Chapter 23: Mitigation

A. INTRODUCTION

The preceding chapters of this Environmental Impact Statement (EIS) discuss the potential for significant adverse impacts to result from the proposed project. Where such potential significant adverse impacts have been identified—in the areas of community facilities, shadows, historic resources, traffic and parking, transit and pedestrians, construction traffic, and construction noise—measures have been examined to minimize or eliminate the anticipated impacts. These mitigation measures are discussed below.

B. COMMUNITY FACILITIES

PUBLIC SCHOOLS

The project site is located in Sub-district 3 of Community School District (CSD) 14. Since the proposed project would result in the introduction of a new residential population, which would generate a demand on local school resources, the EIS assessed the effects on school capacity within a ½-mile radius of the project site, Sub-district 3, and CSD 14 as a whole. The analysis of elementary schools considered impacts on the ½-mile study area, Sub-district 3, and CSD 14 as a whole. The analysis of intermediate schools assessed the potential impacts of the proposed project on schools located within Sub-district 3 and CSD 14 as a whole. The ½-mile study area was replaced with Sub-district 3 because the ½-mile study area included all intermediate schools within Sub-district 3. As presented in Chapter 5, "Community Facilities," the new population introduced by the proposed project would result in a significant adverse impact on elementary schools within the ½-mile study area and Sub-district 3, and on intermediate schools within Sub-district 3.

However, the schools analysis does not account for the K-8 school that the City has committed to building within the Greenpoint-Williamsburg rezoning with the approval of that rezoning. Although the Department of Education (DOE) *2010-2014 Five-Year Capital Plan* has budgeted for a new 612-seat elementary/intermediate school in CSD 14 to accommodate demand from the buildout of that rezoning, this school is not yet under construction, and therefore the schools analysis assumes that capacity would remain constant. Should the proposed 612-seat elementary/intermediate school be completed as planned, there would be additional elementary school capacity within CSD 14 and, depending on the location of the school, within the ½-mile study area.

According to the *City Environmental Quality Review (CEQR) Technical Manual*, if a proposed action causes an increase of five percent or more in a deficiency of available seats, a significant adverse impact may result. The proposed project is projected to add 696 elementary and 288 intermediate school students, resulting in a projected shortfall of school seats in the study area by 2020. The shortfall of seats that this analysis identified within the ½-mile study area and Sub-district 3 is based on conservative assumptions regarding future background growth. As

described in Chapter 5, "Community Facilities," it is assumed that 12,712 new housing units would be developed in Sub-district 3 of CSD 14 by 2020 in addition to the proposed project. Because the proposed project parcels would be developed sequentially, the potential to result in a significant adverse impact on elementary schools and intermediate schools could occur, respectively, when the proposed project completes construction of 554 and 805 residential units[1] that introduce public school children. The number of residential units that could result in a significant adverse impact on schools would be exclusive of senior rental housing units because these units would be unlikely to introduce children. Furthermore, should the high level of background growth not occur, the shortfall of elementary school seats in Sub-district 3, as well as the ½-mile study area, would be reduced but not eliminated. Based on these factors, the potential significant adverse impact on elementary schools could occur with the development of Site D, and the potential significant adverse impact on intermediate schools could occur with the development of Site C.

If the demand for school seats from the future background development combined with the proposed project is as high as this analysis projects and the shortfall of school seats occurs, the DEIS listed a number of measures that could be undertaken to mitigate the significant adverse impact on schools. Of these, for large residential projects, provision of new school capacity, construction of a new school or an addition to an existing school may be the most appropriate mitigation.

In order to address the proposed project's potential significant adverse impact on elementary and intermediate schools, the applicant will enter into an agreement with SCA to provide an option to locate an approximately 100,000-square-foot public elementary and intermediate school within the community facility space in the Refinery complex. As part of this agreement, and as formalized in the Restrictive Declaration, at different phases of the proposed project the applicant will provide the SCA with an opportunity to determine whether a school is needed within the Refinery complex.

Because a school use instead of another community facility use could result in impacts different from those analyzed in the DEIS, this FEIS provides a qualitative discussion of the possible impacts of locating a public school in the Refinery complex. This discussion is provided in the "Public School Option" section of each analysis where the school could have potential impacts: community facilities, open space, historic resources, urban design and visual resources, neighborhood character, infrastructure, solid waste and sanitation services, energy, traffic and parking, transit and pedestrians, noise, and construction.

CHILD CARE FACILITIES

Based on the most recent updates to the *CEQR Technical Manual*, an action may generate a sufficient number of eligible children to affect the availability of slots at publicly funded child care facilities if it produces substantial numbers of subsidized, low-to moderate-income family housing units. It is assumed for the purposes of the community facilities analysis that the proposed project could introduce up to 720 new low- to moderate-income units by 2020, and therefore it would result in an increase in demand on public child care facilities. The 720 low- to moderate-income units introduced by the proposed project are projected to introduce approximately 128 children eligible for publicly funded child care.

[1] These represent the number of units that would introduce enough school children to increase the school utilization rate by more than 5.00 percent.

According to the *CEQR Technical Manual*, a significant adverse impact to public child care facilities could result if a proposed action results in: (1) a collective utilization rate of the group child care/Head Start centers in the study area that is greater than 100 percent in the future with the proposed project; and (2) an increase of five percent or more in the collective utilization rate of the child care/Head Start centers in the study area between No Action condition the and the future with the proposed project, a significant adverse impact may result, warranting consideration of mitigation. As described in Chapter 5, "Community Facilities," the projected 128 children potentially eligible for subsidized child care in the future with the proposed project would exacerbate a deficit of slots within the study area over the No Action condition, and would constitute an increase of more than five percent of the collective capacity of the study area's public child care facilities. Therefore, the proposed project would result in the potential for a significant adverse impact on publicly funded child care and Head Start facilities.

Because the proposed project parcels would be developed sequentially, the potential to result in an increase in a deficiency of available child care slots by five percent or more could occur when the proposed project completes construction of 559 affordable residential units that introduce children eligible for publicly funded child care (upon completion of Site B, and assuming that the 32 anticipated future background developments and the Greenpoint-Williamsburg rezoning projected sites within the 1-½ mile study area are fully realized and the number of subsidized group child care and Head Start slots within the study area remains the same). The number of affordable housing units that could result in a significant adverse impact on child care facilities would be exclusive of senior rental housing units, and the affordable homeownership units. The senior housing units would not typically introduce additional children, and any children in the affordable homeownership units would not meet the income-eligibility criteria for public child care, which corresponds with approximately 80 percent Area Median Income (AMI) and below.

Several other factors may limit the number of children in need of publicly funded child care slots. For example, families in the 1-½ mile study area could make use of alternatives to publicly funded group child care facilities. There are slots at homes licensed to provide family child care that families of eligible children could elect to use instead of publicly funded group child care facilities. Additionally, parents of eligible children are not restricted to enrolling their children in child care facilities in a specific geographical area, and could make use of public and private child care providers beyond the 1-½ mile study area (some parent/guardians choose a child care center close to their employment rather than their residence).

Possible mitigation measures for this significant adverse impact include adding capacity to existing facilities if determined feasible through consultation with the New York City Administration for Children's Services (ACS), or providing a new child care facility within or near the project site. As a City agency, ACS does not directly provide new child care facilities, instead it contracts with providers in areas of need. ACS is also working to create public/private partnerships to facilitate the development of new child care facilities where there is an area of need. As part of that initiative, ACS may be able to contribute capital funding, if it is available, towards such projects to facilitate the provision of new facilities.

As the proposed project is developed, the applicant will coordinate with ACS to consider the need for and the implementation of measures to provide any needed additional capacity in day care facilities within the 1-½ mile study area or within Community Board 1. The proposed project would need to provide 27 child care slots to reduce the increase in the utilization rate to less than 5 percent. Absent the implementation of any needed mitigation measures, the proposed project would have an unmitigated significant adverse impact on child care facilities.

C. SHADOWS

The analysis in Chapter 7, "Shadows," found that the proposed project's development on Site A would result in a significant adverse shadow impact on the 1.8-acre Grand Ferry Park. During the fall, winter, and early spring the utility of the park will be significantly impacted due to increased shadows on sun-sensitive features used by park visitors (e.g., benches, picnic tables, etc.) and the park's vegetation would also be adversely affected. The significant adverse impact would occur upon full construction of Site A, which is projected to be completed in 2020.

During the warmer months (April through October), all areas of the park would continue to get several hours of sun in the morning, and most areas of the park would get sun later in the afternoon as well. New shadow cast by the proposed building at Site A would move west to east across the park over the course of several hours in the middle of the day. The new shadow would not last for more than about two-and-a-quarter hours on any one particular location, but the total duration of time from its entry at the western edge of the park to its exit at the eastern edge would range from about six-and-a-half hours at the equinoxes to three-and-three-quarters hours at the summer solstice. In December, under the No Action condition, sunlight is already limited throughout the day, and the proposed project would remove all or most of the remaining sunlight for about two hours around midday. Portions of the park would continue to receive direct sunlight throughout the day during the spring, summer, and fall.

As discussed in Chapter 7, "Shadows," the several hours of incremental midday shadow would cause a significant adverse impact to the users of this open space during the fall, winter, and early spring, and would likely also adversely impact the park's vegetation. Most trees and many plants require a minimum of between four to six hours of sunlight per day to maintain healthy growth during normal conditions. While certain trees and other plants in Grand Ferry Park would continue to get six hours of sun in the spring and fall with the proposed project, the two-and-a-quarter hours of new shadow that many of the trees would experience could potentially significantly impact their ability to survive. In the late spring and summer, all the trees and plants would get more than seven hours of sunlight.

The *CEQR Technical Manual* identifies several different measures that could mitigate significant adverse shadow impacts on open spaces. These measures include: relocating facilities within an open space to avoid sunlight loss; relocating or replacing vegetation; undertaking additional maintenance to reduce the likelihood of species loss; or providing replacement facilities on another nearby site. CEQR guidelines also discuss alternatives that may reduce or eliminate shadow impacts, including reorientation of building bulk or reorientation of the site plan. Due to the narrowness of the project site and its immediate proximity to Grand Ferry Park, it is not possible to alter the site plan so as to avoid a substantial amount of shadow being cast on this open space. In order to substantially reduce the extent of incremental shadows on the park on the March 21/September 21 analysis day, the Site A tower (maximum zoning envelope) would need to be reduced in height from 300 feet to approximately 130 feet. On the December 21 analysis day, when shadows are longest, even the 60-foot-high building in the No Action scenario would cast large shadows on the park for most of the analysis day, leaving only small areas of sun on the north side. In order to prevent the proposed project's additional shadow from removing the remaining sunlight for about two hours on December 21, the Site A building would have to be limited in height to a 70-foot-high podium with no tower. A 70-foot building would also cast very little incremental shadow on March 21/September 21. It should be noted that the proposed project would create approximately four acres of new public open space, including a connection to Grand Ferry Park. During all seasons, the project-created open space

would provide new sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow.

Due to the physical constraints of the site, relocating facilities within the park to avoid sunlight loss is not a viable mitigation option. Of the measures listed above, potentially feasible mitigation for the significant adverse impact on Grand Ferry Park could include replacing some vegetation with more shade-tolerant species; undertaking additional maintenance to reduce the likelihood of species loss; providing additional maintenance funding and/or helping to enhance other nearby open spaces.

The applicant has consulted with DPR and DCP to develop the mitigation program. In order to address the significant adverse shadows impacts on Grand Ferry Park, the applicant would be required to provide funding for monitoring and maintenance of affected plantings within Grand Ferry Park and replacement, as necessary, with shade-tolerant species. While these funds would be used to enhance the quality of Grand Ferry Park, they would not reduce the incremental shadows cast by the proposed project. Therefore, the significant adverse shadows impact to Grand Ferry Park would only be partially mitigated by these measures.

