the landing area (e.g. signs, garbage cans, and ticket machines). [2] 8 sf is required for each queued person per *CEQR Technical Manual* guidance. [3] Volume to guideline capacity ratio. ***** Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

These proposed improvements are subject to final review and approval by EDC. If EDC determines that an identified improvement is infeasible, and no alternative and equivalent measure is identified, then that impact would remain unmitigated and would constitute an unavoidable adverse impact.

PEDESTRIANS

As discussed in Chapter 14, "Transportation," the results of the analyses of pedestrian conditions show that demand from the Proposed Actions would significantly adversely impact 26 sidewalks, 10 corners, 16 crosswalks in one or more peak hours under the With-Action Condition (see **Table 21-9**).

A significant adverse pedestrian impact is considered mitigated if measures implemented return the anticipated conditions to an acceptable level, following the same criteria used in determining impacts. Standard mitigation for projected significant adverse pedestrian impacts can include providing additional signal green time or new signal phases; widening crosswalks; relocating or removing street furniture or other impediments to pedestrian flow; providing curb extensions, neck-downs, or lane reductions to reduce pedestrian crossing distance; and sidewalk widening. Discussed below are recommended mitigation measures to address the Proposed Actions' significant adverse pedestrian impacts.

The mitigation measures generally consist of the relocation/removal of impediments to sidewalk flow along with crosswalk widening. Implementation of the recommended pedestrian improvements is subject to review and approval by DOT. If DOT determines that an identified pedestrian improvement is infeasible, and no alternative and equivalent measure is identified, the Proposed Actions would result in unmitigated significant adverse pedestrian impacts.

Per DOT guidance, crosswalks at several intersections without existing crosswalks were evaluated through warrant studies and enhanced crosswalk analyses to determine the need for striped crosswalks. As such, the pedestrian volumes were reassigned to utilize these potential crosswalks. This improvement aims to enhance pedestrian flow in the study area and increase safety for all street users.

SIDEWALKS

Of the 55 sidewalks analyzed, 26 are expected to be significantly adversely impacted by incremental demand from the Proposed Actions. **Table 21-10** shows the recommended mitigation measures to address these impacts and their effectiveness. As shown in **Table**

21-10, with implementation of the proposed mitigation measures, the Proposed Actions' significant adverse impacts to six, two, six, and nine sidewalks would be mitigated during the weekday AM, midday and PM, and Saturday peak hours, respectively. Practicable mitigation measures could not be identified for significant adverse impacts in one or more peak hours at 15, 10, 14 and 13 sidewalks during the same peak hours, and these impacts would therefore remain unmitigated.

CROSSWALKS

Of the 54 crosswalks analyzed, 16 are expected to be significantly adversely impacted by incremental demand from the Proposed Actions in one or more peak hours. **Table 21-11** shows the recommended mitigation measures to address these impacts and their effectiveness. As shown in **Table 21-11** and discussed below, with implementation of the proposed mitigation measures, the Proposed Actions' significant adverse impacts to three, five, four, and five crosswalks would be mitigated during the weekday AM, midday and PM, and Saturday peak hours, respectively. Practicable mitigation measures could not be identified for significant adverse impacts in one or more peak hours at 11, eight, 10 and 11 crosswalks during the same peak hours, and these impacts would therefore remain unmitigated.

Table 21-9
Summary of Significant Pedestrian Impacts

Corridor/Intersection	Impacted Elements	Peak Hour			
		AM	MD	PM	SAT
Vernon Blvd and 44th Dr	SE Corner	X	X	X	X
Vernon Blvd and 44th Dr	SW Corner			X	X
Vernon Blvd and 44th Dr	NW Cormer	X		X	X
Vernon Blvd and 46th Ave	NE Corner	X		X	X
Vernon Blvd and 46th Ave	NW Corner	X	X	X	X
11th St and 44th Dr	SW Corner	X	X	X	X
21st St and 44th Dr	SW Corner	X		X	
21st St and 44th Dr	NW Corner	X			
21st St and 45th Rd	SE Corner	X		X	X
21st St and 45th Rd	SW Corner	X			
Vernon Blvd and 44th Dr	North Crosswalk	X	X	X	X
Vernon Blvd and 44th Dr	South Crosswalk	X	X	X	X
Vernon Blvd and 44th Dr	West Crosswalk	X		X	X
Vernon Blvd and 46th Ave	North Crosswalk	X	X	X	X
Vernon Blvd and 46th Ave	West Crosswalk	X	X	X	X
Vernon Blvd and 46th Rd	West Crosswalk				X
11th St and 44th Rd	South Crosswalk	X	X	X	X
11th St and 44th Dr	North Crosswalk	X	X	X	X
11th St and 44th Dr	South Crosswalk	X	X	X	X
11th St and 45th Ave	South Crosswalk				X
11th St and 45th Rd	South Crosswalk	X	X	X	X
11th St and 46th Ave	North Crosswalk	X	X	X	X
11th St and 46th Ave	South Crosswalk	X	X	X	X
21st St and 44th Dr	North Crosswalk	X	X	X	X
21st St and 44th Dr	South Crosswalk	X	X	X	X
21st St and 45th Rd	South Crosswalk	X	X	X	X
Vernon Blvd between 44th Ave and 43rd Rd	East Sidewalk	X		X	X
44th Ave between Vernon Blvd and 9th St	South Sidewalk	X	X	X	
44th Rd between Vernon Blvd and 10th St	South Sidewalk				X
44th Dr between Vernon Blvd and 10th St	South Sidewalk	X	X	X	X
44th Dr between Vernon Blvd and 5th St	North Sidewalk	X	X	X	X
45th Ave between 5th St and Vernon Blvd	South Sidewalk	X	X	X	X
46th Ave between Vernon Blvd and 11th St	North Sidewalk	X		X	X
Vernon Blvd between 45th Ave and 46th Ave	West Sidewalk	X	X	X	X
46th Ave between Vernon Blvd and 5th St	North Sidewalk	X	X	X	X
10th St between 44th Ave and 44th Rd	East Sidewalk		X	X	X
10th St between 44th Rd and 44th Ave	West Sidewalk	X	X	X	X
10th St between 44th Dr and 45th Ave	East Sidewalk				X
44th Ave between 11th St and 21st St	South Sidewalk			X	X
11th St between 44th Rd and 44th Dr	East Sidewalk	X		X	X
44th Rd between 10th St and 11th St	South Sidewalk	X	X	X	X
44th Dr between 11th St and 21st St	North Sidewalk	X			
11th St between 44th Dr and 45th Ave	West Sidewalk				X
45th Rd between 11th St and 21st St	South Sidewalk	X			X
45th Rd between Vernon Blvd and 11th St	South Sidewalk	X			X
44th Dr between 21st St and 23rd St	North Sidewalk	X	X	X	X
44th Dr between 21st St and 23rd St	South Sidewalk	X	X	X	X
45th Rd between 21st St and 23rd St	South Sidewalk	X	X	X	X
Queens Plaza South between 21st St and 13th St	South Sidewalk	X		X	
Queens Plaza South between Crescent St and 27th St	South Sidewalk	X		X	
21st St between 40th Ave and 41st Ave	East Sidewalk	X		X	X
21st St between 40th Ave and 41st Ave	West Sidewalk	X		X	X

