A. INTRODUCTION

This chapter considers mitigation measures to address significant adverse impacts generated by the proposed projects. As described in Chapter 1, "Project Description," in the With Action condition~~)~~, the three applicants would develop three new mixed-use buildings on three sites—Sites 4 (4A/4B), 5, and 6A—in the Two Bridges Large Scale Residential Development (LSRD). Together, the proposed projects would contain a total of approximately 2,527,727 gross square feet (gsf) of new residential space, or up to 2,775 new dwelling units; approximately 10,858 gsf of retail space; and approximately 17,028 gsf of community facility space. The three proposed projects would also contain a total of approximately 22,779 square feet (sf) of new publicly accessible and private open space.

The proposed projects have the potential to result in significant adverse impacts to public elementary schools, publicly funded child care facilities, open space, shadows, traffic, transit, and pedestrians, as well as traffic and noise during the construction period. ~~Potential~~ Mitigation measures for each of these technical areas are identified below.

B. PRINCIPAL CONCLUSIONS

COMMUNITY FACILITIES AND SERVICES—PUBLIC ELEMENTARY SCHOOLS

In the With Action condition that conservatively assumes the 200 permanently affordable units[1] may not be developed exclusively for seniors, the proposed projects would result in an increase of more than five percentage points over the No Action condition and elementary school utilization would be just over 100 percent in Community School District (CSD) 1. Therefore, in this scenario, the proposed projects would result in a significant adverse impact on public elementary schools in CSD 1.

~~Possible~~ Mitigation measures for this significant adverse impact ~~will be developed in~~were explored by the applicant in consultation with the New York City Department of City Planning (DCP), the New York City Department of Education (DOE), and the New York City School Construction authority (SCA)~~, and will be refined~~ between the DEIS and the FEIS. As mitigation, the Restrictive Declarations for the proposed projects will require the applicants to fund the increase in school seat capacity in CSD 1, if required. The mitigation measures ~~will~~

[1] A portion of the affordable units would be made permanently affordable pursuant to requirements of the "R10 Program," set forth in Zoning Resolution Sections 23-154(a) and 23-90. The remainder of the affordable units would be made permanently affordable pursuant to Regulatory Agreements with the New York City Department of Housing Preservation and Development (HPD) as established in consultation with the applicants. For purposes herein, permanent or permanently affordable housing shall refer to units made permanently affordable both through the R10 Program and the Regulatory Agreements.

reflect the nature and scope of the elementary school impact, taking into account the assessment in Chapter 4, "Community Facilities." DOE and SCA would continue to monitor trends in demand for school seats in the area. With the funding provided by the applicants, DOE and SCA responses to identified demand could take place in stages and include administrative actions and/or enlargement of existing schools. The *CEQR Technical Manual* lists potential mitigation measures for public school impacts, which may be implemented with these funds. These measures may include, but are not limited to, relocating administrative functions to another site, thereby freeing up space for classrooms; making space within the buildings ~~associated with the proposed projects or elsewhere~~ in the school study area available to DOE; and/or restructuring or reprogramming existing school space within a district. ~~Other measures may be identified in consultation with DOE and SCA that would not create additional capacity but may nevertheless serve to alleviate capacity constraints.~~ Absent the implementation of such measures, if needed, the proposed projects would have an unmitigated significant adverse impact on public elementary schools.

COMMUNITY FACILITIES AND SERVICES—PUBLICLY FUNDED CHILD CARE FACILITIES

In the With Action condition that conservatively assumes the 200 permanently affordable units may not be developed exclusively for seniors, child care facilities in the study area would operate over capacity, and the increase in the utilization rate would be over five percentage points. Therefore, in this scenario, the proposed projects would result in a significant adverse impact on child care facilities.

~~Possible~~ Mitigation measures for this significant adverse impact ~~will~~ have been developed in consultation with the New York City Administration for Children's Services (ACS) and ~~may~~ will, if required, include the provision of funding to support adding capacity to existing or new facilities or the provision~~ding~~ of a new child care facility within ~~or near~~ the project sites. ~~suitable space on-site for a child care center, provision of a suitable location off-site and within a reasonable distance (at a rate affordable to ACS providers), or making program or physical improvements if determined feasible through consultation with ACS,~~ The Restrictive Declarations for the proposed projects will require the applicants to work with ACS to consider the need for additional capacity within the 1½-mile study area and the implementation of measures ~~one or more as listed above~~ to provide additional capacity, if required, to mitigate the significant adverse impact to publicly funded child care facilities ~~within the 1½ mile study area or within Community Board 3~~. Absent the implementation of such mitigation measures, if needed, the proposed projects would have an unmitigated significant adverse impact on publicly funded child care facilities.

OPEN SPACE

The reductions in the total, active, and passive open space ratios in the With Action condition would result in a significant adverse open space impact based on quantitative analysis of indirect effects, as set forth in the *CEQR Technical Manual*.

The *CEQR Technical Manual* lists potential mitigation measures for open space impacts. These measures include, but are not limited to, creating new open space within the study area; funding for improvements, renovation, or maintenance at existing local parks; or improving existing open spaces to increase their utility or capacity to meet identified open space needs in the area, such as through the provision of additional active open space facilities. With the proposed

projects, on Site 5, the existing approximately 22,440-sf private Rutgers Slip Open Space would be enlarged to approximately 33,550 sf (0.77 acres), dedicated as publicly accessible open space, and reconstructed with amenities for both active and passive use, such as play equipment, basketball courts, walking paths, and seating. While the approximately 33,550 sf of dedicated publicly accessible open space that would be developed with the proposed projects would reduce the significant adverse open space impacts, it is not sufficient to avoid significant adverse open space impacts.

~~Potential~~ Mitigation measures for the open space impacts ~~are being~~were explored by the applicants in consultation with DCP and the New York City Department of Parks and Recreation (NYC Parks) ~~and will be refined~~ between the DEIS and FEIS. As partial mitigation for the open space impact, the existing approximately 15,868 sf (approximately 0.36 acres) of private open space on Site 4 (4A/4B) would be dedicated as publicly accessible open space. In addition, ~~Funding for~~ the renovation of existing open spaces in the vicinity of the project sites has been identified as a ~~potentially~~ practicable mitigation measure. Coleman Playground, Captain Jacob Joseph Playground, and Little Flower Playground have been proposed as potential ~~candidates for~~resources to be reconstructed~~ion~~, as described below in "Open Space." Because of the ongoing planning and future development of the Lower Manhattan Coastal Resiliency (LMCR) and East Side Coastal Resiliency (ESCR) projects, which include components in close proximity to the Two Bridges LSRD project sites, alternative improvements of the same scope may be required by DCP with NYC Parks if the aforementioned reconstruction projects are not deemed feasible at the time that their implementation is required. Given that these improvements would improve the quality but not quantity of open space available in the study areas, ~~If~~ the significant adverse impacts on open space would not be fully mitigated~~,~~ and therefore the proposed projects would result in unmitigated significant adverse impacts on open space.

SHADOWS

Incremental shadows cast by the proposed projects would be substantial enough in extent and/or duration to significantly affect the Cherry Clinton Playground on the December 21 analysis day (use, but not vegetation), March 21/September 21 analysis day (use and vegetation), and on the May 6/August 6 analysis day (use only); and the Lillian D. Wald Playground on the March 21/September 21 analysis day (use only).

The *CEQR Technical Manual* identifies several measures that could mitigate significant adverse shadow impacts on open spaces, including modifying the height, shape, size or orientation of a proposed development in order to eliminate or reduce the extent and duration of incremental shadow on the resource; relocating sunlight-sensitive features within an open space to avoid sunlight loss; relocating or replacing vegetation; and undertaking additional maintenance to reduce the likelihood of species loss. ~~Potential~~ Mitigation measures for the shadows impacts ~~are being~~were explored by the applicants in consultation with DCP and NYC Parks, and ~~will be~~were refined between the DEIS and FEIS. The proposed ~~Potential~~ mitigation measures include dedicated funding for enhanced maintenance at the Cherry Clinton Playground and the Lillian D. Wald Playground to mitigate the significant adverse impact to the users and the trees of the Cherry Clinton Playground, and the users of the Lillian D. Wald Playground. With the implementation of these~~If feasible~~ mitigation measures, ~~are identified,~~ the impacts would be considered partially mitigated. As the significant adverse shadows impact would not be fully mitigated, the proposed projects would result in unmitigated significant adverse shadows impacts to these resources.

TRANSPORTATION

The proposed projects would result in significant adverse impacts to traffic, transit (subway station), and pedestrians, as detailed below. No significant adverse impacts were identified for parking and vehicular and pedestrian safety.

TRAFFIC

As discussed in Chapter 14, "Transportation," traffic conditions were evaluated at 31 intersections for the weekday AM, midday, and PM peak hours. In the With Action condition, there would be the potential for significant adverse traffic impacts at 6 intersections during the weekday AM peak hour, 5 intersections during the weekday midday peak hour, and 10 intersections during the weekday PM peak hour, as summarized in **Table 21-1**.

The majority of the locations where significant adverse traffic impacts are predicted to occur could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal timing changes and lane restriping), as described below. The proposed traffic mitigation measures have been reviewed~~would be subject to approval~~ by the New York City Department of Transportation (NYCDOT) and~~. If these measures are~~ deemed ~~infeasible~~ practicable for future implementation ~~and no alternative mitigation measures can be identified, then the identified significant adverse traffic impacts would be unmitigated~~.

The significant adverse traffic impacts at the South Street and Montgomery Street, and at the Chatham Square and Worth Street/Oliver Street intersections could not be mitigated; these intersections are projected to experience unmitigated significant adverse traffic impacts.