D. HISTORIC RESOURCES

As described in Chapter 8, "Historic Resources," the buildings on the project site have been determined eligible for listing on the State and National Registers of Historic Places (S/NR). The proposed project would demolish all structures—with the exception of the Refinery—on the project site. Therefore, the proposed project would have a significant adverse impact on architectural resources. This adverse impact would occur when the S/NR-eligible buildings are demolished on the site.

Measures to partially mitigate significant adverse impacts would be implemented in consultation with SHPO and would be set forth in either a Memorandum of Agreement (MOA) or Letter of Resolution (LOR) to be signed by the applicant, SHPO, and other involved agencies. Mitigation measures include preparation of Historic American Engineering Record (HAER) documentation of the buildings on the site, which would include photographic documentation, historic plans, and an accompanying historical narrative; and consultation with SHPO with respect to the adaptive reuse design of the Refinery at the pre-final and final design stages. In addition, industrial artifacts would be included as part of an interpretive display, to include signage, as part of the proposed open space design. Items that are considered for salvage include machinery, crane rails, syrup tanks, elements of larger structures, and historic signage. The design intent of the interpretive display is to place the artifacts in a linear fashion to represent the sugar production process that took place on the site. The applicant will salvage the three sets of original wood doors on the Refinery's Kent Avenue façade and seek to incorporate them into the design of the rehabilitated Refinery. Pursuant to the terms of the MOA or LOR, the salvage and reuse of industrial artifacts would be contingent upon their feasibility for salvage and reinstallation.

E. TRAFFIC AND PARKING

As discussed in Chapter 17, "Traffic and Parking," a number of intersections in the study area would experience significant traffic impacts as a result of vehicular traffic generated by the proposed project. The traffic analysis results show that in the 2020 future with the proposed project conditions, the proposed project would result in significant traffic impacts at 24, 11, 31,

and 6 intersections during the weekday AM, midday, and PM, and Saturday midday peak hours, respectively. Significantly impacted locations for the four peak hours in the primary and secondary study areas are summarized in Tables 17-18a and 17-18b, respectively in Chapter 17, "Traffic and Parking." Table 23-1 presents a summary of the intersections and movements that would be significantly impacted with the Proposed Project, and the intersections and movements that would either be mitigated with the proposed mitigation measures, or remain unmitigated.

Table 23-1
Summary of Movements/Intersections with Significant Adverse Impacts: 2020 Future with the Proposed Project Conditions

Analyzed Peak Hour	Movements / Intersections Analyzed	Movements / Intersections With No Significant Impacts	Movements / Intersections With Significant Impacts	Mitigated Movements / Intersections	Unmitigated Movements / Intersections
Weekday AM	162/55	136/31	26/24	26/24	0/0
Weekday Midday	161/55	150/44	11/11	11/11	0/0
Weekday PM	162/55	128/24	34/31	34/31	0/0
Saturday Midday	161/55	155/49	6/6	6/6	0/0

All of the significantly impacted locations identified in Chapter 17, "Traffic and Parking," could be mitigated by standard traffic engineering measures, such as signal timing adjustments, lane re-striping, parking prohibition, changing bicycle lane classifications, and installation of new traffic signals at unsignalized intersections.

RECOMMENDED MITIGATION MEASURES

Table 23-2 summarizes all the measures contained in the mitigation plan for the primary study area intersections for the weekday AM, midday, and PM, and Saturday midday peak hours. Measures for the secondary study area intersections are summarized in Table 23-3. Illustrative overviews of the proposed mitigation measures for the primary and secondary study area intersections are shown in Figures 23-1 and 23-2 for signal timing modifications and geometric improvements/traffic control measures. With the proposed mitigation measures in place, all of the impacted approaches/lane groups would be mitigated back to the same or better service conditions than the 2020 No Action conditions. Discussion of each affected intersection and its required mitigation follows.

5.27.10



Project Site Boundary

Proposed Signal Retiming

NOTE: This figure has been revised for the FEIS

0 1000 FEET

SCALE

Intersections with Proposed Signal Timing Modifications

Figure 23-1

5.27.10



NOTE: This figure has been revised for the FEIS

0 1000 FEET

SCALE

Project Site Boundary

Proposed Geometric Improvements

Proposed Traffic Signal

Proposed All-Way Stop Control

Proposed Approach Daylighting

Intersections with Proposed Geometric Improvements and Traffic Control Measures

Figure 23-2

Table 23-2
Mitigation Measures[1]
Primary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Signalized				
Kent Avenue and Metropolitan Avenue	Not Impacted	Not Impacted	Reduce the buffer separating the exclusive left-turn lane and the through lane by 3 feet on the NB approach. Restripe the NB through lane from 11-foot to 14-foot wide. Shift 5 seconds of green time from the EB/WB phase to the NB phase.	Not Impacted
Kent Avenue and South 3rd Street	Not Impacted	Not Impacted	Install a No Standing Anytime regulation sign on the east curb of the NB approach. Reduce the buffer separating the exclusive left-turn lane and the through lane by 2 feet on the NB approach. Shift the through lane to the west by 2 feet. Restripe the NB approach to allow for a 11-foot through lane and a 10-foot right-turn lane.	Not Impacted
Kent Avenue and Broadway	Shift 3 seconds of green time from the EB/WB phase to the NB phase.	Not Impacted	Shift 2 seconds of green time from the EB/WB phase to the NB phase.	Not Impacted
Wythe Avenue and Metropolitan Avenue	Daylight the WB approach.	Shift 1 second of green time from the EB/WB phase to the SB phase.	Daylight the WB approach.	Not Impacted
	Daylight the SB approach.		Shift 1 second of green time from the EB/WB phase to the SB phase.	
Wythe Avenue and Broadway	Daylight the SB approach.	Not Impacted	Daylight the SB approach to allow for a 14-foot moving lane.	Not Impacted
Bedford Avenue and South 6th Street	Not Impacted	Not Impacted	Shift 5 seconds of green time from the NB phase to the WB phase.	Not Impacted
Metropolitan Avenue and Driggs Avenue	Daylight the WB approach.	Not Impacted	Shift 4 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted
	Shift 3 seconds of green time from the SB phase to the EB/WB phase.			
Broadway and Driggs Avenue	Not Impacted	Shift 2 seconds of green time from the SB phase to the EB/WB phase.	Daylight the WB approach.	Not Impacted
Roebling Street and South 4th Street	Shift 6 seconds of green time from the EB/WB phase to the SB phase.	Not Impacted	Shift 1 second of green time from the EB/WB phase to the SB phase.	Not Impacted
Metropolitan Avenue and Marcy Avenue	Shift 5 seconds of green time from the EB/WB phase to the exclusive WB phase.	Not Impacted	Shift 9 seconds of green time from the EB/WB phase to the exclusive WB phase.	Not Impacted
Metropolitan Avenue and Rodney Street	Shift 3 seconds of green time from the NB phase to the exclusive EB phase.	Shift 3 seconds of green time from the NB phase to the exclusive EB phase.	Shift 6 seconds of green time from the NB phase to the exclusive EB phase.	Not Impacted
Broadway and Havemeyer Street	Shift 1 second of green time from the NB phase to the EB/WB phase.	Not Impacted	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	Not Impacted
Broadway and Marcy Avenue	Shift 3 seconds of green time from the SB phase to the EB/WB phase.	Shift 2 seconds of green time from the SB phase to the EB/WB phase.	Daylight the EB approach.	Not Impacted
			Daylight the WB approach.	

Table 23-2 (cont'd)
Mitigation Measures[1]
Primary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Unsignalized				
Kent Avenue and South 2nd Street	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 26 / 3 / 2 NB / 54 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 2 feet on the NB approach. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-foot and one 10-foot through lane.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 26 / 3 / 2 NB / 54 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 2 feet on the NB approach. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-foot and one 10-foot through lane.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 26 / 3 / 2 NB / 54 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 2 feet on the NB approach. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-foot and one 10-foot through lane. Daylight the east curb of the NB approach.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 26 / 3 / 2 NB / 54 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 2 feet on the NB approach. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-foot and one 10-foot through lane.
Kent Avenue and South 4th Street	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 34 / 3 / 2 NB / 46 / 3 / 2 Cycle Length = 90 Seconds Reduce the NB approach buffer separating the exclusive left-turn lane and the through lane by 2 feet. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-feet and one 10-feet through lane.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 34 / 3 / 2 NB / 46 / 3 / 2 Cycle Length = 90 Seconds Reduce the NB approach buffer separating the exclusive left-turn lane and the through lane by 2 feet. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-feet and one 10-feet through lane.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 34 / 3 / 2 NB / 46 / 3 / 2 Cycle Length = 90 Seconds Reduce the NB approach buffer separating the exclusive left-turn lane and the through lane by 2 feet. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-feet and one 10-feet through lane. Daylight the east curb of the NB approach.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 34 / 3 / 2 NB / 46 / 3 / 2 Cycle Length = 90 Seconds Reduce the NB approach buffer separating the exclusive left-turn lane and the through lane by 2 feet. Shift the NB approach through lane to the west by 2 feet. Restripe the NB approach to allow for one 11-feet and one 10-feet through lane.
Kent Avenue and South 6th Street	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 31 / 3 / 2 NB / 49 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 3 feet on the NB approach. Restripe the NB through lane from 11-foot to 14-foot wide.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 31 / 3 / 2 NB / 49 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 3 feet on the NB approach. Restripe the NB through lane from 11-foot to 14-foot wide.	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 31 / 3 / 2 NB / 49 / 3 / 2 Cycle Length = 90 Seconds Reduce the buffer separating the exclusive left-turn lane and the through lane by 3 feet on the NB approach. Restripe the NB through lane from 11-foot to 14-foot wide.	Not Impacted
Wythe Avenue and Grand Street	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 11.5-foot traffic moving lanes	Not Impacted	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 11.5-foot traffic moving lanes	Not Impacted
Wythe Avenue and South 1st Street	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted
Wythe Avenue and South 2nd Street	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 10.5-foot traffic moving lanes	Not Impacted	Convert the SB approach Class II bike lane to Class III Daylight the east curb of the SB approach to provide two 10.5-foot moving lanes	Not Impacted

Table 23-2 (cont'd)
Mitigation Measures[1]
Primary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Unsignalized (continued)				
Wythe Avenue and South 3rd Street	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III
	Daylight the east curb of the SB approach to provide two 12-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 12-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 12-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 12-foot traffic moving lanes
	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control
Wythe Avenue and South 4th Street	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III
	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes
Wythe Avenue and South 5th Street	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III	Convert the SB approach Class II bike lane to Class III
	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes
	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control	Replace Two-Way Stop-Control with All-Way Stop-Control
Wythe Avenue and South 6th Street	Convert the SB approach Class II bike lane to Class III	Not Impacted	Convert the SB approach Class II bike lane to Class III	Not Impacted
	Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes		Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	
Berry Street and South 6th Street	Not Impacted	Not Impacted	Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted
Broadway and Roebling Street - SBR [2]	Not Impacted	Not Impacted	Provide 3 phase signal with the following timing plan:	Provide 3 phase signal with the following timing plan:

Phase	Green	Amber	Red	Phase	Green	Amber	Red
EB/WB	31	3	2	EB/WB	22	3	3
SBR	55	3	2	SBR	38	3	2
EB/WB	19	3	2	EB/WB	15	3	2
Cycle Length = 120 Seconds				Cycle Length = 90 Seconds			

Notes: L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.
(1) This table has been revised for the FEIS.
(2) The proposed signal timing plan is developed in accordance with the upstream signalized intersection of Broadway and Roebling Street.