Table 21-10
Action-With-Mitigation Sidewalk Conditions

Sidewalk	No-Action			With-Action			Action-with-Mitigation			
	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Mitigation Measures
Weekday AM Peak Hour										
East Sidewalk along Vernon Blvd between 44th Ave and 43rd Rd	3.5	563.3	A	3.5	16.5	E *	3.5	16.5	E *	Unmitigatable
South Sidewalk along 44th Ave between Vernon Blvd and 9th St	2.5	464.0	B	2.5	7.8	F *	2.5	7.8	F *	Unmitigatable
South Sidewalk along 44th Dr between Vernon Blvd and 10th St	4.0	135.3	B	4.0	14.3	E *	4.0	14.3	E *	Unmitigatable
North Sidewalk along 44th Dr between Vernon Blvd and 5th St	4.5	1207.1	A	4.5	18.7	E *	4.5	18.7	E *	Unmitigatable
South Sidewalk along 45th Ave between 5th St and Vernon Blvd	2.5	11880.0	A	2.5	15.7	E *	2.5	15.7	E *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 11th St	8.0	115.8	B	8.0	26.5	D *	8.0	26.5	D *	Unmitigatable
West Sidewalk along Vernon Blvd between 45th Ave and 46th Ave	8.0	269.7	B	8.0	28.0	D *	8.0	28.0	D *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 5th St	5.0	69.5	C	5.0	14.0	E *	5.0	14.0	E *	Unmitigatable
West Sidewalk along 10th St between 44th Rd and 44th Ave	0.5	141.1	B	0.5	-2.3	F *	7.5	67.1	C	Remove illegally parked cars from sidewalk.
East Sidewalk along 11th St between 44th Rd and 44th Dr	3.0	117.9	B	3.0	21.4	E *	9.0	67.8	C	Remove illegally parked cars from sidewalk.
South Sidewalk along 44th Rd between 10th St and 11th St	4.0	74.0	C	4.0	16.4	E *	8.5	37.7	D	Pave the dirt road
North Sidewalk along 44th Dr between 11th St and 21st St	12.0	187.2	B	12.0	27.9	D *	12.0	27.9	D *	Unmitigatable
South Sidewalk along 45th Rd between 11th St and 21st St	7.0	126.2	B	7.0	30.8	D *	7.0	30.8	D *	Unmitigatable
South Sidewalk along 45th Rd between Vernon Blvd and 11th St	4.0	127.0	B	4.0	31.4	D *	9.0	72.3	C	Pave the dirt and relocated the plants in front of the building
North Sidewalk along 44th Dr between 21st St and 23rd St	1.5	17.7	E	1.5	-7.4	F *	1.5	-7.4	F *	Unmitigatable
South Sidewalk along 44th Dr between 21st St and 23rd St	9.5	62.6	C	9.5	19.2	E *	9.5	19.2	E *	Unmitigatable
South Sidewalk along 45th Rd between 21st St and 23rd St	1.5	28.1	D	1.5	0.2	F *	1.5	0.2	F *	Unmitigatable
South Sidewalk along Queens Plaza South between 21st St and 13th St	4.5	148.4	B	4.5	26.6	D *	4.5	26.6	D *	Unmitigatable
South Sidewalk along Queens Plaza South between Crescent St and 27th	5.6	38.3	D	5.6	25.7	D *	5.6	25.7	D *	Unmitigatable
East Sidewalk along 21st St between 40th Ave and 41st Ave	3.5	44.0	C	3.5	26.5	D *	8.0	62.6	C	Remove all elements in front of subway stairs.
West Sidewalk along 21st St between 40th Ave and 41st Ave	4.0	31.7	D	4.0	23.4	D *	6.5	39.3	D	Remove furniture behind bus shelter

Notes:

* Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Table 21-10 (continued)
Action-With-Mitigation Sidewalk Conditions

Sidewalk	No-Action			With-Action			Action-with-Mitigation			
	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Mitigation Measures
Weekday MD Peak Hour										
South Sidewalk along 44th Ave between Vernon Blvd and 9th St	2.5	675.0	A	2.5	18.1	E *	2.5	18.1	E *	Unmitigatable
South Sidewalk along 44th Dr between Vernon Blvd and 10th St	4.0	155.4	B	4.0	19.9	E *	4.0	19.9	E *	Unmitigatable
North Sidewalk along 44th Dr between Vernon Blvd and 5th St	4.5	1403.3	A	4.5	30.3	D *	4.5	30.3	D *	Unmitigatable
South Sidewalk along 45th Ave between 5th St and Vernon Blvd	2.5	2257.2	A	2.5	4.9	F *	2.5	4.9	F *	Unmitigatable
West Sidewalk along Vernon Blvd between 45th Ave and 46th Ave	8.0	200.7	B	8.0	24.1	D *	8.0	24.1	D *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 5th St	5.0	79.6	C	5.0	15.4	E *	5.0	15.4	E *	Unmitigatable
East Sidewalk along 10th St between 44th Ave and 44th Rd	4.0	182.6	B	4.0	28.7	D *	7.0	51.5	C	Pave grass strip along building frontage
West Sidewalk along 10th St between 44th Rd and 44th Ave	0.5	33.0	D	0.5	-14.4	F *	7.5	27.2	D *	Remove illegally parked cars from sidewalk.
South Sidewalk along 44th Rd between 10th St and 11th St	4.0	114.7	B	4.0	21.9	E *	8.5	48.8	C	Pave the dirt road
North Sidewalk along 44th Dr between 21st St and 23rd St	1.5	24.6	D	1.5	2.0	F *	1.5	2.0	F *	Unmitigatable
South Sidewalk along 44th Dr between 21st St and 23rd St	9.5	74.4	C	9.5	30.0	D *	9.5	30.0	D *	Unmitigatable
South Sidewalk along 45th Rd between 21st St and 23rd St	1.5	38.5	D	1.5	4.9	F *	1.5	4.9	F *	Unmitigatable
Weekday PM Peak Hour										
East Sidewalk along Vernon Blvd between 44th Ave and 43rd Rd	3.5	421.3	B	3.5	25.7	D *	3.5	25.7	D *	Unmitigatable
South Sidewalk along 44th Ave between Vernon Blvd and 9th St	2.5	322.4	B	2.5	11.1	E *	2.5	11.1	E *	Unmitigatable
South Sidewalk along 44th Dr between Vernon Blvd and 10th St	4.0	68.2	C	4.0	6.9	F *	4.0	6.9	F *	Unmitigatable
North Sidewalk along 44th Dr between Vernon Blvd and 5th St	4.5	2245.3	A	4.5	19.8	E *	4.5	19.8	E *	Unmitigatable
South Sidewalk along 45th Ave between 5th St and Vernon Blvd	2.5	11880.0	A	2.5	10.7	F *	2.5	10.7	F *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 11th St	8.0	118.4	B	8.0	27.4	D *	8.0	27.4	D *	Unmitigatable
West Sidewalk along Vernon Blvd between 45th Ave and 46th Ave	8.0	152.2	B	8.0	17.0	E *	8	17.0	E *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 5th St	5.0	60.1	C	5.0	11.4	E *	5.0	11.4	E *	Unmitigatable
East Sidewalk along 10th St between 44th Ave and 44th Rd	4.0	141.8	B	4.0	26.8	D *	7.0	48.2	C	Pave grass strip along building frontage
West Sidewalk along 10th St between 44th Rd and 44th Ave	0.5	26.3	D	0.5	-12.4	F *	7.5	30.7	D	Remove illegally parked cars from sidewalk.
South Sidewalk along 44th Ave between 11th St and 21st St	1.5	103.5	B	1.5	23.9	D *	7.5	125.3	B	Remove illegally parked cars from sidewalk.
East Sidewalk along 11th St between 44th Rd and 44th Dr	3.0	121.5	B	3.0	24.2	D *	9.0	75.9	C	Remove illegally parked cars from sidewalk.
South Sidewalk along 44th Rd between 10th St and 11th St	4.0	47.2	C	4.0	8.8	F *	8.5	23.2	D *	Pave the dirt road