Table 21-1
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour
EB/WB Street	**NB/SB Street**			
South Street	Pike Slip			SB-L
South Street	Clinton Street			EB-LT
South Street (North)	Montgomery Street	SB-TR		WB-LTR NB-LT
South Street (South)		SB-LT		SB-LT
Madison Street	Pike Street (East)	EB-LT		EB-LT
Madison Street	Montgomery Street			NB-LTR
East Broadway	Pike Street (East)	NB-L	NB-L	EB-L NB-L
	Pike Street (West)	EB-TR	EB-TR	EB-TR
Division Street	Market Street		NB-L	
Canal Street	Allen Street			EB-LTR
Delancey Street	Allen Street		WB-L	WB-L
Division Street	The Bowery	WB-L		
East Broadway	Chatham Square		SB-L	NB-R SB-L
Worth Street/Oliver Street	Chatham Square	EB-L (Worth Street) EB-LTR (Worth Street) SB-TR	EB-L (Worth Street) EB-LTR (Worth Street) SB-TR	EB-L (Worth Street) EB-LTR (Worth Street) WB-R SB-TR
Worth Street	Centre Street	WB-T		
Total Impacted Intersections/Lane Groups		6/10	5/8	10/18

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound**.**

TRANSIT

As detailed in Chapter 14, "Transportation," subway station circulation elements and control areas were analyzed for the East Broadway-Rutgers Street station (F line) for the weekday AM and PM peak hours. In the With Action condition, the proposed projects are expected to result in significant adverse subway stairway impacts at this station's S1 stairway at the northwest corner of Rutgers Street and Madison Street during both the weekday AM and PM peak hours, and the P3 platform stairway for the weekday AM peak hour. Several potential options were explored in consultation with DCP and New York City Transit (NYCT) to mitigate the identified impacts. The mitigation measures considered for the proposed projects include building a new subway entrance (street-level stairway S2) at the northeast corner of Rutgers Street and Madison Street and widening the (P3) platform-level stairway and adjoining mezzanine level stairway (ML7). These measures would fully mitigate the identified significant adverse impacts. Coupled with these stairway improvements would be two new elevators that would make the station ADA-compliant for vertical circulation. These elevators would be located at the north end of the station as the platform at the south end has a column structure that precludes the elevators being built next to the new street and mezzanine stair. ~~New York City Transit (~~NYCT~~)~~ has performed ~~conceptual engineering~~ studies which confirm the feasibility of ~~and, at this point in time,~~ the mitigation measures at a conceptual engineering level. ~~appear to be feasible. If during later engineering phases these measures are deemed infeasible and no alternative mitigation measures can be identified, then the identified significant adverse stairway impacts would be unmitigated.~~

PEDESTRIANS

As detailed in Chapter 14, "Transportation," pedestrian conditions were evaluated at 18 sidewalks, 16 corners, and 12 crosswalks for the weekday AM, midday, and PM peak hours. In the With Action condition, the proposed projects would result in significant adverse pedestrian impacts at one sidewalk during the weekday AM and PM peak hours, two crosswalks during the weekday AM peak hour, one crosswalk during the weekday midday peak hour, and two crosswalks during the weekday PM peak hour, as summarized in **Table 21-2**.

Table 21-2
Summary of Significant Adverse Pedestrian Impacts

Pedestrian Element	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour
North Sidewalk of Madison Street between Rutgers Street and Pike Street	Impacted		Impacted
Rutgers Street and Madison Street North Crosswalk	Impacted		
Rutgers Street and Madison Street West Crosswalk	Impacted		Impacted
Rutgers Street and Cherry Street South Crosswalk		Impacted	Impacted

As discussed above, the new S2 stairway is expected to result in a shift of pedestrian paths leading to/from the East Broadway-Rutgers Street subway station. As a result, the identified significant adverse impacts at the north sidewalk of Madison Street between Rutgers Street and Pike Street, and the north and west crosswalks of the Rutgers Street and Madison Street intersection would also be mitigated. To accommodate the new S2 stairway, the north sidewalk on Madison Street between Rutgers Street and Jefferson Street would need to be widened. With increased pedestrian flow on the east side of Rutgers Street to/from the new S2 stairway, a new

significant adverse impact was identified for the east crosswalk of the Rutgers Street and Madison Street intersection. The ~~potential~~ practicable pedestrian mitigation measures consist of signal timing changes and crosswalk widening that are generally considered ~~feasible~~practicable, and widening the width of the north sidewalk at the northeast corner of Rutgers Street and Madison Street (in connection with the proposed subway station mitigation) to facilitate increased pedestrian space. Similar to traffic, the proposed pedestrian mitigation measures have been reviewed~~would be subject to approval~~ by NYCDOT and deemed ~~feasible~~ practicable for future implementation. ~~Absent NYCDOT approval, the significant adverse pedestrian impacts would remain unmitigated.~~

CONSTRUCTION

Construction of the proposed projects would result in some temporary disruptions in the surrounding area. The Restrictive Declarations for the proposed projects will require that an independent monitor oversee, on behalf of DCP, the implementation and performance of the construction phase commitments, described in Chapter 19, "Construction," of the FEIS (e.g., construction emissions and noise reduction measures). The Restrictive Declarations will also require the establishment of a community construction task force in order to provide, on a regular basis, a forum for communications relating the construction schedule and community outreach and to respond to concerns of members of the community relating to the construction activities. Although the implementation of these measures would reduce some effects of construction. Construction activities associated with the proposed projects would result in temporary significant adverse impacts in the areas of transportation and noise. ~~Potential~~ Measures to mitigate these temporary significant adverse impacts are described below.

TRANSPORTATION

~~Based on the construction trip projections and comparison with the operational trip analysis results, construction of the proposed projects would have the potential to result in significant adverse traffic and pedestrian impacts.~~ During peak construction, the project-generated traffic, transit, and pedestrian trips would be less than what would be realized with the full build-out of the proposed projects in 2021. Nonetheless, the proposed projects would have~~Therefore,~~ the potential to result in significant adverse traffic ~~and pedestrian~~ impacts during peak construction at a subset of intersections that have been identified to incur ~~would be within the envelope of~~ significant adverse impacts with the full build-out of~~identified for the future with~~ the proposed projects (With Action condition). The same or similar traffic ~~and pedestrian~~ mitigation measures identified to mitigate the operational impacts~~in "Transportation" for the full build-out of the proposed projects~~ could be implemented ~~at any time during the construction period~~early at the discretion of NYCDOT to mitigate the temporary impacts during construction~~address actual conditions experienced at that time. For transit, since construction worker trips would be made outside of the commuter peak hours, the projected subway stairway impact would not occur during the construction period.~~

NOISE

The detailed noise modeling analysis concluded that construction of the proposed projects has the potential to result in construction-period noise levels that exceed the 2014 *City Environmental Quality Review (CEQR) Technical Manual* noise impact criteria for an extended period of time at the façades of residences facing the project sites on Cherry Street; the eastern, southern, and western façades of 64 Rutgers Street; 80 Rutgers Slip; the northern, eastern, and a

portion of the southern façades of 82 Rutgers Slip; a portion of the northern façade and the eastern and western façades of 265 and 275 Cherry Street; residences immediately adjacent to Site 6A; portions of the northern and western façades of 286 South Street; and portions of the northern and eastern façades of the residences west of Site 4 (4A/4B).

No feasible and practicable mitigation measures have been identified that would fully mitigate the construction-period noise impacts. As described below in "Construction, Noise," the identified the construction-period noise impacts would remain unmitigated.

C. COMMUNITY FACILITIES—PUBLIC ELEMENTARY SCHOOLS

As detailed in Chapter 4, "Community Facilities," in the With Action condition that conservatively assumes the 200 permanently affordable units may not be developed exclusively for seniors, the proposed projects would result in an increase of more than five percentage points over the No Action condition and elementary school utilization would be just over 100 percent in CSD 1. Therefore, in this scenario, the proposed projects would result in a significant adverse impact on public elementary schools in CSD 1. In the scenario that assumes 200 of the permanently affordable units would be for senior housing, the proposed projects would result in an increase of more than five percentage points over the No Action condition, while elementary school utilization would remain just below 100 percent in CSD 1, and therefore would not result in a significant adverse impact.

With the inclusion of the proposed projects, total elementary school enrollment in CSD 1 would increase by 333 students to 6,051 (100.3 percent utilization), with a deficit of 15 seats. Elementary school utilization in CSD 1 would increase by 5.5 percentage points over the No Action condition. An elementary school impact would not occur in CSD 1 until more than approximately 2,645 residential units are developed. With the development of 2,645 residential units, approximately 317 elementary school students would be added to CSD 1. At that level, CSD 1 would still operate below 100 percent utilization with an increase of 5.2 percentage points. Since the proposed projects would result in 333 elementary school students in the scenario that conservatively assumes the 200 permanently affordable units may not be developed exclusively for seniors, an increase of approximately 16 elementary school seats would be required to keep utilization below 100 percent.

At this point, it is not possible to know exactly which type of mitigation would be most appropriate for this impact, or when its implementation would be necessary, because the demand for elementary school seats depends not only on the amount of residential development in the area, but also on the proportion of new residents who are expected to generate students (senior units are not anticipated to generate students in the study area).