Table 23-3
Mitigation Measures [(1)]
Secondary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Signalized				
Kent Avenue and Clymer Street	Shift 2 seconds of green time from the NB phase to the EB/WB phase.	Not Impacted	Shift 2 seconds of green time from the NB phase to the EB/WB phase.	Not Impacted
Kent Avenue and Williamsburg Street West	Shift 5 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted	Not Impacted	Not Impacted
Flushing Avenue and Williamsburg Street West	Shift 2 seconds of green time from the WB phase to the SB phase.	Not Impacted	Shift 3 seconds of green time from the WB phase to the SB phase.	Not Impacted
Flushing Avenue and Classon Avenue/BQE Off-Ramp	Shift 1 second of green time from the WB phase to the Classon Avenue NB phase.	Shift 1 second of green time from the WB phase to the Classon Avenue NB phase.	Shift 1 second of green time from the WB phase to the Classon Avenue NB phase.	Not Impacted
	Shift 4 seconds of green time from the WB phase to the BQE Off-Ramp NB phase.		Shift 1 second of green time from the WB phase to the BQE Off-Ramp NB phase.	
Wythe Avenue and Williamsburg Street West	Shift 3 seconds of green time from the SB phase to the EB phase.	Not Impacted	Shift 4 seconds of green time from the SB phase to the EB phase.	Not Impacted
Unsignalized				
Wythe Avenue and South 8th Street	Not Impacted	Not Impacted	Convert the SB approach Class II bike lane to Class III	Not Impacted
			Daylight the east curb of the SB approach to provide two 11-foot traffic moving lanes	
Wythe Avenue and South 9th Street	Not Impacted	Not Impacted	Daylight the east curb of the SB approach to provide two traffic moving lanes	Not Impacted

Notes: L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.
(1) This table has been revised for the FEIS.

PRIMARY STUDY AREA – SIGNALIZED INTERSECTIONS

Kent Avenue and Metropolitan Avenue

The impact at the northbound through-and-right-turn movement of this intersection during the weekday PM peak hour could be mitigated by applying the following measures:

- Reduce the northbound approach buffer separating the exclusive left-turn lane and the through lane by 3 feet;
- Restriping the northbound approach through lane from 11-foot to 14-foot wide; and
- Shifting 5 seconds of green time from the eastbound/westbound phase to the northbound phase.

Kent Avenue and South 3rd Street

The impact at the northbound through-and-right-turn movement of this intersection during the weekday PM peak hour could be mitigated by installing a No Standing Anytime regulation sign on the east curb of the northbound approach. In addition, reducing the buffer separating the exclusive left-turn lane and the through lane on the northbound approach by 2 feet and restriping the northbound approach to provide an 11-foot through lane and a 10-foot right-turn lane are also required.

The geometric changes identified above would result in a loss of approximately 5 on-street parking spaces and would prohibit curbside loading/unloading activities along the east curb of Kent Avenue.

Kent Avenue and Broadway

The impact at the northbound through-and-right-turn movement of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 3 seconds and 2 seconds of green time, respectively, from the eastbound/westbound phase to the northbound phase.

Wythe Avenue and Metropolitan Avenue

The impacts at the westbound and southbound approaches during the weekday AM peak hour could be mitigated by daylighting the westbound and southbound approaches.

The impact at the southbound approach during the weekday midday peak hour could be mitigated by shifting 1 second of green time from the eastbound/westbound phase to the southbound phase.

The impacts at the westbound and southbound approaches during the weekday PM peak hour could be mitigated by daylighting the westbound approach and by shifting 1 second of green time from the eastbound/westbound phase to the southbound phase.

The daylighting at the westbound approach would prohibit parking at approximately 4 on-street parking spaces during the weekday AM and PM peak hours. The daylighting at the southbound approach would result in a loss of approximately 8 on-street parking spaces during the weekday AM peak hour.

Wythe Avenue and Broadway

The impact at the southbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by daylighting the southbound approach.

The daylighting at the southbound approach would prohibit parking at approximately 7 on-street parking spaces during the weekday AM and PM peak hours, respectively. In addition, the daylighting would also prohibit curbside loading/unloading activities along the east curb of the southbound approach during the weekday PM peak hour.

Bedford Avenue and South 6th Street

The impact at the westbound approach of this intersection during the weekday PM peak hour could be mitigated by shifting 5 seconds of green time from the northbound phase to the westbound phase.

Driggs Avenue and Metropolitan Avenue

The impact at the westbound approach of this intersection during the weekday AM peak hour could be mitigated by:

- Daylighting the westbound Metropolitan Avenue approach; and
- Shifting 3 seconds of green time from the southbound phase to the eastbound/westbound phase.

The impact at the westbound approach of this intersection during the weekday PM peak hour could be mitigated by shifting 4 seconds of green time from the southbound phase to the eastbound/westbound phase.

The daylighting at the westbound approach would prohibit parking at approximately 5 on-street parking spaces during the weekday AM peak hour.

Driggs Avenue and Broadway

The impact at the westbound approach of this intersection during the weekday midday peak hour could be mitigated by shifting 2 seconds of green time from the southbound phase to the eastbound/westbound phase. During the weekday PM peak hour, the impact at the westbound approach could be mitigated by daylighting the westbound approach.

The daylighting at the westbound approach would prohibit parking at approximately 5 on-street parking spaces during the weekday PM peak hour.

Roebling Street and South 4th Street

The impact at the southbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 6 and 1 seconds of green time, respectively, from the eastbound/westbound phase to the southbound phase.

Marcy Avenue and Metropolitan Avenue

The impacts at the westbound left-turn movement of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 5 and 9 seconds of green time, respectively, from the eastbound/westbound phase to the exclusive westbound phase.

Metropolitan Avenue and Rodney Street

The impacts at the eastbound left-turn movement of this intersection during the weekday AM, midday, and PM peak hours could be mitigated by shifting 3, 3, and 6 seconds of green time, respectively, from the northbound phase to the exclusive eastbound phase.

Broadway and Havemeyer Street

The impact at the westbound approach of this intersection during the weekday AM peak hour and at the eastbound approach during the weekday PM peak hour could be mitigated by shifting 1 and 3 seconds of green time, respectively, from the northbound phase to the eastbound/westbound phase.

Marcy Avenue and Broadway

The impacts at the westbound approach of this intersection during the weekday AM and midday peak hours could be mitigated by shifting 3 and 2 seconds of green time, respectively, from the southbound phase to the eastbound/westbound phase. The impacts at the eastbound and westbound approaches of this intersection during the weekday PM peak hour could be mitigated by daylighting the eastbound and westbound approaches. The daylighting at the eastbound approach would prohibit parking at approximately 3 on-street parking spaces during the weekday PM peak hour. Also, the daylighting at the westbound approach would prohibit parking at approximately 4 on-street parking spaces during the weekday PM peak hour.

PRIMARY STUDY AREA – UNSIGNALIZED INTERSECTIONS

Kent Avenue and South 2nd Street

The impact on the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday midday peak hours could be mitigated by:

- Installing a new traffic signal (see Table 23-2);
- Reducing the northbound approach buffer separating the exclusive left-turn lane and the through lane by 2 feet;
- Shift the northbound approach through lane to the west by 2 feet; and
- Restriping the northbound approach to allow for one 11-foot and 10-foot through lane.

In addition, daylighting of the east curb of the northbound approach would also be required for the weekday PM peak hour.

The daylighting at the east curb of the northbound approach would prohibit curbside loading/unloading activities during the weekday PM peak hour.

Kent Avenue and South 4th Street

The impact on the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday midday peak hours could be mitigated by:

- Installing a new traffic signal (see Table 23-2);
- Reducing the northbound approach buffer separating the exclusive left-turn lane and the through lane by 2 feet;
- Shifting the northbound approach through lane to the west by 2 feet; and
- Restriping the northbound approach to allow for one 11-foot and one 10-foot through lane.

In addition, daylighting at the east curb of the northbound approach would also be required during the weekday PM peak hour. The daylighting at the east curb of the northbound approach would prohibit curbside loading/unloading activities during the weekday PM peak hour.

Kent Avenue and South 6th Street

The impact at the westbound approach of this intersection during the weekday AM, midday, and PM peak hours could be mitigated by:

- Installing a new traffic signal (see Table 23-2);
- Reduce the northbound approach buffer separating the exclusive left-turn lane and the through lane by 3 feet; and
- Restriping the northbound approach through lane from 11-foot to 14-foot wide.

Wythe Avenue and Grand Street

The impact at the southbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by converting the Class II bicycle lane on the southbound approach to a Class III signed bicycle route and by daylighting the east curb of the southbound approach to allow for two 11.5-foot moving lanes.

The daylighting at the east curb of the southbound approach would prohibit parking at approximately 8 on-street parking spaces during the weekday AM and PM peak hours.

Wythe Avenue and South 1st Street

The impact at the eastbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by:

- Converting the southbound approach Class II bicycle lane to a Class III signed route;
- Daylighting the east curb of the southbound approach to allow for two 11-foot moving lanes; and
- Replacing the existing Two-Way-Stop-Control with an All-Way-Stop-Control.

The daylighting at the east curb of the southbound approach would prohibit parking at approximately 10 parking spaces during the weekday AM and PM peak hours.

Wythe Avenue and South 2nd Street

The impact at the westbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by converting the southbound approach and receiving lane Class II bicycle lane to a Class III signed route and by daylighting the east curb of the southbound approach and receiving to allow for two 10.5-foot moving lanes. The daylighting at the east curb of the southbound approach would prohibit parking at approximately 4 on-street parking spaces during the weekday AM and PM peak hours. In addition, daylighting of the southbound receiving lane would result in the lost of approximately 5 parking spaces.

Wythe Avenue and South 3rd Street

The impact at the eastbound approach of this intersection during the weekday AM, midday, and PM, and Saturday midday peak hours could be mitigated by:

- Converting the southbound approach Class II bicycle lane to a Class III signed route;
- Daylighting the east curb of the southbound approach to allow for two 12-foot moving lanes; and
- Replacing the existing Two-Way-Stop-Control with an All-Way-Stop-Control.

The daylighting at the east curb of the southbound approach would result in the loss of approximately 8 parking spaces.

Wythe Avenue and South 4th Street

The impact at the southbound approach of this intersection during the weekday AM, midday and PM, and Saturday midday peak hours could be mitigated by converting the southbound approach Class II bicycle lane to a Class III signed route and by daylighting the east curb of the southbound approach to allow for two 11-foot moving lanes.

The daylighting at the east curb of the southbound approach would result in the loss of approximately 10 parking spaces.

Wythe Avenue and South 5th Street

The impact at the eastbound approach of this intersection during the weekday AM, midday and PM, and Saturday midday peak hours could be mitigated by:

- Converting the southbound approach Class II bicycle lane to a Class III signed route;
- Daylighting the east curb of the southbound approach to allow for two 11-foot moving lanes; and
- Replacing the existing Two-Way-Stop-Control with an All-Way-Stop-Control.

The daylighting at the east curb of the southbound approach would result in the loss of approximately 10 parking spaces.

Wythe Avenue and South 6th Street

The impact at the southbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by converting the southbound approach Class II bicycle lane to a Class III signed route and by daylighting the east curb of the southbound approach to allow for two 11-foot moving lanes.

The daylighting at the east curb of the southbound approach would prohibit parking at approximately 5 parking spaces during the weekday AM and PM peak hours.

Berry Street and South 6th Street

The impact at the westbound approach of this intersection during the weekday PM peak hour could be mitigated by replacing the existing Two-Way-Stop-Control with an All-Way-Stop-Control.

Roebling Street and Broadway

The impact at the southbound right-turn movement of this intersection during the weekday PM and Saturday midday peak hours could be mitigated by installing a new traffic signal (see Table 23-2).