Notes:

* Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Table 21-10 (continued)
Action-With-Mitigation Sidewalk Conditions

Sidewalk	No-Action			With-Action			Action-with-Mitigation			
	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Effective Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Mitigation Measures
Weekday PM Peak Hour										
North Sidewalk along 44th Dr between 21st St and 23rd St	1.5	18.2	E	1.5	-4.5	F *	1.5	-4.5	F *	Unmitigatable
South Sidewalk along 44th Dr between 21st St and 23rd St	9.5	62.3	C	9.5	20.7	E *	9.5	20.7	E *	Unmitigatable
South Sidewalk along 45th Rd between 21st St and 23rd St	1.5	31.3	D	1.5	0.6	F *	1.5	0.6	F *	Unmitigatable
South Sidewalk along Queens Plaza South between 21st St and 13th St	4.5	98.5	B	4.5	28.5	D *	4.5	28.5	D *	Unmitigatable
South Sidewalk along Queens Plaza South between Crescent St and 27th	5.6	41.9	C	5.6	29.5	D *	5.6	29.5	D *	Unmitigatable
East Sidewalk along 21st St between 40th Ave and 41st Ave	3.5	38.3	D	3.5	22.7	E *	8.0	54.2	C	Remove all elements in front of subway stairs.
West Sidewalk along 21st St between 40th Ave and 41st Ave	4.0	34.7	D	4.0	24.7	D *	6.5	41.3	C	Remove furniture behind bus shelter
Weekday SAT Peak Hour										
East Sidewalk along Vernon Blvd between 44th Ave and 43rd Rd	3.5	266.4	B	3.5	24.9	D *	3.5	24.9	D *	Unmitigatable
South Sidewalk along 44th Rd between Vernon Blvd and 10th St	9.5	79.4	C	9.5	24.8	D *	9.5	24.8	D *	Unmitigatable
South Sidewalk along 44th Dr between Vernon Blvd and 10th St	4.0	52.6	C	4.0	3.6	F *	4.0	3.6	F *	Unmitigatable
North Sidewalk along 44th Dr between Vernon Blvd and 5th St	4.5	2227.5	A	4.5	21.7	E *	4.5	21.7	E *	Unmitigatable
South Sidewalk along 45th Ave between 5th St and Vernon Blvd	2.5	11880.0	A	2.5	9.0	F *	2.5	9.0	F *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 11th St	8.0	111.8	B	8.0	22.5	E *	8.0	22.5	E *	Unmitigatable
West Sidewalk along Vernon Blvd between 45th Ave and 46th Ave	8.0	122.2	B	8.0	13.5	E *	8.0	13.5	E *	Unmitigatable
North Sidewalk along 46th Ave between Vernon Blvd and 5th St	5.0	66.0	C	5.0	12.6	E *	5.0	12.6	E *	Unmitigatable
East Sidewalk along 10th St between 44th Ave and 44th Rd	4.0	135.9	B	4.0	27.7	D *	7.0	49.7	C	Pave grass strip along building frontage
West Sidewalk along 10th St between 44th Rd and 44th Ave	0.5	22.5	E	0.5	-9.7	F *	7.5	36.9	D	Remove illegally parked cars from sidewalk.
East Sidewalk along 10th St between 44th Dr and 45th Ave	4.0	173.6	B	4.0	29.1	D *	7.5	55.9	C	Pave the grass strip
South Sidewalk along 44th Ave between 11th St and 21st St	1.5	99.0	B	1.5	22.1	E *	7.5	116.7	B	Remove illegally parked cars from sidewalk.
East Sidewalk along 11th St between 44th Rd and 44th Dr	3.0	100.5	B	3.0	24.7	D *	9.0	77.4	C	Remove illegally parked cars from sidewalk.
South Sidewalk along 44th Rd between 10th St and 11th St	4.0	76.1	C	4.0	21.4	E *	8.5	47.7	C	Pave the dirt road
West Sidewalk along 11th St between 44th Dr and 45th Ave	3.5	109.1	B	3.5	29.9	D *	3.5	29.9	D *	Unmitigatable
South Sidewalk along 45th Rd between 11th St and 21st St	7.0	136.9	B	7.0	26.9	D *	7.0	26.9	D *	Unmitigatable
South Sidewalk along 45th Rd between Vernon Blvd and 11th St	4.0	103.7	B	4.0	25.5	D *	9.0	59.5	C	Pave the dirt and relocated the plants in front of the building
North Sidewalk along 44th Dr between 21st St and 23rd St	1.5	21.8	E	1.5	-1.3	F *	1.5	-1.3	F *	Unmitigatable
South Sidewalk along 44th Dr between 21st St and 23rd St	9.5	102.3	B	9.5	27.0	D *	9.5	27.0	D *	Unmitigatable
South Sidewalk along 45th Rd between 21st St and 23rd St	1.5	30.8	D	1.5	-0.6	F *	1.5	-0.6	F *	Unmitigatable
East Sidewalk along 21st St between 40th Ave and 41st Ave	3.5	46.1	C	3.5	21.7	E *	8.0	52.1	C	Remove all elements in front of subway stairs.
West Sidewalk along 21st St between 40th Ave and 41st Ave	4.0	44.1	C	4.0	23.1	D *	6.5	38.9	D	Remove furniture behind bus shelter