~~Possible~~ Mitigation measures for this significant adverse impact ~~will be developed in~~were explored by the applicants in consultation with ~~the lead agency~~DCP, DOE, and SCA~~, and will be refined~~ between the DEIS and the FEIS. As mitigation, the Restrictive Declarations for the proposed projects will require the applicants to fund the increase in school seat capacity in CSD 1, if required. The mitigation measures will reflect the nature and scope of the elementary school impact, taking into account the assessment in Chapter 4, "Community Facilities." DOE and SCA would continue to monitor trends in demand for school seats in the area. With the funding provided by the applicants, DOE and SCA responses to identified demand could take place in stages and include administrative actions and/or enlargement of existing schools. The *CEQR Technical Manual* lists potential mitigation measures for public school impacts, which may be

implemented with these funds. ~~These~~ Such measures may include, but are not limited to, relocating administrative functions to another site, thereby freeing up space for classrooms; making space within the buildings ~~associated with the proposed project or elsewhere~~ in the school study area available to DOE; and/or restructuring or reprogramming existing school space within a district. ~~Other measures may be identified in consultation with DOE and SCA that do not create additional capacity but may nevertheless serve to alleviate capacity constraints.~~ Absent the implementation of such measures, if needed, the proposed projects would have an unmitigated significant adverse impact on public elementary schools.

D. COMMUNITY FACILITIES—PUBLICLY FUNDED CHILD CARE FACILITIES

As detailed in Chapter 4, "Community Facilities," in the With Action condition that conservatively assumes the 200 permanently affordable units may not be developed exclusively for seniors, child care facilities in the study area would operate over capacity, and the increase in the utilization rate would be over five percentage points. Therefore, in this scenario, the proposed projects would result in a significant adverse impact on child care facilities. In the With Action condition scenario that assumes 200 of the permanently affordable units would be for senior housing, publicly funded child care facilities in the study area would operate over capacity; however, the proposed projects would not result in an increase in demand of more than five percentage points over the No Action condition. Therefore, the proposed projects would not result in a significant adverse impact on child care facilities in that scenario.

An increase in the utilization rate between the No Action and With Action conditions would exceed 5 percentage points when the proposed projects construct approximately ~~535~~ 509 permanently affordable residential units that introduce children eligible for publicly funded child care (or approximately ~~62~~ 59 children eligible for publicly funded child care).

At this point, it is not possible to know exactly which type of mitigation would be most appropriate for this impact, or when its implementation would be necessary, because the demand for publicly funded child care depends not only on the amount of residential development in the area, but also on the proportion of new residents who are children of low-income families (not all children meet the social and income eligibility criteria). Also, the analysis is based on the existing inventory of public child care providers in the area and does not reflect likely shifts in demand or creation of new child care capacity. Furthermore, several factors may limit the number of children in need of publicly funded child care slots in ACS contracted day care facilities. Families in the study area could make use of alternatives to publicly funded day care facilities. There are slots at homes licensed to provide family child care that families of eligible children could elect to use instead of public center-based child care. Parents of eligible children may also use ACS vouchers to finance care at private child care centers in the study area. The voucher system could spur the development of new private child care facilities to meet the need of eligible children that would result from the increase in affordable housing units in the area in the future with the proposed projects. Lastly, parents of eligible children are not restricted to enrolling their children in day care facilities in a specific geographical area. They could use the ACS voucher system to make use of public and private day care providers beyond the 1½-mile study area, such as facilities closer to their place of employment.

~~Possible~~ Mitigation measures for this significant adverse impact ~~will~~ have been developed in consultation with ACS and ~~may~~ will, if required, include the provision of funding to support adding capacity to existing or new facilities or the provision~~ding~~ of a new child care facility

within ~~or near~~ the project sites. ~~suitable space on site for a child care center, provision of a suitable location off site and within a reasonable distance (at a rate affordable to ACS providers), or funding or making program or physical improvements if determined feasible through consultation with ACS,~~ 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.

The Restrictive Declarations for the proposed projects will require the applicants to work with ACS to consider the need for additional capacity within the 1½-mile study area ~~for~~ and the implementation of ~~one or more~~ measures as listed above to provide additional capacity~~, if required,~~ to mitigate the significant adverse impact to publicly funded child care facilities ~~within the 1½-mile study area or within Community Board 3~~. Based on the analysis presented in Chapter ~~5~~4, "Community Facilities," which accounts for the current inventory of publicly funded child care facilities and conservative future background projections, to avoid a significant adverse impact, the number of permanently affordable units introduced by the proposed projects would need to be reduced to ~~534~~ 508 permanently affordable residential units, which would generate approximately ~~61~~ 58 children eligible for public child care services. An increase of ~~61~~ 58 eligible children would increase child care facility utilization in the study area by less than five percent. With the assumption of 694 permanently affordable residential units, none of which would be dedicated as senior units, the proposed projects would generate 80 eligible children and would need to provide ~~19~~ 20 child care slots to reduce the increase in the utilization rate to less than 5 percent. Mitigation measures for this significant adverse impact have been developed in consultation with ACS and will, if required, include the provision of funding to support adding capacity to existing or new facilities or the provision of a new child care facility within the project sites. The Restrictive Declarations for the proposed projects will require the applicants to implement the required mitigation measures. ~~The applicants will be obligated to make funding available for these additional child care slots,~~ ~~Absent the implementation of such mitigation measures, if needed, ; however,~~ In the event that ACS does not utilize this funding to increase child care capacity, the proposed projects could have an unmitigated significant adverse impact on publicly funded child care facilities.

E. OPEN SPACE

As detailed in Chapter 5, "Open Space," the proposed projects would increase utilization of study area resources due to the introduction of a substantial new residential population. In the future with and without the proposed projects, the total, active, and passive open space ratios in the residential study area would remain below the City's planning goals. With the proposed projects, on Site 5, the existing approximately 22,440-sf private Rutgers Slip Open Space would be enlarged to approximately 33,550 sf (approximately 0.77 acres), dedicated as publicly accessible open space, and reconstructed with amenities for both active and passive use, such as play equipment, basketball courts, walking paths, and seating. While the approximately 33,550 sf of dedicated publicly accessible open space that would be developed with the proposed projects would reduce the significant adverse open space impacts, it is not sufficient to avoid significant adverse open space impacts.

With the proposed projects, the study area's total open space ratio would decrease by ~~7.36~~7.31 percent, the active open space ratio would decrease by ~~8.17~~8.06 percent, and the passive open

space ratio would decrease by ~~6.45~~6.25 percent. According to the *CEQR Technical Manual*, an action may result in a significant adverse open space impact if it would reduce the open space ratio by more than 5 percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents. Therefore, the reductions in the total, active, and passive open space ratios with the proposed projects would result in a significant adverse open space impact based on quantitative analysis of indirect effects, as set forth in the *CEQR Technical Manual*.

The *CEQR Technical Manual* lists potential mitigation measures for open space impacts. These measures include, but are not limited to, creating new open space within the study area; funding for improvements, renovation, or maintenance at existing local parks; or improving existing open spaces to increase their utility or capacity to meet identified open space needs in the area, such as through the provision of additional active open space facilities.

~~Potential~~ Mitigation measures for the open space impacts ~~are being~~were explored by the applicants in consultation with DCP and NYC Parks ~~and will be refined~~ between the DEIS and FEIS. As partial mitigation for the open space impact, the existing approximately 15,868 sf (approximately 0.36 acres) of private open space on Site 4 (4A/4B) would be dedicated as publicly accessible open space (see Figures 5-3 and 5-5). As shown on site plan Figures 1-5 through 1-7, new pavers, plantings, and seating would be installed at the Site 4 (4A/4B) open space.

The amount of new open space that would be required to reduce the open space ratio decrease to 5 percent would be over 2 acres. ~~Funding for~~ Renovation of existing open spaces in the vicinity of the project sites has been identified as a ~~potentially~~ practicable mitigation measure. Accordingly, the Restrictive Declarations for the proposed projects will require the applicants to undertake reconstruction of Coleman Playground, Captain Jacob Joseph Playground, and Little Flower Playground ~~have been proposed as potential candidates for reconstruction~~. Coleman Playground is an approximately 2.61-acre open space located west of the Manhattan Bridge between Cherry, Pike, and Monroe Streets. It contains active open space uses including a baseball field, handball courts, a playground, a skate park, and a spray shower. Captain Jacob Joseph Playground is an approximately 0.14-acre open space located at the northeast corner of Rutgers and Henry Streets. It contains playgrounds and seating areas. Little Flower Playground is an approximately 1.29-acre open space located on Madison Street between Rutgers and Clinton Streets that contains a playground and seating area. Further, Captain Jacob Joseph Playground and Little Flower Playground are in close proximity to the Two Bridges LSRD and well-used by its residents.

Reconstruction of these three open space resources could provide for up to 3.5 acres of revitalized open space. Representative examples of types of features that ~~could~~ would be improved or integrated into the reconstruction parks are described below:

- **Coleman Playground**—Comprehensive reconstruction of the various park features; installation of synthetic turf and field lighting; reprogramming of the playground and interior asphalt path components to make better use of underutilized paved areas for public recreation and to create a more integrated park experience; and improvement of the edge treatments along the park's street frontages. This could include the installation of new play equipment, spray showers, lighting, seating, paving, and safety surfaces; improvements to seating and pathways; and sidewalk replacements.

- **Captain Jacob Joseph Playground**—Comprehensive reconstruction of the playground, including improved perimeter conditions, water service, lighting; new landscape and enhanced greening of the site; replacement of playground equipment and safety surface; and enhanced seating.
- **Little Flower Playground**—Comprehensive reconstruction of the playground to repair and replace deteriorated features and revitalize underutilized areas, including refurbishment of comfort station; repair or replacement of benches, play equipment safety surface, and fencing; court renovations; installation of new plantings and ground cover for enhanced greening of the site; and installation of BBQ units, new picnic tables, drinking fountains, and garbage receptacles.

These ~~potential~~ mitigation measures for the open space impacts ~~are being~~were explored by the applicants in consultation with DCP and NYC Parks ~~and will be refined~~ between the DEIS and FEIS and were deemed practicable. However, because of the ongoing planning and future development of the Lower Manhattan Coastal Resiliency (LMCR) and East Side Coastal Resiliency (ESCR) projects, which include components in close proximity to the Two Bridges LSRD project sites, alternative improvements of the same scope may be required by DCP with NYC Parks if the aforementioned reconstruction projects are not deemed feasible at the time that their implementation is required.