SECONDARY STUDY AREA – SIGNALIZED INTERSECTIONS

Kent Avenue and Clymer Street

The impact at the westbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 2 seconds of green time from the northbound phase to the eastbound/westbound phase.

Kent Avenue and Williamsburg Street West

The impact at the westbound approach of this intersection during the weekday AM peak hour could be mitigated by shifting 5 seconds of green time from the southbound phase to the eastbound/westbound phase.

Flushing Avenue and Williamsburg Street West – Southbound BQE Service Road

The impacts at the southbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 2 and 3 seconds of green time, respectively, from the westbound phase to the southbound phase.

Flushing Avenue and Classon Avenue/BQE Off-Ramp – Northbound BQE Service Road

The impact at the northbound Classon Avenue approach of this intersection during the weekday AM, midday, and PM peak hours could be mitigated by shifting 1 second of green time from the westbound phase to the Classon Avenue northbound phase. In addition, the impact at the northbound BQE Off-Ramp during the weekday AM and PM peak hours could be mitigated by shifting 4 and 1 seconds of green time, respectively, from the westbound phase to the BQE Off-Ramp northbound phase.

Wythe Avenue and Williamsburg Street West

The impact at the eastbound approach of this intersection during the weekday AM and PM peak hours could be mitigated by shifting 3 and 4 seconds of green time, respectively, from the southbound phase to the eastbound phase.

SECONDARY STUDY AREA – UNSIGNALIZED INTERSECTIONS

Wythe Avenue and South 8th Street

The impact at the westbound approach of this intersection during the weekday PM peak hour could be mitigated by converting the southbound approach and receiving lane Class II bicycle lane to a Class III signed route and daylighting the east curb of the southbound approach and receiving lane to allow for two 11-foot moving lanes.

The daylighting at the east curb of the southbound approach and receiving lane would prohibit parking at approximately 11 on-street parking spaces during the weekday PM peak hour.

Wythe Avenue and South 9th Street

The impact at the eastbound approach of this intersection during the weekday PM peak hour could be mitigated by daylighting the east curb of the southbound approach and receiving lane to allow for two moving lanes (11-foot and 10-foot wide, respectively).

The daylighting at the east curb of the southbound approach and receiving lane would prohibit parking at approximately 11 on-street parking spaces during the weekday PM peak hour.

Tables 23-4 and 23-5 present the levels of service for the impacted intersections in the No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation conditions for the primary study area's signalized and unsignalized intersections, respectively. Tables 23-6 and 23-7 present the levels of service for the impacted intersections in the No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation conditions for the secondary study area's signalized and unsignalized intersections, respectively.

Table 23-4
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Signalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
	SIGNALIZED											
WEEKDAY AM PEAK HOUR												
Kent Avenue and Broadway												
Eastbound	LT	0.00	22.1	C	LT	0.00	22.1	C	LT	0.00	24.2	C
Westbound	R	0.27	26.3	C	R	0.26	26.1	C	R	0.30	29.4	C
Northbound	L	0.00	7.6	A	L	0.00	7.6	A	L	0.00	6.4	A
	TR	0.90	30.2	C	TR	1.04	59.3	E+	TR	0.98	41.9	D
	Intersection		29.8	C	Intersection		56.7	E	Intersection		40.9	D
Wythe Avenue and Metropolitan Avenue												
Eastbound	TR	0.24	16.5	B	TR	0.39	18.7	B	TR	0.39	18.7	B
Westbound	LT	0.51	22.5	C	LT	0.98	70.3	E+	LT	0.83	41.1	D
Southbound	LTR	1.11	95.8	F	LTR	1.15	109.3	F+	LTR	0.97	53.1	D
	Intersection		68.8	E	Intersection		81.1	F	Intersection		43.1	D
Wythe Avenue and Broadway												
Eastbound	TR	0.56	29.8	C	TR	0.56	29.8	C	TR	0.56	29.8	C
Westbound	L	0.71	42.0	D	L	0.71	42.0	D	L	0.71	42.0	D
	T	0.14	21.1	C	T	0.13	21.1	C	T	0.13	21.1	C
Southbound	LTR	0.90	35.2	D	LTR	1.04	66.5	E+	LTR	0.89	31.9	C
	Intersection		34.3	C	Intersection		53.4	D	Intersection		32.4	C
Metropolitan Avenue and Driggs Avenue												
Eastbound	TR	0.75	29.3	C	TR	0.89	40.6	D	TR	0.82	31.7	C
Westbound	LT	0.94	58.0	E	LT	1.27	167.3	F+	LT	0.93	48.5	D
Southbound	LTR	0.52	21.8	C	LTR	0.55	22.5	C	LTR	0.60	26.1	C
	Intersection		36.6	D	Intersection		81.0	F	Intersection		36.3	D
Roebling Street and South 4th Street												
Eastbound	LR	0.34	10.8	B	LR	0.39	11.5	B	LR	0.44	15.5	B
Westbound	L	0.01	7.7	A	L	0.01	7.7	A	L	0.01	10.4	B
	TR	0.31	10.6	B	TR	0.33	10.8	B	TR	0.38	14.7	B
Southbound	TR	0.95	63.5	E	TR	1.17	129.1	F+	TR	0.95	57.1	E
	Intersection		35.2	D	Intersection		69.6	E	Intersection		35.9	D
Metropolitan Avenue and Marcy Avenue												
Eastbound	TR	0.50	14.3	B	TR	0.54	15.1	B	TR	0.58	18.5	B
Westbound	L	1.08	75.4	E	L	1.12	91.8	F+	L	1.08	75.4	E
	T	0.37	8.9	A	T	0.45	9.9	A	T	0.45	9.9	A
	Intersection		39.1	D	Intersection		44.0	D	Intersection		38.9	D
Metropolitan Avenue and Rodney Street												
Eastbound	DefL	1.00	110.5	F	DefL	1.22	184.5	F+	DefL	1.00	106.7	F
	T	0.46	25.1	C	T	0.51	26.1	C	T	0.48	23.6	C
Westbound	TR	0.67	30.5	C	TR	0.70	31.3	C	TR	0.70	31.3	C
Northbound	LT	0.39	21.8	C	LT	0.39	21.8	C	LT	0.41	24.0	C
	R	0.37	22.5	C	R	0.37	22.5	C	R	0.39	24.8	C
	Intersection		33.9	C	Intersection		42.5	D	Intersection		35.2	D
Broadway and Havemeyer Street												
Eastbound	LT	0.65	23.2	C	LT	0.71	25.9	C	LT	0.69	24.3	C
Westbound	TR	0.83	32.0	C	TR	0.93	45.5	D+	TR	0.92	42.3	D
Northbound	LTR	0.26	27.9	C	LTR	0.26	27.9	C	LTR	0.26	28.7	C
	Intersection		28.2	C	Intersection		35.8	D	Intersection		33.8	C
Broadway and Marcy Avenue												
Eastbound	TR	0.7	32.7	C	TR	0.75	35.1	D	TR	0.71	30.9	C
Westbound	LT	1.01	74.9	E	LT	1.11	105.0	F+	LT	1.01	70.8	E
Southbound	LTR	0.51	26.4	C	LTR	0.51	26.5	C	LTR	0.54	29.4	C
	Intersection		49.5	D	Intersection		63.9	E	Intersection		48.0	D

Table 23-4 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Signalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
SIGNALIZED												
WEEKDAY MIDDAY PEAK HOUR												
Wythe Avenue and Metropolitan Avenue												
Eastbound	TR	0.24	16.5	B	TR	0.36	18.3	B	TR	0.37	19.1	B
Westbound	LT	0.49	21.9	C	LT	0.66	29.5	C	LT	0.69	31.8	C
Southbound	LTR	1.06	78.7	E	LTR	1.08	85.8	F+	LTR	1.05	76.5	E
	Intersection		57.4	E	Intersection		59.8	E	Intersection		55.1	E
Broadway and Driggs Avenue												
Eastbound	TR	0.52	21.2	C	TR	0.57	22.5	C	TR	0.55	20.5	C
Westbound	LT	0.94	47.4	D	LT	0.99	59.5	E+	LT	0.95	47.2	D
Southbound	LTR	0.48	20.2	C	LTR	0.52	21.0	C	LTR	0.55	23.1	C
	Intersection		33.6	C	Intersection		39.6	D	Intersection		33.8	C
Metropolitan Avenue and Rodney Street												
Eastbound	DefL	0.91	79.1	E	DefL	1.03	109.9	F+	DefL	0.88	71.4	E
	T	0.44	24.7	C	T	0.51	26.3	C	T	0.48	23.8	C
Westbound	TR	0.54	27.5	C	TR	0.57	28.0	C	TR	0.57	28.0	C
Northbound	LT	0.39	21.8	C	LT	0.39	21.8	C	LT	0.41	24.0	C
	R	0.37	22.5	C	R	0.37	22.5	C	R	0.39	24.8	C
	Intersection		31.0	C	Intersection		35.3	D	Intersection		31.1	C
Broadway and Marcy Avenue												
Eastbound	TR	0.76	35.4	D	TR	0.81	39.1	D	TR	0.78	35.3	D
Westbound	LT	0.85	45.9	D	LT	0.91	54.8	D+	LT	0.86	44.4	D
Southbound	LTR	0.59	28.7	C	LTR	0.59	28.7	C	LTR	0.61	30.8	C
	Intersection		37.3	D	Intersection		41.9	D	Intersection		37.4	D
WEEKDAY PM PEAK HOUR												
Kent Avenue and Metropolitan Avenue												
Eastbound	LT	0.04	26.3	C	LT	0.04	26.3	C	LT	0.06	30.5	C
Westbound	TR	0.40	32.6	C	TR	0.40	32.6	C	TR	0.54	42.4	D
Northbound	L	0.01	5.7	A	L	0.01	5.7	A	L	0.01	4.1	A
	TR	0.96	36.2	D	TR	1.22	123.2	F+	TR	1.01	42.9	D
	Intersection		35.6	D	Intersection		113.7	F	Intersection		42.6	D
Kent Avenue and South 3rd Street												
Eastbound	LT	0.08	32.2	C	LT	0.19	33.9	C	LT	0.19	33.9	C
Northbound	L	0.02	3.6	A	L	0.04	3.6	A	L	0.04	3.6	A
	TR	0.90	21.7	C	TR	1.27	142.6	F+	T	0.96	29.4	C
									R	0.34	5.6	A
	Intersection		21.6	C	Intersection		135.2	F	Intersection		24.3	C
Kent Avenue and Broadway												
Eastbound	LT	0.00	22.1	C	LT	0.00	22.1	C	LT	0.00	23.5	C
Westbound	R	0.41	29.7	C	R	0.42	30.1	C	R	0.46	33.1	C
Northbound	L	0.00	7.6	A	L	0.00	7.6	A	L	0.00	6.8	A
	TR	0.97	42.0	D	TR	1.03	56.3	E+	TR	0.99	44.5	D
	Intersection		40.6	D	Intersection		53.5	D	Intersection		43.3	D
Wythe Avenue and Metropolitan Avenue												
Eastbound	TR	0.28	16.8	B	TR	0.50	20.5	C	TR	0.51	21.4	C
Westbound	LT	0.63	26.3	C	LT	0.94	61.3	E+	LT	0.83	42.4	D
Southbound	LTR	1.27	159.1	F	LTR	1.29	167.6	F+	LTR	1.26	153.3	F
	Intersection		110.1	F	Intersection		111.3	F	Intersection		99.7	F
Wythe Avenue and Broadway												
Eastbound	TR	0.51	28.4	C	TR	0.51	28.4	C	TR	0.51	28.4	C
Westbound	L	1.08	110.9	F	L	1.08	110.9	F	L	1.08	110.9	F
	T	0.21	22.2	C	T	0.22	22.2	C	T	0.22	22.2	C
Southbound	LTR	1.12	92.9	F	LTR	1.38	198.2	F+	LTR	1.02	55.2	E
	Intersection		81.9	F	Intersection		151.1	F	Intersection		58.8	E