Notes: * Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Table 21-11
Action-With-Mitigation Crosswalk Conditions

Intersection	Crosswalk	No-Action			With-Action			Action-with-Mitigation			
		Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Width (ft)	Average Pedestrian Space (ft^2/ped)	LOS	Mitigation Measures
Weekday AM Peak Hour											
Vernon Blvd & 44th Dr	North	14.0	39.4	C	14.0	5.0	F *	14.0	5.0	F *	Unmitigatable
Vernon Blvd & 44th Dr	South	14.5	54.6	B	14.5	4.2	F *	14.5	3.9	F *	Unmitigatable
Vernon Blvd & 44th Dr	West	15.0	95.1	A	15.0	16.9	D *	24.0	26.6	C	- Widen crosswalk by 9 ft.
Vernon Blvd & 46th Ave	North	14.0	43.4	B	14.0	6.3	F *	14.0	4.6	F *	Unmitigatable
Vernon Blvd & 46th Ave	West	13.5	104.5	A	13.5	16.3	D *	20.0	28.4	C	- Widen crosswalk by 6.5 ft.
11th St and 44th Rd	South	12.0	38.5	C	12.0	7.6	F *	20.5	14.7	E *	- Widen crosswalk by 8.5 ft.
11th St and 44th Dr	North	14.0	29.8	C	14.0	2.5	F *	14.0	4.3	F *	Unmitigatable
11th St and 44th Dr	South	21.0	47.8	B	21.0	5.1	F *	21.0	8.6	E *	Unmitigatable
11th St and 45th Rd	South	14.0	34.2	C	14.0	6.0	F *	19.5	8.7	E *	- Widen crosswalk by 5.5 ft.
11th St and 46th Ave	North	13.5	23.3	D	13.5	5.2	F *	13.5	5.2	F *	Unmitigatable
11th St and 46th Ave	South	16.0	68.0	A	16.0	19.2	D *	24.0	29.4	C	- Widen crosswalk by 8 ft.
21st St and 44th Dr	North	13.5	20.5	D	13.5	2.5	F *	13.5	2.3	F *	Unmitigatable
21st St and 44th Dr	South	15.0	19.2	D	15.0	3.6	F *	15.0	3.4	F *	Unmitigatable
21st St and 45th Rd	South	13.0	49.7	B	13.0	9.1	E *	23.0	16.9	D *	- Widen crosswalk by 10 ft.
Weekday Midday Peak Hour											
Vernon Blvd & 44th Dr	North	14.0	37.2	C	14.0	7.9	F *	14.0	7.9	F *	Unmitigatable
Vernon Blvd & 44th Dr	South	14.5	52.2	B	14.5	4.7	F *	14.5	4.3	F *	Unmitigatable
Vernon Blvd & 46th Ave	North	14.0	66.7	A	14.0	9.5	E *	14.0	7.1	F *	Unmitigatable
Vernon Blvd & 46th Ave	West	13.5	97.3	A	13.5	14.0	E *	20.0	24.4	C	- Widen crosswalk by 6.5 ft.
11th St and 44th Rd	South	12.0	78.1	A	12.0	12.1	E *	20.5	22.7	D	- Widen crosswalk by 8.5 ft.
11th St and 44th Dr	North	14.0	37.0	C	14.0	5.0	F *	14.0	8.4	E *	Unmitigatable
11th St and 44th Dr	South	21.0	50.3	B	21.0	7.5	F *	21.0	12.7	E *	Unmitigatable
11th St and 45th Rd	South	14.0	65.1	A	14.0	13.9	E *	19.5	19.8	D	- Widen crosswalk by 5.5 ft.
11th St and 46th Ave	North	13.5	43.3	B	13.5	9.7	E *	13.5	9.7	E *	Unmitigatable
11th St and 46th Ave	South	16.0	70.8	A	16.0	17.1	D *	24.0	26.2	C	- Widen crosswalk by 8 ft.
21st St and 44th Dr	North	13.5	35.9	C	13.5	7.7	F *	13.5	7.3	F *	Unmitigatable
21st St and 44th Dr	South	15.0	23.1	D	15.0	6.2	F *	15.0	5.9	F *	Unmitigatable
21st St and 45th Rd	South	13.0	73.5	A	13.0	19.3	D *	23.0	34.4	C	- Widen crosswalk by 10 ft.
Weekday PM Peak Hour											
Vernon Blvd & 44th Dr	North	14.0	27.0	C	14.0	5.4	F *	14.0	5.4	F *	Unmitigatable
Vernon Blvd & 44th Dr	South	14.5	48.0	B	14.5	3.9	F *	14.5	3.4	F *	Unmitigatable
Vernon Blvd & 44th Dr	West	15.0	70.9	A	15.0	12.4	E *	24.0	19.6	D	- Widen crosswalk by 9 ft.
Vernon Blvd & 46th Ave	North	14.0	49.9	B	14.0	7.2	F *	14.0	5.3	F *	Unmitigatable
Vernon Blvd & 46th Ave	West	13.5	71.2	A	13.5	8.5	E *	20.0	14.9	E *	- Widen crosswalk by 6.5 ft.
11th St and 44th Rd	South	12.0	55.9	B	12.0	10.4	E *	20.5	19.7	D	- Widen crosswalk by 8.5 ft.
11th St and 44th Dr	North	14.0	25.4	C	14.0	2.6	F *	14.0	2.6	F *	Unmitigatable
11th St and 44th Dr	South	21.0	36.2	C	21.0	4.4	F *	21.0	4.4	F *	Unmitigatable
11th St and 45th Rd	South	14.0	54.6	B	14.0	10.2	E *	19.5	14.7	E *	- Widen crosswalk by 5.5 ft.
11th St and 46th Ave	North	13.5	25.5	C	13.5	6.0	F *	13.5	6.0	F *	Unmitigatable
11th St and 46th Ave	South	16.0	88.1	A	16.0	18.9	D *	24.0	28.9	C	- Widen crosswalk by 8 ft.
21st St and 44th Dr	North	13.5	27.8	C	13.5	4.6	F *	13.5	4.8	F *	Unmitigatable
21st St and 44th Dr	South	15.0	19.8	D	15.0	4.0	F *	15.0	4.2	F *	Unmitigatable
21st St and 45th Rd	South	13.0	62.4	A	13.0	13.0	E *	23.0	23.6	D	- Widen crosswalk by 10 ft.
Saturday Peak Hour											
Vernon Blvd & 44th Dr	North	14.0	28.4	C	14.0	5.7	F *	14.0	5.7	F *	Unmitigatable
Vernon Blvd & 44th Dr	South	14.5	45.5	B	14.5	3.4	F *	14.5	3.1	F *	Unmitigatable
Vernon Blvd & 44th Dr	West	15.0	70.8	A	15.0	12.6	E *	24.0	20.0	D	- Widen crosswalk by 9 ft.
Vernon Blvd & 46th Ave	North	14.0	46.9	B	14.0	6.0	F *	14.0	4.4	F *	Unmitigatable
Vernon Blvd & 46th Ave	West	13.5	64.5	A	13.5	7.3	F *	20.0	13.1	E *	- Widen crosswalk by 6.5 ft.
Vernon Blvd & 46th Rd	West	12.5	88.3	A	12.5	18.4	D *	13.5	20.2	D	- Widen crosswalk by 1 ft.
11th St and 44th Rd	South	12.0	36.2	C	12.0	8.7	E *	20.5	16.7	D	- Widen crosswalk by 8.5 ft.
11th St and 44th Dr	North	14.0	24.9	C	14.0	2.8	F *	14.0	4.6	F *	Unmitigatable
11th St and 44th Dr	South	21.0	35.8	C	21.0	4.7	F *	21.0	7.9	F *	Unmitigatable
11th St and 45th Ave	South	14.0	144.6	A	14.0	18.6	D *	15.0	20.0	D	- Widen crosswalk by 1 ft.
11th St and 45th Rd	South	14.0	58.4	B	14.0	8.0	E *	19.5	11.6	E *	- Widen crosswalk by 5.5 ft.
11th St and 46th Ave	North	13.5	29.7	C	13.5	5.9	F *	13.5	5.9	F *	Unmitigatable
11th St and 46th Ave	South	16.0	54.8	B	16.0	12.9	E *	24.0	19.9	D	- Widen crosswalk by 8 ft.
21st St and 44th Dr	North	13.5	28.0	C	13.5	5.1	F *	13.5	4.8	F *	Unmitigatable
21st St and 44th Dr	South	15.0	26.9	C	15.0	5.1	F *	15.0	4.9	F *	Unmitigatable
21st St and 45th Rd	South	13.0	59.7	B	13.0	10.7	E *	23.0	19.6	D	- Widen crosswalk by 10 ft.