Given that the open space improvements to Coleman Playground, Captain Jacob Joseph Playground, and Little Flower Playground would improve the quality but not quantity of open space available in the study areas, ~~If~~ the significant adverse impacts on open space would not be fully mitigated~~,~~; therefore, the proposed projects would result in unmitigated significant adverse impacts on open space.

F. SHADOWS

As detailed in Chapter 6, "Shadows," incremental shadow from the proposed projects' buildings would cast new shadows that would be substantial enough in extent and/or duration to significantly affect two sunlight-sensitive open space resources: the Cherry Clinton Playground on the December 21 analysis day (use, but not vegetation), March 21/September 21 analysis day (use and vegetation) and on the May 6/August 6 analysis day (use only); and the Lillian D. Wald Playground on the March 21/September 21 analysis day (use only).

The *CEQR Technical Manual* identifies several different measures that could mitigate significant adverse shadow impacts on open spaces. These measures include modifying the height, shape, size or orientation of a proposed development in order to eliminate or reduce the extent and duration of incremental shadow on the resource; relocating sunlight-sensitive features within an open space to avoid sunlight loss; relocating or replacing vegetation; and undertaking additional maintenance to reduce the likelihood of species loss. To eliminate the significant adverse shadow impact on the Cherry Clinton Playground and the Lillian D. Wald Playground, the proposed projects would need to be substantially shorter, which would compromise the feasibility of the projects and proportionally reduce the amount of permanently affordable housing that could be provided by the proposed projects.

~~Potential~~ Mitigation measures ~~are being~~were explored by the applicants in consultation with DCP and NYC Parks, and ~~will be~~were refined between the DEIS and FEIS. The Restrictive Declarations for the proposed projects will require that the applicants fund ~~Potential mitigation measures include dedicated funding for~~ enhanced maintenance at the Cherry Clinton Playground

and the Lillian D. Wald Playground to mitigate the significant adverse shadows impacts to the users and the trees of the Cherry Clinton Playground, and the users of the Lillian D. Wald Playground. Upon construction of the proposed projects, the Department of Parks and Recreation will utilize the enhanced maintenance funds to monitor the effects of shadows and to undertake appropriate measures. Such measures may include, for example, the relocation sunlight-sensitive elements within the open space, relocating or replacing vegetation, and undertaking additional maintenance to reduce the likelihood of species loss. With the implementation of these ~~If feasible~~ mitigation measures, ~~are identified,~~ the impacts will be considered partially mitigated. As the significant adverse shadows impacts would not be fully mitigated, the proposed projects would result in unmitigated significant adverse shadow impacts to these resources.

G. TRANSPORTATION

TRAFFIC

As detailed in Chapter 14, "Transportation," traffic conditions were evaluated at 31 intersections for the weekday AM, midday, and PM peak hours. In the With Action condition, there would be the potential for significant adverse traffic impacts at six intersections during the weekday AM peak hour, five intersections during the weekday midday peak hour, and 10 intersections during the weekday PM peak hour. The potential significant adverse traffic impacts and recommended mitigation measures are discussed below. If these measures are deemed ~~infeasible~~ impracticable and no alternative mitigation measures can be identified, then the identified significant adverse traffic impacts would be unmitigated.

Tables 21-3 to 21-5 itemize the recommended mitigation measures that would address the identified impacts. With the implementation of these standard traffic mitigation measures (including primarily signal timing changes and lane restriping), which are subject to review and approval by DOT, the significant adverse traffic impacts identified above could be fully mitigated except for those at the intersection of South Street and Montgomery Street during the weekday AM and PM peak hours, and at the intersection of Chatham Square and Worth Street/Oliver Street during the AM, midday, and PM peak hours. As stated in Chapter 14, "Transportation," there are often traffic enforcement agents present to direct traffic flow and facilitate pedestrian safety at the Chatham Square and Worth Street/Oliver Street intersection. Therefore, although the traffic impacts at these intersections have been conservatively identified as unmitigatable, the actual traffic conditions in the With Action condition would likely be more favorable than indicated by the analysis results. A discussion of the recommended mitigation measures is provided below. **Tables 21-6 to 21-8** compare the levels of service (LOS) and lane group delays for the impacted intersections under the No Action, With Action, and Mitigation conditions for the three analysis peak hours.

Table 21-3
Recommended Mitigation Measures
Weekday AM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
South Street and Montgomery Street (North and South)	EB/WB: Green = 49 s NB/SB: Green = 31 s	Unmitigated	No change from No Action
Madison Street and Pike Street (East and West)	EB/WB: Green = 30 s SB: Green = 10 s NB/SB: Green = 20 s NB: Green = 10 s	Shift 1 second of green time from the NB/SB phase to the EB/WB phase.	EB/WB: Green = 31 s SB: Green = 10 s NB/SB: Green = 19 s NB: Green = 10 s
East Broadway and Pike Street (East and West)	EB/WB: Green = 31 s SB: Green = 8 s NB/SB: Green = 21 s NB: Green = 10 s	1) Restripe the EB approach from one 11-foot moving lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot moving lane, one 5-foot bike lane, and one 10-foot right-turn lane. 2) Install "No Standing Anytime" for 100-feet at the EB approach to create an additional right-turn lane. 3) Shift ~~1~~ 2 seconds of green time from the NB/SB phase to the NB phase.	EB/WB: Green = 31 s SB: Green = 8 s NB/SB: Green = ~~20~~ 19 s NB: Green = ~~11~~ 12 s
The Bowery and Division Street/Doyers Street	EB-R/WB-R: Green = 22 s WB: Green = 18 s NB/SB: Green = 35 s	Shift 2 seconds of green time from the NB/SB phase to the WB phase.	EB-R/WB-R: Green = 22 s WB: Green = 20 s NB/SB: Green = 33 s
Chatham Square and Worth Street/Oliver Street	EB (Mott Street): Green = 18 s EB/WB (Worth/Oliver Streets): Green = 28 s NB/SB: Green = 29 s	Unmitigated	No change from No Action
Worth Street and Centre Street	EB/WB: Green = 30 s EB: Green = 9 s NB: Green = 36 s	Shift 1 second of green time from the NB phase to the EB/WB phase.	EB/WB: Green = 31 s EB: Green = 9 s NB: Green = 35 s

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval

Table 21-4
Recommended Mitigation Measures
Weekday Midday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
East Broadway and Pike Street (East and West)	EB/WB: Green = 31 s SB: Green = 8 s NB/SB: Green = 21 s NB: Green = 10 s	1) Restripe the EB approach from one 11-foot moving lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot moving lane, one 5-foot bike lane, and one 10-foot right-turn lane. 2) Install "No Standing Anytime" for 100-feet at the EB approach to create an additional right-turn lane. 3) Shift 1 second of green time from the NB/SB phase to the NB phase.	EB/WB: Green = 31 s SB: Green = 8 s NB/SB: Green = 20 s NB: Green = 11 s
Division Street and Market Street	WB: Green = 37 s LPI: Green = 10 s NB: Green = 33 s	Shift 1 second of green time from the WB phase to the NB phase.	WB: Green = 36 s LPI: Green = 10 s NB: Green = 34 s
Allen Street and Delancey Street	EB/WB: Green = 35 s WB: Green = 15 s NB/SB: Green = 24 s	Shift 1 second of green time from the NB/SB phase to the WB phase.	EB/WB: Green = 35 s WB: Green = 16 s NB/SB: Green = 23 s
Chatham Square and East Broadway	WB: Green = 40 s NB/SB: Green = 40 s	Shift 1 second of green time from the WB phase to the NB/SB phase.	WB: Green = 39 s NB/SB: Green = 41 s
Chatham Square and Worth Street/Oliver Street	EB (Mott Street): Green = 18 s EB/WB (Worth/Oliver Streets): Green = 28 s NB/SB: Green = 29 s	Unmitigated	No change from No Action

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval

Table 21-5
Recommended Mitigation Measures
Weekday PM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
South Street and Pike Slip	EB-L: Green = 14 s EB/WB: Green = 35 s LPI: Green = 7 s SB: Green = 19 s	Shift 1 seconds of green time from the EB/WB phase to the SB phase.	EB-L: Green = 14 s EB/WB: Green = 34 s LPI: Green = 7 s SB: Green = 20 s
South Street and Clinton Street	EB/WB: Green = 49 s NB/SB: Green = 31 s	Shift 4 seconds of green time from the NB/SB phase to the EB/WB phase.	EB/WB: Green = 53 s NB/SB: Green = 27 s
South Street and Montgomery Street (North and South)	EB/WB: Green = 49 s NB/SB: Green = 31 s	Unmitigated	No change from No Action
Madison Street and Pike Street (East and West)	EB/WB: Green = 27 s SB: Green = 13 s NB/SB: Green = 20 s NB: Green = 10 s	Shift 1 second of green time from the NB/SB phase to the EB/WB phase.	EB/WB: Green = 28 s SB: Green = 13 s NB/SB: Green = 19 s NB: Green = 10 s
Madison Street and Montgomery Street	EB/WB: Green = 40 s NB/SB: Green = 40 s	Shift 1 second of green time from the EB/WB phase to the NB/SB phase.	EB/WB: Green = 39 s NB/SB: Green = 41 s
Canal Street and Allen Street	EB/WB: Green = 34 s NB/SB: Green = 31 s SB: Green = 10 s	Shift 1 second of green time from the NB/SB phase to the EB/WB phase.	EB/WB: Green = 35 s NB/SB: Green = 30 s SB: Green = 10 s
East Broadway and Pike Street (East and West)	EB/WB: Green = 31 s SB: Green = 8 s NB/SB: Green = 21 s NB: Green = 10 s	1) Restripe the EB approach from one 11-foot moving lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot moving lane, one 5-foot bike lane, and one 10-foot right-turn lane. 2) Install "No Standing Anytime" for 100-feet at the EB approach to create an additional right-turn lane. 3) Shift 1 second of green time from the NB/SB phase to the NB phase. 4) Shift 1 second of green time from the NB/SB phase to the EB/WB phase.	EB/WB: Green = 32 s SB: Green = 8 s NB/SB: Green = 19 s NB: Green = 11 s
Allen Street and Delancey Street	EB/WB: Green = 35 s WB: Green = 15 s NB/SB: Green = 24 s	Shift 1 second of green time from the NB/SB phase to the WB phase.	EB/WB: Green = 35 s WB: Green = 16 s NB/SB: Green = 23 s
Chatham Square and East Broadway	WB: Green = 40 s NB/SB: Green = 40 s	Shift 2 seconds of green time from the WB phase to the NB/SB phase.	WB: Green = 38 s NB/SB: Green = 42 s
Chatham Square and Worth Street/Oliver Street	EB (Mott Street): Green = 18 s EB/WB (Worth/Oliver Streets): Green = 28 s NB/SB: Green = 29 s	Unmitigated	No change from No Action