Table 23-4 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Signalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
	SIGNALIZED											
WEEKDAY PM PEAK HOUR (continued)												
Bedford Avenue and South 6th Street												
Westbound	TR	1.30	177.5	F	TR	1.49	258.6	F+	TR	1.30	171.2	F
Northbound	LT	0.27	13.5	B	LT	0.28	13.6	B	LT	0.31	16.8	B
	Intersection		117.2	F	Intersection		175.3	F	Intersection		118.7	F
Metropolitan Avenue and Driggs Avenue												
Eastbound	TR	0.60	23.1	C	TR	0.79	30.6	C	TR	0.71	24.0	C
Westbound	LT	0.92	49.9	D	LT	1.11	104.8	F+	LT	0.92	46.4	D
Southbound	LTR	0.64	25.1	C	LTR	0.68	26.8	C	LTR	0.76	34.1	C
	Intersection		33.4	C	Intersection		54.5	D	Intersection		34.3	C
Broadway and Driggs Avenue												
Eastbound	TR	0.47	20.3	C	TR	0.56	22.4	C	TR	0.56	22.4	C
Westbound	LT	1.55	283.0	F	LT	1.73	362.7	F+	LT	1.47	245.4	F
Southbound	LTR	0.78	29.9	C	LTR	0.82	32.5	C	LTR	0.82	32.5	C
	Intersection		163.1	F	Intersection		207.2	F	Intersection		144.5	F
Roebling Street and South 4th Street												
Eastbound	LR	0.41	11.7	B	LR	0.44	12.1	B	LR	0.44	12.8	B
Westbound	L	0.01	7.7	A	L	0.01	7.7	A	L	0.01	8.1	A
	TR	0.33	10.6	B	TR	0.36	11.1	B	TR	0.37	11.7	B
Southbound	TR	0.73	38.9	D	TR	0.84	46.8	D+	TR	0.81	43.0	D
	Intersection		21.3	C	Intersection		25.0	C	Intersection		23.9	C
Metropolitan Avenue and Marcy Avenue												
Eastbound	TR	0.42	13.1	B	TR	0.49	14.1	B	TR	0.56	20.1	C
Westbound	L	1.02	54.0	D	L	1.08	76.1	E+	L	1.01	52.2	D
	T	0.47	10.1	B	T	0.49	10.5	B	T	0.49	10.5	B
	Intersection		29.2	C	Intersection		37.1	D	Intersection		30.1	C
Metropolitan Avenue and Rodney Street												
Eastbound	DefL	0.87	70.7	E	DefL	1.20	167.5	F+	DefL	0.89	69.0	E
	T	0.44	24.4	C	T	0.51	25.9	C	T	0.46	21.2	C
Westbound	TR	0.52	26.8	C	TR	0.55	27.4	C	TR	0.55	27.4	C
Northbound	LT	0.63	26.7	C	LT	0.63	26.7	C	LT	0.71	32.8	C
	R	0.54	26.7	C	R	0.54	26.7	C	R	0.61	33.1	C
	Intersection		30.4	C	Intersection		42.4	D	Intersection		33.4	C
Broadway and Havemeyer Street												
Eastbound	LT	1.34	193.9	F	LT	1.46	245.2	F+	LT	1.34	188.0	F
Westbound	TR	0.87	34.9	C	TR	0.92	42.3	D	TR	0.88	34.8	C
Northbound	LTR	0.36	29.6	C	LTR	0.37	29.7	C	LTR	0.40	32.2	C
	Intersection		100.0	F	Intersection		127.6	F	Intersection		100.4	F
Broadway and Marcy Avenue												
Eastbound	TR	1.01	70.5	E	TR	1.10	99.3	F+	TR	0.94	51.7	D
Westbound	LT	1.53	282.0	F	LT	1.67	345.3	F+	LT	1.42	233.8	F
Southbound	LTR	0.84	41.5	D	LTR	0.84	41.8	D	LTR	0.84	41.8	D
	Intersection		140.4	F	Intersection		173.0	F	Intersection		115.2	F

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) This table has been revised for the FEIS.
+ implies a significant adverse impact

Table 23-5
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Unsignalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
UNSIGNALIZED												
WEEKDAY AM PEAK HOUR												
Kent Avenue and South 2nd Street									**Signalized**			
Eastbound	L	0.02	24.4	C	L	0.36	142.1	F	L	0.07	23.9	C
Westbound	TR	0.23	17.9	C	TR	0.62	54.6	F+	TR	0.48	35.7	D
Northbound	L	0.00	7.6	A	L	0.01	7.6	A	L	0.01	7.3	A
									T	0.71	17.1	B
									Intersection		19.0	B
Kent Avenue and South 4th Street									**Signalized**			
Eastbound					L	**	**	F	L	0.42	26.1	C
Westbound	R	0.17	17.4	C	TR	1.56	321.6	F+	TR	0.82	43.4	D
Northbound					L	0.05	7.6	A	L	0.11	11.7	B
									T	0.92	38.1	D
									Intersection		36.6	D
Kent Avenue and South 6th Street									**Signalized**			
Eastbound	L	0.07	34.5	D	L	0.22	119.4	F	L	0.03	19.7	B
Westbound	TR	0.41	22.5	C	TR	0.77	52.3	F+	TR	0.48	27.1	C
Northbound	L	0.00	7.6	A	L	0.00	7.6	A	L	0.00	9.4	A
									T	0.82	24.7	C
									Intersection		25.1	C
Wythe Avenue and Grand Street												
Eastbound	TR	-	9.5	A	TR	-	9.7	A	TR	-	9.1	A
Westbound	LT	-	10.5	B	LT	-	10.8	B	LT	-	10.0	B
Southbound	LTR	-	35.00-	D	LTR	-	69.9	F+	LT	-	12.8	B
									TR	-	12.5	B
	Intersection		30.3	D	Intersection		60.2	F	Intersection		12.2	B
Wythe Avenue and South 1st Street												
Eastbound	TR	0.27	24.1	C	TR	0.79	62.2	F+	TR	-	9.9	A
Southbound	LT	0.05	7.7	A	LT	0.05	7.7	A	LT	-	14.5	B
									T	-	12.5	B
									Intersection		12.9	B
Wythe Avenue and South 2nd Street												
Westbound	LT	0.40	24.6	C	LT	0.68	60.7	F+	LT	0.39	24.2	C
Wythe Avenue and South 3rd Street												
Eastbound	TR	0.29	27.0	D	TR	1.54	315.1	F+	TR	-	12.3	B
Southbound	LT	0.08	7.8	A	LT	0.12	8.0	A	LT	-	23.8	C
									T	-	13.8	B
									Intersection		18.0	C
Wythe Avenue and South 4th Street												
Westbound	LT	-	9.7	A	LT	-	11.2	B	LT	-	10.6	B
Southbound	TR	-	23.7	C	TR	-	116.0	F+	T	-	12.2	B
									TR	-	16.6	C
	Intersection		22.2	C	Intersection		101.4	F	Intersection		14.2	B
Wythe Avenue and South 5th Street												
Eastbound	TR	0.49	31.0	D	TR	0.72	65.5	F+	TR	-	9.5	A
Southbound	LT	0.08	7.8	A	LT	0.11	7.9	A	LT	-	14.7	B
									T	-	10.8	B
									Intersection		12.6	B

Table 23-5 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Unsignalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
UNSIGNALIZED												
WEEKDAY AM PEAK HOUR (continued)												
Wythe Avenue and South 6th Street												
Westbound	LT	-	9.9	A	LT	-	11.2	B	LT	-	10.4	B
Southbound	TR	-	19.2	C	TR	-	33.6	D+	T	-	11.1	B
									TR	-	11.6	B
	Intersection		17.6	C	Intersection		29.1	D	Intersection		11.2	B
WEEKDAY MIDDAY PEAK HOUR												
Kent Avenue and South 2nd Street									**Signalized**			
Eastbound	L	0.02	20.1	C	L	0.19	73.8	F	L	0.04	23.4	C
Westbound	TR	0.14	15.6	C	TR	0.44	39.1	E+	TR	0.50	33.3	D
Northbound	L	0.00	7.6	A	L	0.01	7.6	A	L	0.01	7.3	A
									T	0.62	13.0	B
									Intersection		15.1	B
Kent Avenue and South 4th Street									**Signalized**			
Eastbound					L	2.97	1142.0	F	L	0.33	22.8	C
Westbound	R	0.14	15.8	C	TR	0.92	86.5	F+	TR	0.57	28.3	C
Northbound					L	0.03	7.6	A	L	0.06	11.3	B
									T	0.74	23.6	C
									Intersection		24.0	C
Kent Avenue and South 6th Street									**Signalized**			
Eastbound	L	0.03	29.2	D	L	0.06	63.0	F	L	0.02	19.5	B
Westbound	TR	0.36	20.7	C	TR	0.69	43.4	E+	TR	0.45	26.4	C
Northbound	L	0.00	7.7	A	L	0.00	7.7	A	L	0.00	9.3	A
									T	0.69	19.2	B
									Intersection		20.8	C
Wythe Avenue and South 3rd Street												
Eastbound	TR	0.32	22.5	C	TR	0.88	75.2	F+	TR	-	10.5	B
Southbound	LT	0.06	7.8	A	LT	0.07	7.8	A	LT	-	13.0	B
									T	-	10.8	B
									Intersection		11.7	B
Wythe Avenue and South 4th Street												
Westbound	LT	-	10.8	B	LT	-	11.8	B	LT	-	10.8	B
Southbound	TR	-	25.5	D	TR	-	48.6	E+	T	-	11.2	B
									TR	-	12.9	B
	Intersection		22.8	C	Intersection		41.6	E	Intersection		11.9	B
Wythe Avenue and South 5th Street												
Eastbound	TR	0.33	25.3	D	TR	0.51	45.6	E+	TR	-	9.1	A
Southbound	LT	0.07	7.8	A	LT	0.08	7.8	A	LT	-	12.3	B
									T	-	10.2	B
									Intersection		11.1	B