Notes:

* Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

CORNERS

Of the 45 corners analyzed, 10 are expected to be significantly adversely impacted by incremental demand from the Proposed Actions in one or more peak hours. As shown in **Table 21-12**, with the implementation of the proposed mitigation of providing curb extension, all of the impacts would be fully mitigated in the respective periods, with the exception of the southwest corner of 11th Street and 44th Drive in all analyzed peak hours.

EFFECTS OF TRAFFIC MITIGATION ON PEDESTRIAN CONDITIONS

Proposed traffic mitigation measures (discussed previously) would potentially affect pedestrian conditions at a total of 15 analyzed crosswalks and 21 analyzed corner areas at six intersections in one or more peak hours. The recommended traffic mitigation measures at each of these locations would consist of signal timing adjustments of one to six seconds. As shown in **Tables 21-13 and 21-14**, with implementation of these proposed signal timing adjustments, all affected analyzed crosswalks and corner areas would have no new pedestrian impacts with the exception of the south crosswalk at Vernon Boulevard & 46th Avenue during the Midday peak hour. It should be noted that this new impact can be mitigated by widening the crosswalk width by 1.5 feet. Sufficient pedestrian crossing time would be provided at all crosswalks.

PROPOSED SCHEDULE FOR PEDESTRIAN MITIGATION MEASURES

Subject to DOT approval, the pedestrian mitigation measures described above would be implemented to mitigate the significant adverse sidewalk and crosswalk impacts resulting from full build-out of the Proposed Actions in 2035. As the development of the Proposed Actions would be expected to occur over an approximately 10-year period, it is possible that the sidewalk, corner, and crosswalk impacts could occur prior to full build-out in 2035.

Based on the anticipated construction schedule shown in Chapter 20, “Construction,” 200 or more incremental pedestrian trips generated by the Proposed Actions would potentially occur on the impacted sidewalks, crosswalks, and corner areas beginning in the first quarter of 2029. At this earlier point in time, implementation of the mitigation measures developed for full build-out of the Proposed Actions in 2035 would be considered to address the potential significant adverse pedestrian impacts.

Table 21-12
Action-With-Mitigation Corner Conditions

Intersection	Corner	No-Action		With-Action		Action-with-Mitigation[1]		
		Average Pedestrian Space (ft^2/ped)	LOS	Average Pedestrian Space (ft^2/ped)	LOS	Average Pedestrian Space (ft^2/ped)	LOS	Mitigation Measures
Weekday AM Peak Hour								
Vernon Blvd & 44th Dr	SE	15.2	D	-5.6	F *	14.1	E	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft; Relocated garbage can out of corner area
Vernon Blvd & 44th Dr	NW	116.8	A	11.1	E *	28.1	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NE	119.4	A	17.9	D *	33.6	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NW	97.5	A	8.7	E *	35.7	C	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
11th St & 44th Dr	SW	132.9	A	-0.2	F *	1.6	F *	Unimitigable
21st St & 44th Dr	SW	68.1	A	9.4	E *	22.9	D	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft
21st St & 44th Dr	NW	136.0	A	18.7	D *	36.0	C	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft
21st St & 45th Rd	SE	58.6	B	12.7	E *	42.8	B	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
21st St & 45th Rd	SW	84.2	A	11.0	E *	32.2	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Weekday MD Peak Hour								
Vernon Blvd & 44th Dr	SE	8.8	E	-10.8	F *	10.3	E	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft; Relocated garbage can out of corner area
Vernon Blvd & 46th Ave	NW	118.6	A	12.7	E *	43.5	B	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
11th St & 44th Dr	SW	124.7	A	10.0	E *	11.1	E *	Unimitigable
Weekday PM Peak Hour								
Vernon Blvd & 44th Dr	SE	10.1	E	-7.9	F *	11.6	E	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft; Relocated garbage can out of corner area
Vernon Blvd & 44th Dr	SW	151.0	A	18.4	D *	32.4	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 44th Dr	NW	81.4	A	12.4	E *	26.5	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NE	120.8	A	15.0	E *	31.1	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NW	88.9	A	8.2	E *	31.5	C	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
11th St & 44th Dr	SW	96.0	A	2.5	F *	2.5	F *	Unimitigable
21st St & 44th Dr	SW	71.7	A	13.4	E *	28.1	C	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft
21st St & 45th Rd	SE	65.7	A	10.7	E *	43.1	B	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
Weekday SAT Peak Hour								
Vernon Blvd & 44th Dr	SE	5.3	F	-9.7	F *	6.1	F	Providing corner extension, the width of N-S increased by 6ft, Radius=12ft; Relocated garbage can out of corner area
Vernon Blvd & 44th Dr	SW	151.3	A	15.7	D *	28.2	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 44th Dr	NW	82.1	A	11.1	E *	25.5	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NE	121.4	A	12.3	E *	26.1	C	Providing corner extension, the width of E-W increased by 6ft, Radius=12ft
Vernon Blvd & 46th Ave	NW	79.2	A	5.3	F *	25.9	C	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft
11th St & 44th Dr	SW	81.9	A	4.3	F *	5.2	F *	Unimitigable
21st St & 45th Rd	SE	67.1	A	7.9	F *	36.0	C	Providing corner extension, the width of N-S and E-W increased by 6ft, Radius=12ft