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval

Table 21-6
No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday AM Peak Hour

Intersection	Weekday AM											
	No Action				With Action				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
South Street (North) and Montgomery Street												
Westbound	LTR	0.92	33.1	C	LTR	0.95	38.6	D				
Northbound	LT	0.20	21.5	C	LT	0.21	21.8	C	Unmitigated			
Southbound	TR	0.68	33.2	C	TR	0.97	63.8	E +				
South Street (South) and Montgomery Street												
Eastbound	LTR	0.39	13.0	B	LTR	0.40	13.1	B				
Northbound	TR	0.11	20.5	C	TR	0.11	20.5	C	Unmitigated			
Southbound	LT	0.74	37.2	D	LT	0.96	64.8	E +				
Madison Street and Pike Street (East)												
Eastbound	L	1.14	140.0	F	L	1.16	150.3	F +	L	1.10	125.5	F
	T	0.33	24.3	C	T	0.33	24.3	C	T	0.32	23.4	C
Westbound	TR	0.68	34.5	C	TR	0.71	36.3	D	TR	0.69	34.1	C
Northbound	L	0.25	40.4	D	L	0.26	40.5	D	L	0.25	40.5	D
	TR	0.51	22.9	C	TR	0.54	23.4	C	TR	0.56	24.4	C
Madison Street and Pike Street (West) [1]												
Eastbound	TR	0.87	49.4	D	TR	0.87	50.1	D	TR	0.84	45.5	D
Westbound	L	0.10	22.0	C	L	0.10	22.0	C	L	0.09	21.1	C
	T	0.43	26.0	C	T	0.43	26.0	C	T	0.42	25.0	C
Southbound	L	0.39	45.1	D	L	0.47	48.3	D	L	0.47	48.3	D
	TR	0.42	21.5	C	TR	0.48	22.5	C	TR	0.49	23.4	C
East Broadway and Pike Street (East)												
Eastbound	L	0.56	36.2	D	L	0.58	37.8	D	L	0.58	37.8	D
	T	0.44	25.7	C	T	0.45	25.8	C	T	0.45	25.8	C
Westbound	TR	0.66	33.1	C	TR	0.71	35.6	D	TR	0.71	35.6	D
Northbound	L	0.70	64.4	E	L	0.87	87.2	F +	L	0.73	61.7	E
	TR	0.69	26.5	C	TR	0.70	26.9	C	TR	0.70	26.9	C
East Broadway and Pike Street (West)												
Eastbound	-	-	-	-	-	-	-	-	T	0.63	30.5	C
	TR	0.99	72.4	E	TR	1.11	107.5	F +	-	-	-	-
	-	-	-	-	-	-	-	-	R	0.39	26.5	C
Westbound	L	0.35	29.1	C	L	0.38	30.9	C	L	0.26	25.0	C
	T	0.40	24.8	C	T	0.42	25.2	C	T	0.42	25.2	C
Southbound	L	0.35	47.1	D	L	0.36	47.5	D	L	0.36	47.5	D
	T	0.39	21.6	C	T	0.41	21.9	C	T	0.44	23.6	C
The Bowery and Division Street/Doyers Street												
Eastbound	R	0.04	26.4	C	R	0.04	26.4	C	R	0.04	26.4	C
Westbound	L	0.74	51.5	D	L	0.87	67.2	E +	L	0.79	53.2	D
	R	0.59	19.5	B	R	0.60	19.7	B	R	0.58	17.8	B
Northbound	TR	0.36	20.5	C	TR	0.39	20.8	C	TR	0.41	22.4	C
Southbound	T	0.37	20.6	C	T	0.39	20.8	C	T	0.41	22.5	C
Chatham Square and Worth Street/Oliver Street												
Eastbound (Worth Street)	L	1.24	209.1	F	L	1.32	236.4	F +				
	LTR	1.12	136.6	F	LTR	1.22	173.5	F +				
Eastbound (Mott Street)	LTR	0.58	43.1	D	LTR	0.58	43.1	D				
Westbound	LT	0.85	44.5	D	LT	0.85	44.5	D				
	R	0.74	41.8	D	R	0.77	44.5	D	Unmitigated			
Northbound	LTR	0.08	21.5	C	LTR	0.08	21.5	C				
Southbound	L	0.99	87.8	F	L	0.99	87.8	F				
	TR	0.96	65.5	E	TR	1.09	101.8	F +				
Worth Street and Centre Street												
Eastbound	L	0.35	22.7	C	L	0.37	25.3	C	L	0.36	24.1	C
	T	0.52	18.5	B	T	0.54	19.0	B	T	0.53	18.1	B
Westbound	T	0.73	36.6	D	T	0.85	46.2	D +	T	0.82	42.3	D
	R	0.43	28.6	C	R	0.47	30.0	C	R	0.46	28.6	C
Northbound	L	0.12	17.8	B	L	0.12	17.8	B	L	0.12	18.5	B
	TR	0.62	24.4	C	TR	0.62	24.4	C	TR	0.64	25.5	C

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact
[1] Intersection not impacted during the weekday AM peak hour; analysis presented to demonstrate the proposed signal timing mitigation measure would not result in additional significant adverse traffic impacts.

Table 21-7
No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	Weekday Midday											
	No Action				With Action					Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		Lane Group	v/c Ratio	Delay (sec)	LOS
East Broadway and Pike Street (East)													
Eastbound	L	0.49	32.6	C	L	0.51	33.3	C		L	0.51	33.3	C
	T	0.41	24.9	C	T	0.41	25.0	C		T	0.41	25.0	C
Westbound	TR	0.62	31.2	C	TR	0.64	32.3	C		TR	0.64	32.3	C
Northbound	L	0.61	56.2	E	L	0.69	63.1	E	+	L	0.63	55.5	E
	TR	0.55	23.1	C	TR	0.55	23.2	C		TR	0.55	23.2	C
East Broadway and Pike Street (West)													
Eastbound	-	-	-	-	-	-	-	-		T	0.62	30.3	C
	TR	1.02	80.0	E	TR	1.08	98.4	F	+	-	-	-	-
	-	-	-	-	-	-	-	-		R	0.38	26.5	C
Westbound	L	0.31	27.8	C	L	0.32	28.5	C		L	0.23	24.2	C
	T	0.36	24.1	C	T	0.37	24.2	C		T	0.37	24.2	C
Southbound	L	0.35	47.1	D	L	0.36	47.4	D		L	0.36	47.4	D
	T	0.39	21.6	C	T	0.40	21.7	C		T	0.41	22.5	C
Division Street and Market Street													
Westbound	T	0.27	18.1	B	T	0.27	18.1	B		T	0.28	18.8	B
Northbound	L	0.93	56.9	E	L	0.95	61.2	E	+	L	0.91	53.2	D
Allen Street and Delancey Street													
Eastbound	T	0.90	34.1	C	T	0.90	34.1	C		T	0.90	34.1	C
	R	0.21	19.5	B	R	0.21	19.5	B		R	0.21	19.5	B
Westbound	L	1.03	103.4	F	L	1.05	109.3	F	+	L	0.98	89.3	F
	TR	0.57	11.4	B	TR	0.57	11.4	B		TR	0.56	10.8	B
Northbound	T	0.58	32.0	C	T	0.59	32.2	C		T	0.61	33.6	C
	R	0.53	20.4	C	R	0.54	20.6	C		R	0.54	20.8	C
Southbound	TR	0.40	28.7	C	TR	0.42	28.9	C		TR	0.44	29.9	C
Chatham Square and East Broadway													
Westbound	L	0.25	16.6	B	L	0.26	16.8	B		L	0.27	17.5	B
	R	0.15	15.6	B	R	0.16	15.8	B		R	0.17	16.5	B
Northbound	T	0.30	16.7	B	T	0.30	16.7	B		T	0.30	16.0	B
	R	0.73	35.1	D	R	0.78	39.0	D		R	0.75	35.1	D
Southbound	L	0.82	46.9	D	L	0.87	53.7	D	+	L	0.84	48.0	D
	T	0.26	16.1	B	T	0.26	16.2	B		T	0.26	15.5	B
Chatham Square and Worth Street/Oliver Street													
Eastbound (Worth Street)	L	1.08	131.5	F	L	1.13	148.1	F	+				
	LTR	1.00	91.1	F	LTR	1.05	104.5	F	+				
Eastbound (Mott Street)	LTR	0.64	45.7	D	LTR	0.64	45.7	D					
Westbound	LT	0.56	29.8	C	LT	0.56	29.8	C		Unmitigated			
	R	0.84	53.4	D	R	0.85	54.8	D					
Northbound	LTR	0.11	21.8	C	LTR	0.11	21.8	C					
Southbound	L	0.69	42.3	D	L	0.69	42.3	D					
	TR	1.09	106.9	F	TR	1.16	129.4	F	+				