Table 23-5 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Unsignalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
UNSIGNALIZED												
WEEKDAY PM PEAK HOUR												
Kent Avenue and South 2nd Street									**Signalized**			
Eastbound	L	0.00	34.3	D	L	**	**	F	L	0.04	23.4	C
Westbound	TR	0.27	24.2	C	TR	1.49	360.6	F+	TR	0.50	33.3	C
Northbound	L	0.00	7.6	A	L	0.00	7.6	A	L	0.01	7.3	A
									T	0.62	13.0	B
									Intersection		15.1	B
Kent Avenue and South 4th Street									**Signalized**			
Eastbound					L	**	**	F	L	0.60	32.2	C
Westbound	R	0.39	31.9	D	TR	2.91	953.2	F+	TR	0.71	34.3	C
Northbound					L	0.05	7.6	A	L	0.10	11.6	B
									T	0.72	19.9	B
									Intersection		23.3	C
Kent Avenue and South 6th Street									**Signalized**			
Eastbound	L	0.14	591.5	F	L	**	**	F	L	0.01	19.4	B
Westbound	TR	0.95	85.0	F	TR	1.86	445.7	F+	TR	0.82	42.3	D
Northbound	L	0.00	7.6	A	L	0.00	7.6	A	L	0.00	9.3	A
									T	0.89	30.3	C
									Intersection		33.9	C
Wythe Avenue and Grand Street												
Eastbound	TR	-	9.5	A	TR	-	9.4	A	TR	-	8.8	A
Westbound	LT	-	10.1	B	LT	-	10.0	B	LT	-	9.4	A
Southbound	LTR	-	67.6	F	LTR	-	76.3	F+	LT	-	12.4	B
									TR	-	12.3	B
	Intersection		59.4	F	Intersection		68.9	F	Intersection		12.0	B
Wythe Avenue and South 1st Street												
Eastbound	TR	0.15	23.7	C	TR	0.97	113.5	F+	TR	-	9.7	A
Southbound	LT	0.02	7.6	A	LT	0.02	7.6	A	LT	-	14.4	B
									T	-	13.5	B
									Intersection		13.3	B
Wythe Avenue and South 2nd Street												
Westbound	LT	0.51	40.7	E	LT	0.92	134.6	F+	LT	0.52	40.6	E
Wythe Avenue and South 3rd Street												
Eastbound	TR	0.61	43.5	E	TR	1.92	479.7	F+	TR	-	13.4	B
Southbound	LT	0.05	7.6	A	LT	0.07	7.7	A	LT	-	21.9	C
									T	-	15.7	C
									Intersection		17.7	C
Wythe Avenue and South 4th Street												
Westbound	LT	-	11.5	B	LT	-	11.8	B	LT	-	11.3	B
Southbound	TR	-	95.8	F	TR	-	187.2	F+	T	-	14.5	B
									T	-	19.6	C
	Intersection		82.4	F	Intersection		161.2	F	Intersection		16.5	C
Wythe Avenue and South 5th Street												
Eastbound	TR	0.45	42.6	E	TR	0.81	125.3	F+	TR	-	9.4	A
Southbound	LT	0.07	7.7	A	LT	0.08	7.7	A	LT	-	18.3	C
									T	-	13.2	B
									Intersection		15.6	C

Table 23-5 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Primary Study Area Intersections
Unsignalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
UNSIGNALIZED												
WEEKDAY PM PEAK HOUR (continued)												
Wythe Avenue and South 6th Street												
Westbound	LT	-	15.3	C	LT	-	23.9	C	LT	-	22.1	C
Southbound	TR	-	96.9	F	TR	-	255.4	F+	T	-	21.9	C
									TR	-	23.9	C
	Intersection		75.7	F	Intersection		187.4	F	Intersection		22.7	C
Berry Street and South 6th Street												
Westbound	TR	0.73	26.0	D	TR	0.92	46.8	E+	TR	-	15.2	C
Northbound	LT	0.01	7.6	A	LT	0.01	7.6	A	LT	-	9.6	A
									Intersection		14.1	B
Broadway and Roebling Street - SBR									**Signalized**			
Eastbound									T	0.57	27.4	C
Westbound									T	0.21	19.8	B
Southbound	R	0.80	26.3	D	R	1.47	248.6	F+	R	0.87	41.8	D
									Intersection		32.8	C
SATURDAY MIDDAY PEAK HOUR												
Kent Avenue and South 2nd Street									**Signalized**			
Eastbound	L	0.01	17.5	C	L	0.01	55.7	F	L	0.01	22.8	C
Westbound	TR	0.10	14.1	B	TR	0.50	36.4	E+	TR	0.58	39.4	D
Northbound	L	0.00	7.5	A	L	0.00	7.5	A	L	0.00	7.2	A
									T	0.67	16.1	B
									Intersection		19.7	B
Kent Avenue and South 4th Street									**Signalized**			
Eastbound					L	6.08	2908.0	F	L	0.28	22.0	C
Westbound	R	0.25	16.4	C	TR	1.03	104.9	F+	TR	0.72	34.7	C
Northbound					L	0.04	7.6	A	L	0.07	11.4	B
									T	0.69	21.8	C
									Intersection		25.1	C
Wythe Avenue and South 3rd Street												
Eastbound	TR	0.51	27.4	D	TR	1.04	108.5	F+	TR	-	11.1	B
Southbound	LT	0.05	7.6	A	LT	0.05	7.6	A	LT	-	12.2	B
									T	-	10.6	B
									Intersection		11.4	B
Wythe Avenue and South 4th Street												
Westbound	LT	-	12.1	B	LT	-	11.7	B	LT	-	10.7	B
Southbound	TR	-	35.2	E	TR	-	41.5	E+	T	-	10.6	B
									TR	-	12.4	B
	Intersection		29.8	D	Intersection		35.3	E	Intersection		11.5	B
Wythe Avenue and South 5th Street												
Eastbound	TR	0.25	20.5	C	TR	0.39	33.8	D+	TR	-	8.7	A
Southbound	LT	0.06	7.6	A	LT	0.07	7.7	A	LT	-	10.9	B
									T	-	9.4	A
									Intersection		10.1	B
Broadway and Roebling Street - SBR									**Signalized**			
Eastbound									T	0.39	17.2	B
Westbound									T	0.14	13.9	B
Southbound	R	0.67	23.2	C	R	0.79	35.8	E+	R	0.49	21.3	C
									Intersection		18.2	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) This table has been revised for the FEIS.
+ implies a significant adverse impact
** Delay values not reported by the HCS model.

Table 23-6
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Secondary Study Area Intersections
Signalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
SIGNALIZED												
WEEKDAY AM PEAK HOUR												
Kent Avenue and Clymer Street												
Eastbound	LR	1.35	233.8	F	LR	1.49	292.5	F	LR	1.12	140.5	F
Westbound	LTR	0.92	53.6	D	LTR	0.98	64.9	E+	LTR	0.89	47.7	D
Northbound	L	0.27	7.6	A	L	0.27	7.6	A	L	0.28	8.6	A
	T	0.55	11.5	B	T	0.70	15.3	B	T	0.73	17.4	B
	Intersection		54.6	D	Intersection		63.4	E	Intersection		41.1	D
Kent Avenue and Williamsburg Street West												
Eastbound	T	0.19	23.2	C	T	0.20	23.3	C	T	0.18	20.1	C
Westbound	LT	0.89	44.7	D	LT	1.01	65.7	E+	LT	0.91	43.3	D
Southbound	LT	0.72	26.0	C	LT	0.74	26.7	C	LT	0.80	32.7	C
	Intersection		33.5	C	Intersection		43.7	D	Intersection		36.1	D
Flushing Avenue and Williamsburg Street West												
Westbound	L	0.73	34.1	C	L	0.73	34.1	C	L	0.76	37.1	D
	T	0.74	34.5	C	T	0.74	34.5	C	T	0.76	37.6	D
Southbound	TR	1.23	143.0	F	TR	1.28	163.4	F+	TR	1.23	142.2	F
	Intersection		102.7	F	Intersection		116.7	F	Intersection		104.3	F
Flushing Avenue and Classon Avenue/BQE Off-Ramp												
Westbound	TR	0.60	32.9	C	TR	0.60	32.9	C	TR	0.68	38.4	D
Northbound - BQE Off-Ramp	LTR	1.33	210.4	F	LTR	1.46	265.1	F+	LTR	1.26	173.0	F
Northbound - Classon Avenue	LTR	1.27	174.1	F	LTR	1.30	185.5	F+	LTR	1.26	169.6	F
	Intersection		148.0	F	Intersection		171.9	F	Intersection		137.9	F
Wythe Avenue and Williamsburg Street West												
Eastbound	TR	0.90	57.0	E	TR	0.97	70.3	E+	TR	0.90	55.3	E
Southbound	LTR	0.73	22.4	C	LTR	0.73	22.5	C	LTR	0.77	25.4	C
	Intersection		30.5	C	Intersection		34.3	C	Intersection		32.8	C
WEEKDAY MIDDAY PEAK HOUR												
Flushing Avenue and Classon Avenue/BQE Off-Ramp												
Westbound	TR	0.48	25.6	C	TR	0.48	25.6	C	TR	0.50	26.5	C
Northbound - BQE Off-Ramp	LTR	0.89	46.8	D	LTR	0.90	47.4	D	LTR	0.90	47.4	D
Northbound - Classon Avenue	LTR	1.41	227.4	F	LTR	1.42	231.7	F+	LTR	1.35	201.8	F
	Intersection		123.5	F	Intersection		125.8	F	Intersection		112.5	F

Table 23-6 (cont'd)
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Secondary Study Area Intersections
Signalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
SIGNALIZED												
WEEKDAY PM PEAK HOUR												
Kent Avenue and Clymer Street												
Eastbound	LR	3.58	1219.0	F	LR	4.37	1578.0	F	LR	3.21	1051.0	F
Westbound	LTR	0.95	58.3	E	LTR	1.04	81.0	F+	LTR	0.95	55.0+	E
Northbound	L	0.06	6.1	A	L	0.06	6.1	A	L	0.07	6.8	A
	T	0.86	23.3	C	T	0.90	27.9	C	T	0.94	34.0	C
	Intersection		280.4	F	Intersection		348.2	F	Intersection		238.8	F
Flushing Avenue and Williamsburg Street West												
Westbound	L	0.54	29.8	C	L	0.54	29.8	C	L	0.58	32.9	C
	T	0.55	30.1	C	T	0.55	30.1	C	T	0.58	33.3	C
Southbound	TR	1.20	128.8	F	TR	1.27	156.5	F+	TR	1.21	127.9	F
	Intersection		102.3	F	Intersection		123.9	F	Intersection		103.5	F
Flushing Avenue and Classon Avenue/BQE Off-Ramp												
Westbound	TR	0.49	33.5	C	TR	0.49	33.5	C	TR	0.51	35.4	D
Northbound - BQE Off-Ramp	LTR	1.30	187.6	F	LTR	1.31	192.2	F+	LTR	1.28	175.9	F
Northbound - Classon Avenue	LTR	1.63	336.0	F	LTR	1.64	341.1	F+	LTR	1.59	317.1	F
	Intersection		220.3	F	Intersection		224.5	F	Intersection		208.4	F
Wythe Avenue and Williamsburg Street West												
Eastbound	TR	1.00	74.9	E	TR	1.11	110.2	F+	TR	1.01	74.8	E
Southbound	LTR	0.74	22.9	C	LTR	0.74	22.9	C	LTR	0.79	27.0	C
	Intersection		37.4	D	Intersection		48.9	D	Intersection		41.2	D

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) This table has been revised for the FEIS.
+ implies a significant adverse impact

Table 23-7
2020 No Action, Future with the Proposed Project, and Future with the Proposed Project with Mitigation Level of Service Analyses [(1)]
Secondary Study Area Intersections
Unsignalized Intersections

Intersection	2020 No Action				2020 Future with the Proposed Project				2020 Future with the Proposed Project with Mitigation			
	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS	Lane Group	v/c Ratio	Delay (seconds)	LOS
UNSIGNALIZED												
WEEKDAY PM PEAK HOUR												
Wythe Avenue and South 8th Street												
Westbound	LT	0.87	84.6	F	LT	1.03	134.9	F+	LT	0.55	30.0	D
Wythe Avenue and South 9th Street												
Eastbound	TR	0.21	28.2	D	TR	0.25	34.1	D+	TR	0.11	15.8	C
Southbound	LT	0.06	7.7	A	LT	0.06	7.7	A	LT	0.06	7.7	A

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service.
(1) This table has been revised for the FEIS.
+ implies a significant adverse impact

With the above mitigation measures in place, all of the impacted primary and secondary study area intersections would operate at the same or better service levels than the No Action conditions. All the proposed mitigation measures discussed above will be subject to review and approval from the New York City Department of Transportation (DOT). In addition, installation of new traffic signals at the unsignalized locations would require detailed Signal Warrant Studies, which are also subject to review and approval from DOT.