Notes:

* Denotes a significant adverse impact based on *CEQR Technical Manual* criteria.

Table 21-13
Action-With-Traffic Mitigation Crosswalk Conditions

Intersection	Crosswalk	With-Action Condition: Average Pedestrian Space (ft^2/ped) AM	MD	PM	SAT	With-Action Condition: Level of Service AM	MD	PM	SAT	Action-with-Mitigation: Average Pedestrian Space (ft^2/ped) AM	MD	PM	SAT	Action-with-Mitigation: Level of Service AM	MD	PM	T	Proposed Traffic Mitigation
Vernon Blvd & 44th Rd	East	29.2	38.3	23.5	34.0	C	C	D	C	29.2	42.5	26.3	36.6	C	B	C	C	- Transfer 3s of green time from WB phase to NB/SB phase (MD, PM peak hour) - Transfer 4s of green time from WB phase to NB/SB phase (SAT peak hour)
Vernon Blvd & 46th Ave	North	6.3	9.5	7.2	6.0	F *	E *	F *	F *	4.6	7.1	5.3	4.4	F *	F *	F *	F *	-Transfer 6s of green time from WB phase to NB/SB phase (AM, MD, PM, SAT peak hour) -South Crosswalk of Vernon Blvd & 46th Ave is impacted due to the traffic mitigations. A crosswalk widening of 1.5 ft will mitigate this impact.
Vernon Blvd & 46th Ave	East	31.8	33.7	25.4	23.4	C	C	C	D	38.2	40.3	30.5	28.1	C	B	C	C	
Vernon Blvd & 46th Ave	South	34.5	22.5	33.0	29.8	C	D	C	C	27.8	18.0	26.2	24.0	C	D *	C	C	
Vernon Blvd & 46th Ave	West	16.3	14.0	8.5	7.3	D *	E *	E *	F *	28.4	24.4	14.9	13.1	C	C	E *	E *	
Vernon Blvd & 46th Rd	West	24.7	28.8	22.7	18.4	C	C	D	D *	32.3	31.4	27.2	20.2	C	C	C	D	- Transfer 6s of green time from EB phase to NB/SB phase (AM and PM peak hour)
11th St and 44th Ave	East	59.2	93.3	64.5	73.3	B	A	A	A	52.7	83.4	56.0	73.3	B	A	B	A	-Transfer 5s of green time from NB/SB phase to EB phase (AM, MD peak hour) -Transfer 6s of green time from NB/SB phase to EB phase (PM peak hour)
11th St and 44th Ave	South	57.4	42.5	42.1	61.8	B	B	B	A	71.8	53.8	57.2	61.8	A	B	B	A	
11th St and 44th Ave	West	77.3	60.4	68.3	76.2	A	A	A	A	69.1	54	59.6	76.2	A	B	B	A	
11th St and 44th Dr	North	2.5	5.0	2.6	2.8	F *	F *	F *	F *	4.3	8.4	2.6	4.6	F *	E *	F *	F *	-Transfer 6s of green time from NB and SB phase to EB/WB phase (AM, MD, SAT peak hour)
11th St and 44th Dr	East	45.2	46.2	48.5	54.6	B	B	B	B	39.0	39.9	48.5	47.2	C	C	B	B	
11th St and 44th Dr	South	5.1	7.5	4.4	4.7	F *	F *	F *	F *	8.6	12.7	4.4	7.9	E *	E *	F *	F *	
11th St and 44th Dr	West	28.4	25.8	26.1	21.2	C	C	C	D	23.5	21.3	26.1	17.5	D	D	C	D	
21st St and 44th Dr	North	2.5	7.7	4.6	5.1	F *	F *	F *	F *	2.3	7.3	4.8	4.8	F *	F *	F *	F *	-Transfer 1s of green time from NB/SB phase to EB/WB phase (PM peak hour)
21st St and 44th Dr	South	3.6	6.2	4.0	5.1	F *	F *	F *	F *	3.4	5.9	4.2	4.9	F *	F *	F *	F *	