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact

Table 21-8
No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	Weekday PM											
	No Action				With Action					Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		Lane Group	v/c Ratio	Delay (sec)	LOS
South Street and Pike Slip													
Eastbound	L	0.58	18.6	B	L	0.58	18.9	B		L	0.60	20.2	C
	T	0.50	23.6	C	T	0.52	24.0	C		T	0.53	25.1	C
Westbound	T	0.73	29.8	C	T	0.73	30.0	C		T	0.75	31.8	C
	R	0.43	23.0	C	R	0.45	23.6	C		R	0.46	24.6	C
Southbound	L	0.63	41.7	D	L	0.73	47.5	D	+	L	0.70	44.0	D
	R	0.51	37.7	D	R	0.56	39.7	D		R	0.53	37.6	D
South Street and Clinton Street													
Eastbound	LT	1.07	82.3	F	LT	1.25	151.0	F	+	LT	1.05	72.0	E
Westbound	T	0.83	26.4	C	T	0.86	29.1	C		T	0.80	21.7	C
	R	0.25	11.8	B	R	0.31	12.4	B		R	0.28	10.1	B
South Street (North) and Montgomery Street													
Westbound	LTR	1.13	91.9	F	LTR	1.17	106.2	F	+				
Northbound	LT	0.83	47.4	D	LT	0.97	75.6	E	+	Unmitigated			
Southbound	TR	0.67	32.9	C	TR	0.84	44.5	D					
South Street (South) and Montgomery Street													
Eastbound	LTR	0.39	13.0	B	LTR	0.39	13.1	B		LTR	0.42	15.1	B
Northbound	TR	0.47	26.0	C	TR	0.47	26.0	C		TR	0.43	23.0	C
Southbound	LT	1.43	243.3	F	LT	1.63	330.2	F	+	LT	1.40	225.3	F
Madison Street and Pike Street (East)													
Eastbound	L	0.93	89.3	F	L	0.96	98.7	F	+	L	0.90	80.7	F
	T	0.40	27.6	C	T	0.40	27.7	C		T	0.38	26.7	C
Westbound	TR	0.75	42.4	D	TR	0.79	45.2	D		TR	0.76	41.9	D
Northbound	L	0.20	39.2	D	L	0.21	39.4	D		L	0.21	39.4	D
	TR	0.45	21.7	C	TR	0.47	22.0	C		TR	0.48	22.9	C
Madison Street and Pike Street (West)													
Eastbound	TR	0.86	50.8	D	TR	0.86	51.1	D		TR	0.83	46.6	D
Westbound	L	0.21	27.2	C	L	0.21	27.3	C		L	0.19	25.9	C
	T	0.31	26.1	C	T	0.31	26.1	C		T	0.30	25.2	C
Southbound	L	0.20	36.2	D	L	0.23	36.9	D		L	0.23	36.9	D
	TR	0.43	19.7	B	TR	0.48	20.5	C		TR	0.49	21.4	C
Madison Street and Montgomery Street													
Eastbound	LTR	0.43	20.1	C	LTR	0.53	22.8	C		LTR	0.55	24.0	C
Westbound	LTR	0.52	21.7	C	LTR	0.52	21.8	C		LTR	0.53	22.8	C
Northbound	LTR	1.14	117.4	F	LTR	1.18	133.3	F	+	LTR	1.14	116.9	F
Southbound	LTR	0.63	24.5	C	LTR	0.68	26.2	C		LTR	0.66	24.8	C
East Broadway and Pike Street (East)													
Eastbound	L	0.84	62.3	E	L	0.87	69.1	E	+	L	0.83	59.2	E
	T	0.42	25.1	C	T	0.38	24.3	C		T	0.37	23.4	C
Westbound	TR	0.63	31.5	C	TR	0.67	33.1	C		TR	0.65	31.4	C
Northbound	L	0.88	86.3	F	L	0.98	107.9	F	+	L	0.89	84.8	F
	TR	0.57	23.2	C	TR	0.57	23.4	C		TR	0.59	24.4	C
East Broadway and Pike Street (West)													
Eastbound	-	-	-	-	-	-	-	-		T	0.68	31.3	C
	TR	1.07	93.4	F	TR	1.14	118.6	F	+	-	-	-	-
	-	-	-	-	-	-	-	-		R	0.33	24.4	C
Westbound	L	0.48	36.3	D	L	0.51	38.5	D		L	0.35	27.0	C
	T	0.33	23.5	C	T	0.34	23.7	C		T	0.33	22.8	C
Southbound	L	0.33	45.7	D	L	0.33	45.7	D		L	0.33	45.7	D
	T	0.43	22.1	C	T	0.45	22.3	C		T	0.48	24.1	C
Canal Street and Allen Street													
Eastbound	LTR	1.16	121.8	F	LTR	1.17	127.2	F	+	LTR	1.14	113.0	F
Westbound	LTR	0.31	21.7	C	LTR	0.31	21.7	C		LTR	0.30	20.9	C
Northbound	TR	0.68	29.3	C	TR	0.70	29.8	C		TR	0.72	31.4	C
Southbound	LTR	0.32	13.4	B	LTR	0.33	13.5	B		LTR	0.34	14.2	B

Table 21-8 (cont'd)
No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	Weekday PM												
	No Action				With Action					Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		Lane Group	v/c Ratio	Delay (sec)	LOS
Allen Street and Delancey Street													
Eastbound	T	0.91	34.8	C	T	0.91	34.8	C		T	0.91	34.8	C
	R	0.13	18.3	B	R	0.13	18.3	B		R	0.13	18.3	B
Westbound	L	1.04	105.7	F	L	1.06	110.4	F	+	L	0.99	89.8	F
	TR	0.57	11.4	B	TR	0.58	11.4	B		TR	0.57	10.8	B
Northbound	T	0.58	31.6	C	T	0.59	32.0	C		T	0.62	33.3	C
	R	0.64	24.0	C	R	0.65	24.4	C		R	0.66	24.8	C
Southbound	TR	0.53	30.8	C	TR	0.56	31.4	C		TR	0.59	32.7	C
Chatham Square and East Broadway													
Westbound	L	0.31	17.3	B	L	0.33	17.6	B		L	0.34	19.1	B
	R	0.23	16.4	B	R	0.24	16.6	B		R	0.26	18.1	B
Northbound	T	0.45	18.5	B	T	0.46	18.6	B		T	0.44	17.7	B
	R	0.88	49.8	D	R	0.97	66.0	E	+	R	0.89	47.7	D
Southbound	L	0.71	38.5	D	L	0.80	48.1	D	+	L	0.74	39.0	D
	T	0.19	15.5	B	T	0.20	15.5	B		T	0.19	14.3	B
Chatham Square and Worth Street/Oliver Street													
Eastbound (Worth Street)	L	1.16	145.2	F	L	1.25	177.7	F	+	Unmitigated			
	LTR	1.16	134.1	F	LTR	1.25	167.5	F	+				
Eastbound (Mott Street)	LTR	0.83	61.0	E	LTR	0.83	61.0	E					
Westbound	LT	0.51	28.5	C	LT	0.51	28.5	C					
	R	1.04	92.9	F	R	1.06	96.6	F	+				
Northbound	LTR	0.08	21.5	C	LTR	0.08	21.5	C					
Southbound	L	0.72	44.3	D	L	0.72	44.3	D					
	TR	0.92	60.6	E	TR	0.99	76.1	E	+				

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact

South Street and Pike Slip

The significant adverse impact at the southbound left-turn lane group of this intersection during the weekday PM peak hour could be fully mitigated by shifting one second of green time from the eastbound/westbound phase to the southbound phase.

South Street and Clinton Street

The significant adverse impacts at the eastbound approach of this intersection during the weekday PM peak hour could be fully mitigated by shifting four seconds of green time from the northbound/southbound phase to the eastbound/westbound phase.

South Street and Montgomery Street (North and South)

The significant adverse impacts at the southbound approaches of this intersection during the weekday AM peak hour could not be fully mitigated. Additionally, the significant adverse impacts at the westbound, northbound and southbound approaches of this intersection during the weekday PM peak hour could not be fully mitigated.

Madison Street and Pike Street (East and West)

The significant adverse impacts at the eastbound approach of this intersection during the weekday AM and PM peak hours could be fully mitigated by shifting one second of green time from the northbound/southbound phase to the eastbound/westbound phase.

Madison Street and Montgomery Street

The significant adverse impact at the northbound approach of this intersection during the weekday PM peak hour could be fully mitigated by shifting one second of green time from the eastbound/westbound phase to the northbound/southbound phase.

East Broadway and Pike Street (East and West)

The significant adverse impacts at the northbound left-turn lane group of this intersection during the weekday AM peak hour could be fully mitigated by restriping the eastbound approach from one 11-foot moving lane, one five-foot bike lane, and one 10-foot parking lane to one 11-foot moving lane, one five-foot bike lane, and one 10-foot right-turn lane; prohibiting parking (installing "No Standing Anytime" sign) on the south curbside of the eastbound approach for approximately 100 feet from the intersection; and shifting two seconds of green time from the northbound/southbound phase to the northbound phase.

The significant adverse impacts at the northbound left-turn lane group and eastbound approaches of this intersection during the weekday midday peak hour could be fully mitigated by undertaking the above restriping and curbside regulation changes, and shifting one second of green time from the northbound/southbound phase to the northbound phase.