As discussed in detail in Chapter 2, "Analytical Framework," there are several development projects in and near the study area, that are anticipated to be completed prior to, or concurrent with, the planned completion of the proposed project. All of these development projects, along with the trips generated by the projected development from the *Greenpoint-Williamsburg Rezoning FEIS*, were included in the future No Action analysis. It should be noted that some of these future projects ultimately may not be constructed, thereby resulting in lower 2020 No Action traffic volume networks (as compared to the ones against which the impacts from the proposed project were evaluated). In such a case, the significant adverse traffic impacts projected to occur with the proposed project would be of lesser magnitude (thereby requiring lesser mitigation).

Because the proposed project parcels would be developed sequentially, the potential significant adverse impacts on traffic conditions in the study area would first occur with the completion of Site E on the upland parcel which involves construction of approximately 327 residential units, 6,000 sf of local retail space, 30,000 sf of supermarket space and 374 accessory parking spaces. Specifically, with the completion of Site E by the year 2013, the following study area intersections could experience significant adverse traffic impacts during one or more of the analysis peak hours:

- Marcy Avenue and Broadway;
- Kent Avenue and South 4th Street;
- Roebling Street and South 4th Street;
- Havemeyer Street and Broadway;
- Wythe Avenue and South 3rd Street; and
- Wythe Avenue and South 4th Street.

To improve traffic operating conditions at the above intersections, mitigation measures identified for the 2020 Build conditions would have to be advanced to 2013 (see Tables 23-2 and 23-3). It should be noted that the mitigation measures proposed for the 2020 Build conditions were developed incorporating the traffic activities generated by the full build-out of the proposed project together with the 10 percent background growth as well as the completion of the 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites within the 1-½ mile study area. Therefore, there is a possibility that implementing these mitigation measures in 2013 could "over-mitigate" the traffic conditions at some of the impacted locations.

As part of the traffic mitigation, the applicant has committed to conduct a traffic monitoring program (TMP). Such monitoring will be conducted at the time of the completion and occupancy of Site E on the upland parcel (analyzed as 2013) and the completion of Site A, which corresponds to the project's full build out (analyzed as 2020). The applicant will submit for NYCDOT's review and approval a TMP for a proposed scope for the monitoring of the interim and full buildout conditions.

F. TRANSIT AND PEDESTRIANS

As discussed in Chapter 18, "Transit and Pedestrians," the proposed project would result in significant adverse pedestrian impacts at the south crosswalk of the Bedford Avenue and North 7th Street intersection. In terms of transit impacts, the proposed project would result in significant adverse impacts to the Marcy Avenue station's Manhattan-bound control area during the AM peak period and Queens-bound control area during the PM peak period. The proposed project would also result in significant adverse bus line haul impacts on the B62, and Q59 bus routes during both the AM and PM peak periods. It should be noted that the significant adverse transit and pedestrian impacts identified for the proposed project are based on the full project build-out over a 10-year period by the year 2020. Potential measures to mitigate these impacts are discussed in detail in the proceeding sections.

As discussed in Chapter 18, "Transit and Pedestrians," subsequent to the publication of the DEIS, the City has updated the methodologies presented in the *CEQR Technical Manual* for the transit (bus and subway) analyses. These updated methodologies are reflected in the transit analyses presented in Chapter 18. Furthermore, the mitigation analyses for transit (buses and subways) presented in this chapter are also conducted pursuant to the new 2010 CEQR methodologies, using the specific criteria and procedures developed as part of the update.

SUBWAY STATION OPERATIONS

The proposed project would result in a projected decline in service levels at the Manhattan-bound control area during the AM peak period and at the Queens-bound control area during the PM peak period at the Marcy Avenue J/M/Z subway station. As discussed in Chapter 18, "Transit and Pedestrians," projected conditions at the Manhattan-bound control area (located at the north side of Broadway/Havemeyer Street) would decline from LOS D with a 1.26 v/c ratio under the No Action condition to LOS F with a 1.77 v/c ratio under the future with the proposed project condition during the AM analysis peak period. The Queens-bound control area, on the south side of Broadway/Havemeyer Street, would decline from LOS C with a 0.84 v/c ratio under the No Action condition to LOS D with a 1.20 v/c ratio under the future with the proposed project condition during the PM analysis peak period.

Due to the proposed project, the Marcy Avenue station's Manhattan-bound secondary control areas (in the vicinity of Havemeyer Street) for the J/M/Z subway line would exceed optimum capacity under the future with the proposed project condition during the AM peak period, while the Queens-bound secondary control area would exceed optimum capacity during the PM peak period, resulting in significant adverse impacts.

To mitigate the impacts to the Marcy Avenue station's Manhattan-bound and Queens-bound secondary control areas for the J/M/Z subway lines, the existing High Entrance and Exit Turnstile (HEET) at both of the control areas would be replaced with two low-turnstiles at each location. This would increase the control area capacity and would mitigate the significant adverse impacts to the aforementioned control areas. It should be noted that the Metropolitan Transportation Authority (MTA)-New York City Transit (NYCT) has reviewed the feasibility of installing two regular turnstiles in place of each of the HEETs at the secondary control areas, and has agreed to the installation of regular turnstiles at the aforementioned locations.

BUS LINE HAUL

The proposed project would result in significant adverse bus line haul impacts as the projected passenger volumes in the future with the proposed project condition would exceed the NYCT guideline capacity of 54 passengers per bus. Specifically, the proposed project would result in the following significant adverse impacts to the study area's bus routes:

- The guideline capacity would be exceeded on the northbound and southbound B62 bus route during both the AM and PM peak periods for all local load point locations; while the guideline capacity would be exceeded for all the area-wide peak load point locations during the AM peak period.
- The guideline capacity would be exceeded on the eastbound and westbound Q59 bus route during both the AM and PM peak periods for all local and area-wide load point locations.

It should be noted that the number of buses required to mitigate line haul impacts is the number required to bring the loading levels back to either the No Action condition or to the guideline capacity, whichever is greater.

The following measures could mitigate the bus line haul impacts on the B62 and Q59 bus routes:

LOCAL PEAK LOAD POINTS

- During the AM peak period, the northbound B62 would require 6 additional buses (for a total of 14 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and 7 additional buses (for a total of 15 buses) would be required to mitigate the proposed project's potential impacts back to the guideline capacity. The southbound B62 would require 2 additional buses (for a total of 7 buses) to mitigate the proposed project's potential impacts back to the guideline capacity.

  During the PM peak period, the northbound B62 would require 1 additional bus (for a total of 9 buses) to mitigate the proposed project's potential impacts back to the guideline capacity. The southbound B62 would require 6 additional (for a total of 12 buses) to mitigate the proposed project's potential impacts to No Action operating conditions, and 7 additional buses (for a total of 13 buses) to mitigate the proposed project's potential impacts back to the guideline capacity.
- During the AM peak period, the eastbound Q59 would require 5 additional buses (for a total of 8 buses) to mitigate the proposed project's potential impacts to No Action operating conditions, and 6 additional buses (for a total of 9 buses) to mitigate the proposed project's potential impacts back to the guideline capacity. The westbound Q59 would require 4 additional buses (for a total of 10 buses) to mitigate the proposed project's potential impacts back to the guideline capacity.

  During the PM peak period, the eastbound Q59 would require 7 additional buses (for a total of 11 buses) to mitigate the proposed project's potential impacts back to the guideline capacity. The westbound Q59 would require 7 additional buses (for a total of 11 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and back to the guideline capacity.

AREA-WIDE PEAK LOAD POINTS

- During the AM peak period, the northbound B62 would require 1 additional bus (for a total of 8 buses) to mitigate the proposed project's potential impacts to No Action operating

conditions and back to the guideline capacity. The southbound B62 would require 1 additional bus (for a total of 7 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and back to the guideline capacity.

- During the AM peak period, the eastbound Q59 would require 2 additional buses (for a total of 8 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and 5 additional (for a total of 11 buses) to mitigate the proposed project's potential impacts back to the guideline capacity. The westbound Q59 would require 1 additional bus (for a total of 8 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and 2 additional buses (for a total of 9 buses) to mitigate the proposed project's potential impacts back to the guideline capacity.
- During the PM peak period, the eastbound Q59 would require 2 additional buses (for a total of 8 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and back to the guideline capacity. The westbound Q59 would require 2 additional buses (for a total of 5 buses) to mitigate the proposed project's potential impacts to No Action operating conditions and 6 additional buses (for a total of 9 buses) to mitigate the proposed project's potential impacts back to the guideline capacity.

Table 23-8 provides a comparison of existing service and the numbers of buses required to fully mitigate the identified significant adverse line haul impacts along the B62 and Q59 bus routes.

Table 23-8
2020 Mitigated Future With The Proposed Project Condition (Capacity Improvement): Bus Line Haul Levels

Route	Peak Period	Eastbound/Northbound Buses per Hour			Westbound/Southbound Buses per Hour		
			Mitigated Build Condition			Mitigated Build Condition	
		Existing	To No Build Levels	To Within Guideline Capacities	Existing	To No Build Levels	To Within Guideline Capacities
Area-wide Peak Load Points							
B62	AM	7	**1**	1	6	**1**	1
Q59	AM	6	**2**	5	7	**1**	2
	PM	6	**2**	2	3	**2**	6
Local Peak Load Points							
B62	AM	8	**6**	7	5	-	**2**
	PM	8	-	**1**	6	**6**	7
Q59	AM	3	**5**	6	6	-	**4**
	PM	4	-	**7**	4	**7**	7

Notes: Local buses operate with a guideline capacity of 54 passengers per bus; **bold numbers indicate additional number of buses needed to mitigate the impacts.**

As discussed in detail in Chapter 2, "Analytical Framework," there are several development projects in and near the study area that are projected to be completed prior to, or concurrent with, the planned completion of the proposed project. All of these development projects, along with the trips generated by the projected development from the *Greenpoint-Williamsburg Rezoning FEIS*, were included in the future No Action analysis. It is expected that NYCT would monitor the changes in the bus ridership levels and would make necessary service adjustments to accommodate the increased demand generated by the future development projects as well as by the projected developments identified as part of *Greenpoint-Williamsburg Rezoning.* It should be

noted that some of these future projects ultimately may not be constructed, thereby resulting in lower 2020 No Action pedestrian and transit volume networks (as compared to the ones against which the impacts from the proposed project were evaluated). In such a case, the significant adverse transit and pedestrian impacts projected to occur with the proposed project would be of lesser magnitude (thereby requiring lesser mitigation).

NYCT has agreed that in the event of ridership increases on the Q59 and B62 bus routes (such that it exceeds the MTA/NYCT guidelines), the service frequency will be adjusted accordingly to accommodate the demand. Therefore, with the increased service frequency on the Q59 and B62 bus routes or other equivalent measures, all of the bus line haul impacts would be mitigated and the bus service would operate at acceptable levels.

STREET LEVEL PEDESTRIAN OPERATIONS

A significant adverse pedestrian impact was identified for the south crosswalk at the Bedford Avenue and North 7th Street intersection during the weekday AM peak period, as detailed below.

BEDFORD AVENUE AND NORTH 7TH STREET

- *Weekday AM peak period:* The south crosswalk would deteriorate within LOS D (20.6 SFP to 19.1 SFP).

Restriping the crosswalk from 12.0 feet wide to 12.3 feet wide would mitigate the significant adverse impact to the south crosswalk at the Bedford Avenue and North 7th Street intersection.

Because the proposed project parcels would be developed sequentially, the potential significant adverse impacts on the Marcy Avenue (J/M/Z subway lines) station's secondary control area would first occur when the proposed project constructs approximately 327 residential units, 6,000 square feet (sf) of local retail space, 30,000 sf of supermarket space and 374 accessory parking spaces. This development would take place upon completion of Site E on the upland parcel. Specifically, with the completion of Site E, there could be a significant adverse impact at the Manhattan-bound secondary control area at Marcy Avenue Station. To mitigate the impact at this control area, the replacement of the existing HEET with two low-turnstiles would have to be advanced to 2013. As discussed above, MTA- NYCT has reviewed the feasibility of installing two regular turnstiles in place of the HEET, and has agreed to the installation of regular turnstiles at this secondary control area.