Table 21-14
Action-With-Traffic Mitigation Corner Conditions

Intersection	Corner	With-Action Condition: Average Pedestrian AM	MD	PM	SAT	With-Action Condition: Level of Service AM	MD	PM	SAT	Action-with-Mitigation: Average Pedestrian AM	MD	PM	SAT	Action-with-Mitigation: Level of Service AM	MD	PM	SAT	Proposed Traffic Mitigation
Vernon Blvd & 44th Rd	NE	46.1	50.8	32.3	38.8	B	B	C	C	46.1	50.4	32.1	38.7	B	B	C	C	- Transfer 3s of green time from WB phase to NB/SB phase (MD, PM peak hour)
	SE	136.7	190.0	150.2	151.1	A	A	A	A	136.7	189.8	150.3	150.9	A	A	A	A	- Transfer 4s of green time from WB phase to NB/SB phase (SAT peak hour)
Vernon Blvd & 46th Ave	NE	17.9	24.9	15.0	12.3	D *	C	E *	E *	33.6	46.0	31.1	26.1	C	B	C	C	-Transfer 6s of green time from WB phase to NB/SB phase (AM, MD, PM, SAT peak hour)
	SE	53.5	44.9	47.9	41.7	B	B	B	B	53.9	44.6	47.7	41.5	B	B	B	B	
	SW	35.5	24.7	26.7	19.9	C	C	C	D	35.7	24.6	27.3	20.7	C	C	C	D	
	NW	8.7	12.7	8.2	5.3	E *	E *	E *	F *	35.7	43.5	31.5	25.9	C	B	C	C	
Vernon Blvd & 46th Rd	NE	100.8	110.0	62.6	63.9	A	A	A	A	100.5	110.0	62.8	63.9	A	A	A	A	- Transfer 6s of green time from EB phase to NB/SB phase (AM and PM peak hour)
	SW	72.6	77.4	61.6	49.4	A	A	A	B	73.3	77.4	62.6	49.4	A	A	A	B	
	NW	74.7	93.1	67.0	51.7	A	A	A	B	75.8	93.1	67.6	51.7	A	A	A	B	
11th St & 44th Ave	NE	105.2	117.4	106.2	119.0	A	A	A	A	105.4	117.5	105.3	119.0	A	A	A	A	-Transfer 5s of green time from NB/SB phase to EB phase (AM, MD peak hour) -Transfer 6s of green time from NB/SB phase to EB phase (PM peak hour)
	SE	126.7	161.5	135.6	147.6	A	A	A	A	126.0	161.3	135.4	147.6	A	A	A	A	
	SW	122.1	94.4	107.9	120.2	A	A	A	A	121.2	94.5	108.0	120.2	A	A	A	A	
	NW	130.8	100.0	114.9	120.5	A	A	A	A	130.7	99.4	114.2	120.5	A	A	A	A	
11th St & 44th Dr	NE	42.2	58.2	40.5	42.1	B	B	B	B	43.3	58.9	40.5	43.7	B	B	B	B	-Transfer 6s of green time from NB and SB phase to EB/WB phase (AM, MD, SAT peak hour)
	SE	28.5	38.0	24.1	20.9	C	C	C	D	29.3	39.1	24.1	23.0	C	C	C	D	
	SW	-0.2	10.0	2.5	4.3	F *	E *	F *	F *	1.6	11.1	2.5	5.2	F *	E *	F *	F *	
	NW	43.9	62.5	41.2	38.7	B	A	B	C	45.8	63.0	41.2	39.7	B	A	B	C	
21st St & 44th Dr	NE	24.0	51.0	30.4	41.3	C	B	C	B	24.0	51.0	30.6	41.3	C	B	C	B	-Transfer 1s of green time from NB/SB phase
	SE	25.7	42.5	29.2	39.2	C	B	C	C	25.7	42.5	29.5	39.2	C	B	C	C	
	SW	9.4	22.7	13.4	21.1	E *	D	E *	D	9.4	22.7	28.1	21.1	E *	D	C	D	
	NW	18.7	56.9	32.8	43.6	D *	B	C	B	18.7	56.9	56.6	43.6	D *	B	B	B	

G. AIR QUALITY

Chapter 15, "Air Quality," presents the maximum predicted carbon monoxide (CO) and particulate matter ($PM_{2.5}$) concentrations related to traffic generated by the Proposed Actions, and concludes that the Proposed Actions would not result in any violations of National Ambient Air Quality Standards (NAAQS) at one of the two analyzed intersections for CO and at three of the four analyzed intersection locations for $PM_{2.5}$. Both the 1-hour and 8-hour CO maximum concentrations are predicted to exceed the NAAQS, and the 8-hour CO maximum concentration is predicted to exceed the *de minimis* criterion at the intersection of Vernon Boulevard and 46th Avenue. The maximum 24-hour $PM_{2.5}$ concentrations are predicted to exceed the NAAQS at the intersection of Vernon Boulevard and 46th Avenue and the *de minimis* criterion at the intersections of Vernon Boulevard and 44th Drive and Vernon Boulevard and 46th Avenue. At the intersection of Vernon Boulevard and 46th Avenue, the total annual $PM_{2.5}$ concentration is predicted to exceed the NAAQS. Furthermore, at each of the four intersection sites analyzed, the maximum annual incremental $PM_{2.5}$ concentration is predicted to exceed the *de minimis* criterion. This would be considered a significant adverse air quality impact.

Implementation of traffic engineering improvements, such as signal timing changes or modifications to curbside parking regulations, as detailed above in Section F, Table 21-4 (see location #30 and 31), would provide mitigation for some of the anticipated air quality impacts. **Table 21-15** presents the results of the CO analysis with the proposed traffic mitigation measures in place, and **Tables 21-16 and 21-17** present the results of the 24-hour and annual $PM_{2.5}$ analysis with the proposed traffic mitigation measures in place, respectively.

Table 21-15
Maximum Predicted 8-Hour CO
With Action Concentrations With Traffic Mitigation (ppm)

Analysis Site	Location	With Action		With Traffic Mitigation		De Minimis
		Total Concentration	Increment	Total Concentration	Increment	
2	Vernon Boulevard and 46th Avenue	20.35	19.12	2.42	1.22	5.1

Notes:
8-hour standard is 9 ppm.
Concentration includes a background concentration of 1.2 ppm.

Table 21-16
Maximum Predicted 24-Hour Average $PM_{2.5}$
Concentrations With Traffic Mitigation ($\mu g/m^3$)

Analysis Site	Location	With Action		With Traffic Mitigation		Criterion
		Total Concentration	Increment	Total Concentration	Increment	
1	Vernon Boulevard and 44th Drive	-	19.19	-	4.25	8.6[1]
		28.32 [2]	-	22.24 [2]	-	35[3]
2	Vernon Boulevard and 46th Avenue	-	75.32	-	5.20	8.6 [1]
		65.55 [2]	-	23.58 [2]	-	35[3]

Notes:
[1] $PM_{2.5}$ de minimis criterion—24-hour average, not to exceed more than half the difference between the background concentration (17.8 $\mu g/m^3$) and the 24-hour standard of 35 $\mu g/m^3$.
[2] The 24-hour $PM_{2.5}$ concentration presented represents the maximum of the total 98th percentile. Concentrations presented include a background concentration of 17.8 $\mu g/m^3$.
[3] NAAQS.

Table 21-17
Maximum Predicted Annual Average $PM_{2.5}$
Concentrations With Traffic Mitigation ($\mu g/m^3$)

Analysis Site	Location	With Action		With Traffic Mitigation		Criterion
		Total Concentration	Increment	Total Concentration	Increment	
1	Vernon Boulevard and 44th Drive	-	1.18	-	0.27	0.1[1]
		8.79 [2]	-	7.98 [2]	-	9[3]
2	Vernon Boulevard and 46th Avenue	-	7.03	-	0.76	0.1 [1]
		14.46 [2]	-	8.44 [2]	-	9[3]

Notes:
[1] $PM_{2.5}$ *de minimis* criterion—annual (neighborhood scale.
[2] The annual $PM_{2.5}$ concentration presented represents the modeled five-year average. Concentrations presented include a background concentration of 7.6 $\mu g/m^3$.
[3] NAAQS.