The significant adverse impacts at the northbound left-turn lane group and eastbound approaches of this intersection during the weekday PM peak hour could be fully mitigated by undertaking the above restriping and curbside regulation changes, shifting one second of green time from the northbound/southbound phase to the northbound phase, and shifting one second of green time from the northbound/southbound phase to the eastbound/westbound phase.

Division Street and Market Street

The significant adverse impact at the northbound approach of this intersection during the weekday midday peak hour could be fully mitigated by shifting one second of green time from the westbound phase to the northbound phase.

Canal Street and Allen Street

The significant adverse impact at the eastbound approach of this intersection during the weekday PM peak hour could be fully mitigated by shifting one second of green time from the northbound/southbound phase to the eastbound/westbound phase.

Allen Street and Delancey Street

The significant adverse impacts at the westbound left-turn lane group of this intersection during the weekday midday and PM peak hours could be fully mitigated by shifting one second of green time from the northbound/southbound phase to the westbound phase.

Division Street and The Bowery

The significant adverse impacts at the westbound left-turn lane group of this intersection during the weekday AM peak hour could be fully mitigated by shifting two seconds of green time from the northbound/southbound phase to the westbound phase.

East Broadway and Chatham Square

The significant adverse impact at the southbound left-turn lane group of this intersection during the weekday midday peak hour could be fully mitigated by shifting one second of green time from the westbound phase to the northbound/southbound phase.

The significant adverse impacts at the northbound right turn and southbound left-turn lane groups of this intersection during the weekday PM peak hour could be fully mitigated by shifting two seconds of green time from the westbound phase to the northbound/southbound phase.

Chatham Square and Worth Street/Oliver Street

The significant adverse impacts at the eastbound approach and southbound shared lane of this intersection during the weekday AM, midday, and PM peak hours could not be mitigated. Additionally, the significant adverse impact at the westbound right-turn lane of this intersection during the weekday PM peak hour also could not be mitigated.

Worth Street and Centre Street

The significant adverse impact at the westbound through lane group of this intersection during the weekday AM peak hour could be fully mitigated by shifting one second of green time from the northbound phase to the eastbound/westbound phase.

EFFECTS OF TRAFFIC MITIGATION ON PEDESTRIAN OPERATIONS

As described above, intersection operations would improve overall with the implementation of the recommended traffic mitigation measures, which include changes to existing signal timings. A review of the effects of these changes on pedestrian circulation and service levels at intersection corners and crosswalks showed that they would not alter the conclusions made for the pedestrian impact analyses, nor would they result in the potential for any additional significant adverse pedestrian impacts.

MITIGATION IMPLEMENTATION

Subject to the approvals of DOT, the above recommended mitigation measures could be implemented to mitigate the projected significant adverse traffic impacts at or prior to the completion of the proposed projects in 2021. The ~~developers~~ applicants for~~of~~ the proposed projects are required to notify DOT a minimum of six months prior to anticipated building completion and occupancy.

TRANSIT

As detailed in Chapter 14, "Transportation," the proposed projects would result in significant adverse impacts to the East Broadway-Rutgers Street subway station's S1 stairway on the northwest corner of Rutgers Street and Madison Street, and the P3 platform stairway. ~~Potential~~ Practicable measures to mitigate these significant adverse impacts are described below.

During the AM peak period, the S1 stairway would decline from LOS E (v/c = 1.45) under the No Action condition to LOS F (v/c = 2.08) under the With Action condition, and the P3 stairway would decline from LOS D (v/c = 1.02) under the No Action condition to LOS E (v/c = 1.45) under the With Action condition. During the PM peak period, the S1 stairway would decline from LOS D (v/c = 1.13) under the No Action condition to LOS F (v/c = 1.81) under the With

Action condition. These declines constitute significant adverse subway station impacts that require an evaluation of potential mitigation measures.

Based on consultation with NYCT and as shown in **Table 21-9**, the significant adverse impact on the S1 stairway would be mitigated by opening a new subway entrance (street-level stairway S2) across Rutgers Street from the existing S1 stairway on the northeast corner of the intersection. This new stairway would be 7.5 feet wide, consisting of side railings and a center handrail, for an effective width of 6.0 feet. A review of the pedestrian volumes indicated that additional sidewalk clearance would be needed to accommodate pedestrian flows adjacent to the new subway entrance. The required widening of the adjacent sidewalk that would need to be coupled with the addition of this new stairway is described in the "Pedestrians" section below. Based on observations and counts of pedestrians currently entering and exiting the S1 stairway, it was determined that 60 percent of current S1 pedestrians, including 50 percent from east and 10 percent from south of the Rutgers Street and Madison Street intersection would be shifted to the proposed S2 stairway. In addition, project-generated subway trips that originate from east of this intersection would also be expected to enter/exit the station via the S2 stairway. Collectively, the change in pedestrian paths accessing the East Broadway-Rutgers Street station at the Rutgers Street and Madison Street intersection would result in acceptable levels of service at both the existing S1 and the proposed S2 stairways. For the P3 stairway (and adjoining ML7 mezzanine level stairway), a two-foot widening from 5.0 feet to 7.0 feet is proposed. This widening would yield an increase in this stairway's effective width from 4.0 feet to 6.0 feet. This proposed mitigation measure would similarly mitigate the significant adverse impact identified for the P3 stairway.

Table 21-9
Mitigation Condition Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15-Minutes								
East Broadway Station (F Lines) – Rutgers Street and Madison Street								
NW (S1)	4.5	3.5	284	117	0.90	0.90	0.88	C
NE (S2)	7.5	6.0	383	168	0.90	0.90	0.70	C
Platform (P3)	7.0	6.0	587	146	0.75	0.90	0.97	C
Weekday PM Peak 15-Minutes								
East Broadway Station (F Lines) – Rutgers Street and Madison Street								
NW (S1)	4.5	3.5	112	238	0.90	0.90	0.80	C
NE (S2)	7.5	6.0	150	294	0.90	0.90	0.59	B
Platform (P3)	7.0	6.0	240	263	0.75	0.90	0.73	C

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual*.
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)] + [Vx/ (150 * We * Sf * Ff)]
Where:
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)

Any stairway modification at this station would require associated improvements to handicapped access in compliance with the Americans with Disabilities Act (ADA). Therefore, in addition to the new S2 stairway and widened P3 stairway, two ADA-compliant elevators, providing connections from street-level to mezzanine outside the fare-control area and from mezzanine inside the fare-control area to platform, would need to be added to this station. Based on conceptual engineering studies conducted by NYCT, these elevators ~~could potentially~~would be sited on the east sidewalk of Rutgers Street between East Broadway and Henry Street, adjacent to

the station's S5 stairway, where there is an abundance of sidewalk pedestrian circulation space to accommodate the elevator installations. In addition, the north end of the station was selected because the platform on the south end has a column structure that precludes the elevators being build next to the new street and mezzanine stair. ~~If during later engineering phases these mitigation measures are deemed infeasible, and no alternative mitigation measures can be identified, then the significant adverse impacts identified for the S1 and P3 stairway would remain unmitigated.~~

MITIGATION IMPLEMENTATION

The applicant will inform DOT six months prior to the completion of any building. For any building(s) that will be completed (i.e., receiving temporary certificates of occupancy) before new building permits have been issued for the remaining building(s), the applicant will provide a quantitative assessment to confirm the need for or adjustments to the traffic and pedestrian mitigation measures. The assessment must be completed and provided to DOT prior to occupancy of the building, and would be based on the current conditions at the time, including new counts, if deemed necessary by DCP in consultation with DOT, at those locations that have been identified in the FEIS to incur impacts upon the full build-out of the three projects.

PEDESTRIANS

As discussed in Chapter 14, "Transportation," the proposed projects would result in significant adverse pedestrian impacts at one sidewalk during the weekday AM and PM peak hours, two crosswalks during the weekday AM peak hour, one crosswalk during the weekday midday peak hour, and two crosswalks during the weekday PM peak hour. As described above, under "Transit," the new S2 stairway is expected to result in a shift of pedestrian paths leading to/from the East Broadway-Rutgers Street subway station. As a result, the identified significant adverse impacts at the north sidewalk of Madison Street between Rutgers Street and Pike Street, and the north and west crosswalks of the Rutgers Street and Madison Street intersection would also be mitigated. To accommodate the new S2 stairway, the north sidewalk on Madison Street between Rutgers Street and Jefferson Street would need to be widened (see below for a more detailed description). With increased pedestrian flow on the east side of Rutgers Street to/from the new S2 stairway, a new significant adverse impact was identified for the east crosswalk of the Rutgers Street and Madison Street intersection. The above-mentioned sidewalk widening and ~~potential~~ practicable measures to mitigate the new significant adverse impacts on the intersection's east crosswalk are described below, and the mitigated conditions are summarized in **Table 21-10**. Similar to traffic, implementation of these measures would be subject to approval by NYCDOT. Absent NYCDOT approval and implementation, the significant adverse pedestrian impacts would remain unmitigated.