In addition, upon completion of Site E on the upland parcel, there could be significant adverse impacts on the bus line-hauls for the B62 and Q59 bus routes as well as on the pedestrian service conditions at the Bedford Avenue and North 7th Street intersection. In order to mitigate these bus line-haul and pedestrian impacts, mitigation measures proposed for the 2020 Build conditions would have to be advanced to 2013. As discussed above, NYCT has agreed that in the event of ridership increases on the Q59 and B62 bus routes (such that it exceeds the MTA/NYCT guidelines), the service frequency will be adjusted accordingly to accommodate the demand.

It should be noted that the mitigation measures proposed for the 2020 Build conditions were developed by incorporating the transit and pedestrian activities generated by the full build-out of the proposed project together with the background growth as well as the completion of the 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites within the 1-½ mile study area. Therefore, there is a possibility that implementing

this mitigation measure in 2013 could "over-mitigate" the conditions for some of the impacted pedestrian and transit facilities.

G. AIR QUALITY

EFFECTS OF PROPOSED TRAFFIC MITIGATION MEASURES

Chapter 19, "Air Quality," predicts the maximum predicted carbon monoxide (CO) and particulate matter (PM_{10} and $PM_{2.5}$) concentrations related to traffic generated from the proposed project, and concludes that the proposed project would not result in any significant adverse air quality impacts. Therefore, no air quality mitigation is required. This section considers the effects on air quality of the proposed project with implementation of the traffic mitigation measures discussed above. The results (presented in Appendix E) show that with the proposed traffic mitigation measures, future concentrations of pollutants with the proposed project would be below the National Ambient Air Quality Standards (NAAQS) and would not result in any significant adverse air quality impacts using the *de minimis* thresholds for CO impacts and the $PM_{2.5}$ interim guidance criteria. Appendix E presents the summary of these results.

H. CONSTRUCTION

TRAFFIC

Since the projected construction activities would yield less total traffic than that projected for the proposed project, traffic operating conditions resulting from construction activities in the traffic study area are expected to be better than the 2020 future with the proposed project condition presented in Chapter 17, "Traffic and Parking." Nonetheless, because existing and No Action traffic conditions at some of the study area intersections through which construction-related traffic would also travel were determined to operate at unacceptable levels during commuter peak hours, it is possible that significant adverse traffic impacts could occur at some or many of these locations during construction. In order to alleviate construction traffic impacts, measures recommended to mitigate impacts associated with the proposed project could be implemented during construction before completion of the proposed project.

According to the analysis results presented in Chapter 17, "Traffic and Parking," there would be 24 and 31 intersections during the 8 to 9 AM and 4:45 to 5:45 PM operational analysis peak hours, respectively, that would incur significant adverse traffic impacts upon the project's final build-out in 2020. Since background traffic levels during peak construction in 2016 would be lower than those assessed for the 2020 analysis year, No Build service levels at study area intersections would be better in 2016 than in 2020. Additionally, because the 2016 peak construction incremental traffic would be better than the projected traffic for the project's build-out in 2020, incremental impacts are also expected to be lower during peak construction in 2016 than they would upon the project's completion in 2020. Therefore, locations where potential impacts could occur during peak construction in 2016 would be the same as or part of the set of locations identified in Chapter 17, "Traffic and Parking," to be impacted in 2020. According to the analysis results presented above, 11 of the 24 intersections during the 8 to 9 AM peak hour, and 11 of the 31 intersections during the 4:45 to 5:45 PM peak hour, that would be significantly impacted could be mitigated with minor adjustments to signal timing. The implementation of these signal timing adjustments is typically subject to DOT's review of actual conditions at the time or, for this project, could be advanced during construction and/or upon completion of the

first two buildings (D and E). Therefore, while significant adverse traffic impacts at these intersections could also occur during peak construction in 2016, a detailed analysis of their service levels was not conducted, and it is expected that similar signal timing adjustments identified for mitigating impacts from the project's full build-out could be implemented early at DOT's discretion to mitigate potential impacts at these intersections during construction.

A quantified construction traffic analysis for peak 2016 construction was conducted for 21 intersections. These intersections were identified to be significantly impacted under the full project build-out and would require more substantial mitigation measures (e.g., restriping and/or daylighting to provide more roadway capacity, converting two-way stop controls to four-way stop controls, or converting stop controls to signal controls). The purpose of this analysis is to determine if significant adverse traffic impacts would occur at these intersections after the completion of the first two buildings (D and E) and during peak construction in 2016, and whether the mitigation measures recommended for the project's full build-out would be warranted at this time or if "lesser" mitigation measures (i.e., signal timing adjustments) could be implemented in the interim. The analyses show that no significant adverse traffic impacts would be expected in the 6 to 7 AM peak hour for any of the 21 analyzed intersections. During the 3 to 4 PM peak hour, 5 signalized intersections and 7 unsignalized intersections were identified to have resulted in significant adverse traffic impacts. Making adjustments to signal timings and applying other proposed build mitigation measures would fully mitigate the significant adverse impacts identified for the 3 to 4 PM peak hour (and similarly for the 5 to 6 PM peak hour) and not adversely affect operations during the 6 to 7 AM peak hour.

Table 23-9 presents a summary of the intersections and movements that would be significantly impacted in the 2016 peak construction conditions. Table 23-10 summarizes mitigation measures at analyzed intersections for the 2016 peak construction conditions.

Table 23-9
Summary of Movements/Intersections with Significant Adverse Impacts:
2016 Construction Conditions

Analyzed Peak Hour	Movements / Intersections Analyzed	Movements / Intersections With No Significant Impacts	Movements / Intersections With Significant Impacts	Mitigated Movements / Intersections	Unmitigated Movements / Intersections
Weekday 6 - 7AM	52/21	52/21	0/0	0/0	0/0
Weekday 3 – 4 PM	52/21	39/9	13/12	13/12	0/0

Table 23-10
Mitigation Measures for 2016 Construction Conditions

Analyzed Intersection	6-7 AM Construction Hour	3-4 PM Construction Hour
Signalized Intersection		
Kent Ave & Metropolitan Ave	Not Impacted	Shift 2 seconds of green time from the EB/WB phase to the NB phase.
Kent Ave & S 3rd St	Not Impacted	Not Impacted
Wythe Ave & Metropolitan Ave	Not Impacted	Shift 1 second of green time from the EB/WB phase to the SB phase.
Wythe Ave & Broadway	Not Impacted	Early implementation of the build mitigation: Daylight the SB approach to allow for a 14-ft moving lane.
Metropolitan Ave & Driggs Ave	Not Impacted	Not Impacted
Broadway & Driggs Ave	Not Impacted	Shift 2 seconds of green time from the SB phase to the EB/WB phase.
Broadway & Marcy Ave	Not Impacted	Shift 3 seconds of green time from the SB phase to the EB/WB phase.
Unsignalized Intersection		
Kent Ave & S 2nd St	Not Impacted	Not Impacted
Kent Ave & S 4th St	Not Impacted	Early implementation of the build mitigation: new signal.
Kent Ave & S 6th St	Not Impacted	Early implementation of the build mitigation: new signal.
Wythe Ave & Grand St	Not Impacted	Early implementation of the build mitigation: class III bike lane, daylighting, and two SB lanes.
Wythe Ave & S 1st St	Not Impacted	Not Impacted
Wythe Ave & S 2nd St	Not Impacted	Not Impacted
Wythe Ave & S 3rd St	Not Impacted	Early implementation of the build mitigation: All-way stop control.
Wythe Ave & S 4th St	Not Impacted	Early implementation of the build mitigation: class III bike lane, daylighting, and two SB lanes.
Wythe Ave & S 5th St	Not Impacted	Not Impacted
Wythe Ave & S 6th St	Not Impacted	Early implementation of the build mitigation: class III bike lane, daylighting, and two SB lanes.
Wythe Ave & S 8th St	Not Impacted	Early implementation of the build mitigation: class III bike lane, daylighting, and two SB lanes.
Wythe Ave & S 9th St	Not Impacted	Not Impacted
Berry St & S 6th St	Not Impacted	Not Impacted
Broadway & Roebling St-SBR	Not Impacted	Not Impacted

NOISE

Construction of the proposed project would implement measures to reduce noise levels during construction. Even with these measures, an analysis based on a detailed construction activity and equipment schedule prepared by the applicant determined that the noise levels due to construction activities would result in significant adverse noise impacts at a few sensitive receptors (i.e., residential buildings) immediately adjacent to the project site. Construction activities would be expected to result in significant adverse noise impacts at the following locations (see Figure 21-3 in Chapter 21, "Construction Impacts"):

- Receptor Sites 3, 4, X, and Y, which represent the residential building with façades on South 2nd and South 3rd Streets between Kent and Wythe Avenues, at all floors, from 2014 through 2020. The maximum predicted increase in noise levels at these receptors was 7.3 dBA and would be expected to occur at the 3rd floor of site X in 2012.

- Receptor Sites 5 and P2, which represent the residential building on the corner of South 4th Street and Kent Avenue, at all floors, from 2012 through 2016. The maximum predicted increase in noise levels was 7.6 dBA and would be expected to occur at the 3rd floor of site P2 in 2015.
- Receptor Site B, which represents the residential buildings with a façade along Grand Street between Kent and Wythe Avenues, at floors above the first floor, from 2018 through 2019. The maximum predicted increase in noise levels was 5.3 dBA and would be expected to occur at the 3rd floor in 2019.
- Sites 12 and V, which represent Grand Ferry Park, between 2018 and 2019. The maximum predicted increase in noise levels was 9.2 dBA and would be expected to occur in 2019.

Table 23-11 lists the affected block and lots at each receptor location, except for within Grand Ferry Park.

Table 23-11
Locations of Significant Noise Impacts Due to Construction

Noise Receptor Sites	Block	Lots	Floors	Facades
3, 4, X, Y	2403	33	all	South
	2415	10, 16, 26, 110	all	North
		38, 110	all	South
	2428	25	all	North
5, P2	2441	8, 15, 107	all	West, North
B	2378	28, 29, 33, 36, 37, 38, 39, 44	2 and above	South
	2390	10, 12, 13, 14, 15, 21, 23, 24, 28	2 and above	North

Construction activities at the other receptor sites in the study area would at times produce noise levels which would be noisy and intrusive, but due to their limited duration, they would not produce significant noise impacts.

Almost all of the impacted residential locations mentioned above have double glazed windows and some form of air conditioning (window units, through-wall, or Packaged Terminal Air Conditioners), which would provide substantial attenuation of the incident construction noise and result in acceptable interior noise levels according to CEQR criteria during most times of day. The applicant would make attenuation measures (i.e., upgraded windows and/or an alternate means of ventilation) available to any of the residences where significant adverse impacts have been identified but do not already have these measures.

On-site construction activities would produce $L_{10(1)}$ noise levels at the existing Grand Ferry Park up to 68.1 dBA, which would exceed the levels recommended by CEQR for passive open spaces (55 dBA L_{10}). (Noise levels in these areas exceed CEQR recommended values for existing and No Action conditions.) While this is not desirable, there is no effective practical mitigation[1] that could be implemented to avoid these levels during construction. Noise levels in many parks and open space areas throughout the city, which are located near heavily trafficked roadways and/or near construction sites, experience comparable, and sometimes higher, noise levels. ✷

[1] Noise barriers would not be practical because of security concerns.