As shown in the tables, the results of this modeling analysis (performed in accordance with methodologies described in Chapter 15, “Air Quality”) indicate that incremental concentrations of CO and $PM_{2.5}$ would be significantly lower than the With-Action

condition. CO concentrations would not exceed the *de minimis* criteria, and CO and $PM_{2.5}$ concentrations would not exceed the NAAQS. However, $PM_{2.5}$ incremental concentrations are still predicted to exceed the annual *de minimis* criterion at each of the four analyzed sites. Therefore, the air quality impacts identified would not be fully mitigated. Between the Draft and Final EIS, further review and evaluation will be performed which is expected to determine that the identified *de minimis* impacts related to mobile source annual average $PM_{2.5}$ increments will be avoided. Additional modeling of $PM_{2.5}$ concentrations (Grid Analysis) will be performed using more refined or comprehensive analysis procedures to determine the magnitude and extent of neighborhood-scale $PM_{2.5}$ impacts from mobile sources. Other updates may include the use of newer vehicle emissions model data and projections. It is anticipated that these additional measures will reduce $PM_{2.5}$ concentrations below the annual *de minimis* threshold, and consequently the identified impacts related to mobile sources would be deemed to have been avoided. Absent the identification and implementation of feasible mitigation measures the impacts could remain unmitigated. However, some mitigation measures must be taken to avoid any NAAQS violations.

H. NOISE

Chapter 17, "Noise," presents future increases in traffic with the Proposed Actions based on the Noise Passenger Car Equivalent (PCE) proportional analysis results, including the noise contribution from vehicular traffic on adjacent roadways. Based on noise PCE proportional analysis, Monitoring Locations 5, 8, 13, and 16 resulted in significant noise increases (up to 3.6 dBA) and potential significant adverse noise impact due to the Proposed Actions. Therefore, the Proposed Actions could result in significant adverse noise impacts at noise receptors other than the future Projected/Potential Development Sites. Between Draft and Final, further assessment and mitigation measures will be considered for these potential impacts. Potential mitigation measures include upgrades at the noise receptor with insulated windows and an alternate means of ventilation. It should be noted that even if the above mitigation measures were determined to be feasible and practicable, some significant adverse noise impacts could potentially continue to be experienced at sensitive receptors and, as a result, be unavoidable.

I. CONSTRUCTION TRANSPORTATION

As presented in Chapter 20, “Construction,” it is expected that potential significant adverse traffic, transit, and pedestrian impacts could occur during construction and that these impacts would be within the range of impacts identified Chapter 14, “Transportation,” for the 2035 With Action conditions. As presented in Chapter 14, “Transportation,” the Proposed Actions would result in significant adverse impacts to (a) vehicular traffic at 44 intersections, (b) eight subway stairs, three escalators, and one fare array at two stations, (c) subway line haul conditions on four subway routes, (d) bus line haul conditions on one bus route, (e) ferry line haul conditions on one ferry route, (f) ferry landing conditions on one ferry landing, and (g) pedestrian elements at 26 sidewalks, 10 corners, and 16 crosswalks. Therefore, there is the potential for significant adverse construction transportation impacts at the same 44 intersections, eight subway stairs, three escalators, and one fare array, line haul conditions on four subway routes, line haul conditions on one bus route, line haul conditions on one ferry bus route, ferry landing conditions on one ferry landing, and 26 sidewalks, 10 corners, and 16 crosswalks.

The mitigation measures identified above for 2035 operational traffic, transit, and pedestrian impacts would likely be similarly effective at mitigating any potential 2030 construction traffic, transit, and pedestrian impacts. These mitigation measures would also be subject to DOT and NYCT reviews and approvals. If DOT determines that an identified improvement is infeasible, and no alternative and equivalent measure is identified, then the impact would be unmitigated and would constitute an unavoidable significant adverse impact.

As indicated above, regardless of any proposed mitigation measures, impacts to one or more lane group(s) would remain unmitigated in one or more peak hours at 25 intersections, six subway station stairs, one subway station fare array, three subway station escalators, and at 14 sidewalks, ten crosswalks, and one corner in one or more peak hours in the 2035 With Action condition. Consequently, these impacts could also constitute unavoidable significant adverse traffic, transit, and pedestrian impacts in the 2030 construction peak as a result of the Proposed Actions (see also Chapter 22, "Unavoidable Adverse Impacts").

J. CONSTRUCTION NOISE

Chapter 20, "Construction," identifies the potential for construction activities generated by the Proposed Actions to result in significant adverse construction noise impacts. At some receptors, construction activity would result in increments that would be considered objectionable (i.e., 15 dBA or greater) or very objectionable (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments. Receptors where noise level increases were predicted to exceed the construction noise evaluation thresholds for extended durations were identified. Specifically, construction at these development sites was predicted to produce noise levels up to approximately 100 dBA $L_{eq(1)}$ at locations up to 27 feet from the site boundaries. Noise levels from construction would be lower with increased distance from the work areas. Measured existing noise levels in the study area were between 57 and 81 dBA.

Construction could produce noise levels that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities. The highest levels of construction noise would not persist throughout construction and noise levels would fluctuate resulting in noise increases that would be intermittent. However, the magnitude and duration of construction noise levels at the identified receptors would constitute significant adverse impacts.

Because the analysis is based on construction phases, it does not capture the natural daily and hourly variability of construction noise at each receptor. The level of noise produced by construction fluctuates throughout the days and months of the construction phases, while the construction noise analysis is based on the worst-case time periods only, which is conservative. The analysis is based on RWCDS conceptual site plans and construction schedules, with the possibility that the actual construction may be of less magnitude, in which case construction noise would be less than the analysis predicts.

Specific noise control measures would be incorporated in noise mitigation plan(s) required under the New York City Noise Control Code. These measures could include a variety of source and path controls. The following proposed mitigation measures beyond

the noise control measures already identified in Chapter 20, “Construction,” may partially mitigate significant adverse impacts (and substantially reduce construction-related noise levels) at some locations:

- Noise barriers constructed from plywood or other materials at a height of 12 to 16 feet utilized to provide shielding;
- Utilization of isolation pads between the pile driver hammer and piles;
- Acoustical shrouds surrounding the pile driver hammer and piles;
- Electric cranes or cranes with exhaust silencers that have lower noise emission levels; and
- Excavators with exhaust silencers that have lower noise emission levels.

The feasibility and practicability of these potential mitigation measures are currently being explored by the lead agency, DCP, and will be refined between the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures, it is anticipated that significant adverse impacts would be unmitigated. It should be noted that even if all of the above mitigation measures were determined to be feasible and practicable, some significant adverse construction noise impacts could potentially continue to be experienced at sensitive receptors and, as a result, be unavoidable. Therefore, the significant adverse construction noise impacts identified in Chapter 20, “Construction,” would be unavoidable. ✷