Table 21-10
No Action, With Action, and Mitigation Conditions
Pedestrian Level of Service Analysis

Location	Mitigation Measures	No Action		With Action		Mitigation	
		SFP	LOS	SFP	LOS	SFP	LOS
Weekday AM Peak Hour							
North Crosswalk of Rutgers Street and Madison Street	Pedestrian Flow Diversion	22.1	D	17.9	D	62.9	A
West Crosswalk of Rutgers Street and Madison Street	Pedestrian Flow Diversion	28.2	C	12.4	E	23.7	D
East Crosswalk of Rutgers Street and Madison Street	1) Widen the crosswalk by 3.5 feet 2) Shift 4 seconds of green time from the EB/WB phase to the NB phase	~~38.9~~ 38.3	C	~~21.4~~ 21.1	D	~~19.9~~ 19.7	D
North sidewalk on Madison Street between Rutgers Street and Pike Street	Pedestrian Flow Diversion	~~40.3~~ 35.5	~~C~~ D	~~22.8~~ 21.1	E	~~63.4~~ 59.3	C
Weekday Midday Peak Hour							
South Crosswalk of Rutgers Street and Cherry Street	Shift 5 seconds of flash don't walk time to walk phase	16.6	D	12.0	E	15.5	D
Weekday PM Peak Hour							
West Crosswalk of Rutgers Street and Madison Street	Pedestrian Flow Diversion	36.8	C	14.4	E	24.9	C
East Crosswalk of Rutgers Street and Madison Street	1) Widen the crosswalk by 3.5 feet 2) Shift 2 seconds of green time from the EB/WB phase to the NB phase	41.8	B	22.3	D	20.4	D
South Crosswalk of Rutgers Street and Cherry Street	Shift 6 seconds of flash don't walk time to walk phase	29.5	C	14.1	E	20.1	D
North sidewalk on Madison Street between Rutgers Street and Pike Street	Pedestrian Flow Diversion	37.2	D	21.7	E	44.4	C

RUTGERS STREET AND MADISON STREET

Sidewalks

The significant adverse impact at the north sidewalk of Madison Street between Rutgers Street and Pike Street during the weekday AM and PM peak hours would be mitigated by the shift in pedestrian flow from stairway S1 to stairway S2.

The new subway entrance at the northeast corner of Rutgers Street and Madison Street would require extending the curb line by seven feet along Madison Street between Rutgers Street and Jefferson Street to create a corner bulb-out of approximately 40 to 45 feet in length. A review of the pedestrian volumes indicated that the sidewalk bulb-out would be necessary in connection with the proposed S2 stairway. This widened sidewalk would accommodate the new subway entrance (stairway S2) and maintain adjacent pedestrian flow at acceptable levels (i.e., minimum of LOS D and ~~32.9~~ 33.8 SFP during peak hours). The adjacent curb lane is nine feet wide. In accordance with DOT design standards, a curb extension at this location would involve creating a single corner bulb-out seven feet into the adjacent curb lane, which would be adequate to accommodate the proposed subway stairway described above. This bulb-out would not interfere with traffic flow. Accordingly, the traffic signal post, and one or more manholes adjacent to the reconstructed curb would need to be relocated, and up to two curbside parking spaces would be displaced to accommodate the construction of the bulb-out.

Crosswalks

The significant adverse impact at the north crosswalk of this intersection during the weekday AM peak hour would be fully mitigated by the shift in pedestrian flow from stairway S1 to stairway S2.

The significant adverse impacts at the west crosswalk of this intersection during the weekday AM and PM peak hours would be fully mitigated by the shift in pedestrian flow from stairway S1 to stairway S2.

The significant adverse impacts at the east crosswalk of this intersection during the weekday AM and PM peak hours could be fully mitigated by widening this crosswalk by 3.5 feet, shifting four seconds of green time from the eastbound/westbound phase to the northbound phase during the weekday AM peak hour, and shifting two seconds of green time from the eastbound/westbound phase to the northbound phase during the weekday PM peak hour.

RUTGERS STREET AND CHERRY STREET

The significant adverse impacts at the south crosswalk of this intersection during the weekday, midday, and PM peak hours could be fully mitigated by shifting five and six seconds, respectively, from the "flashing don't walk" phase to the "walk" phase.

EFFECTS OF PEDESTRIAN MITIGATION ON TRAFFIC OPERATIONS

At the Rutgers Street and Madison Street intersection, the sidewalk extension would not alter the number of available travel lanes or impede the intersection's turning maneuvers. Because signal timing changes were also recommended for the weekday AM and PM peak periods, a review of the effects of these changes on traffic operations were undertaken. This review concluded that the recommended shift in signal timing would not result in the potential for any additional significant adverse traffic impacts.

MITIGATION IMPLEMENTATION

Subject to the approvals of DOT, the above recommended mitigation measures could be implemented to mitigate the projected significant adverse pedestrian impacts at or prior to the completion of the proposed projects in 2021. The ~~developers~~ applicants for~~of~~ the proposed projects are required to notify DOT a minimum of six months prior to anticipated building completion and occupancy.

H. CONSTRUCTION

Construction of the proposed projects would result in some temporary disruptions in the surrounding area. As discussed in Chapter 19, "Construction," construction activities associated with the proposed projects would result in temporary significant adverse impacts in the areas of transportation and noise. Potential measures to mitigate these temporary significant adverse impacts are described below.

TRANSPORTATION

During peak construction, the project-generated traffic, transit, and pedestrian trips would be less than what would be realized with the full build-out of the proposed projects in 2021. ~~Therefore, the potential traffic, subway, pedestrian impacts during peak construction would be within the envelope of significant adverse impacts identified for the future with the proposed projects (With Action condition) in Chapter 14, "Transportation."~~ Based on the analysis of projected peak construction activities~~trip projections and comparison with the operational trip analysis results, construction of~~ the proposed projects would have the potential to result in significant adverse traffic impacts at a subset of intersections that have been identified to incur significant adverse

impacts with the full build-out of the proposed projects. As detailed in Chapter 19, "Construction," the same or similar traffic mitigation measures identified to mitigate the operational impacts could be implemented early at the discretion of NYCDOT to mitigate the temporary impacts during construction.~~For transit, since construction worker trips would be made outside of the commuter peak hours, the projected subway stairway impact would not occur until at least one of the three proposed buildings are completed and occupied. Similarly, pedestrian impacts would not be expected to occur until at least one of the three proposed buildings are completed and occupied. Accordingly, measures identified above under Chapter 14, "Transportation," could be implemented early at the discretion of DOT and NYCT to address actual conditions experienced at that time.~~

NOISE

As detailed in Chapter 19, "Construction," the proposed projects have the potential to result in a significant adverse construction-period noise impact. The applicants are committed to implementing a program of source controls (i.e., the use of quiet construction equipment) and path controls (i.e., the use of noise barriers and noise shields) that exceed the noise control measures required by the New York City Noise Control Code. Even with these measures, elevated construction-period noise levels are predicted to occur for an extended period of time at receptor locations at the façades of residences facing the project sites on Cherry Street; the eastern, southern, and western façades of 64 Rutgers Street; 80 Rutgers Slip; the northern, eastern, and a portion of the southern façades of 82 Rutgers Slip; a portion of the northern façade and the eastern and western façades of 265 and 275 Cherry Street; residences immediately adjacent to Site 6A; portions of the northern and western façades of 286 South Street; and portions of the northern and eastern façades of the residences west of Site 4 (4A/4B). A summary of noise levels predicted to occur for these receptors is presented in **Table 21-11**.

Table 21-11
Predicted Worst Case Construction Noise Levels in dBA

Receptor	Façade	Existing Noise Levels	Predicted Construction Noise Levels	Maximum Predicted Increment	Attenuation Required to Achieve Acceptable Interior Noise Levels
Residences on Cherry Street	Façades facing the project sites	Mid-60s to Low 70s	Mid-60s to Mid-70s	10	31
64 Rutgers Street	Eastern, Southern, Western	Mid-to-High 60s	Mid-60s to High 70s	14	37
80 Rutgers Slip	All	Mid-to-High 60s	High 50s to High 80s	23	43
82 Rutgers Slip	Northern, Eastern, Southern	Mid-60s to Mid-70s	Mid-60s to High 70s	13	35
265 and 275 Cherry Street	All	Mid-60s to Low 70s	Low 60s to Low 90s	23	42
Residences Immediately Adjacent to Site 6A	Various	Mid-60s to Low 70s	High 50s to High 80s	18	46
286 South Street	Northern and Western	Mid-60s to High 70s	Low 50s to Low 80s	15	39
Residences West of Site 4 (4A/4B)	Northern and Eastern	Mid-60s to high 70s	Mid-50s to Mid-70s	11	34

At other receptors near the project construction areas—including open space, residential, and institutional receptors—noise resulting from construction of the proposed projects may at times be noticeable, but would be limited to the construction period and would generally not exceed

typical noise levels in the nearby area, and therefore, would not be considered a significant adverse noise impact.

Based on field observations alternative means of ventilation (including through-the-wall air conditioning units, packaged terminal air conditioning (PTAC) units, and window air conditioning units) were identified at:

- Residences on Cherry Street appear to have insulated glass windows and an alternative means of ventilation (i.e., through-the-wall air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the low 50s dBA, up to approximately 6 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- 64 Rutgers Street appears to have insulated glass windows and an alternative means of ventilation (i.e., window air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid-50s dBA, up to approximately 12 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- 80 Rutgers Slip appears to have insulated glass windows and an alternative means of ventilation (i.e., through-the-wall air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the low 60s dBA, up to approximately 18 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- 82 Rutgers Slip appears to have insulated glass windows and an alternative means of ventilation (i.e., PTAC units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid-50s dBA, up to approximately 10 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- 265 and 275 Cherry Street appear to have insulated glass windows and an alternative means of ventilation (i.e., through-the-wall air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the low 60s dBA, up to approximately 17 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- Residences immediately adjacent to Site 6A appear to have insulated glass windows and an alternative means of ventilation (i.e., through-the-wall air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the mid-60s dBA, up to approximately 21 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.
- 286 South Street appears to have insulated glass windows and an alternative means of ventilation (i.e., through-the-wall air conditioning units), which would be expected to provide approximately 25 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the high 50s dBA, up to approximately 14 dBA

higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.

- Residences west of Site 4 (4A/4B) (One Manhattan Square) are currently under construction and are assumed to have insulated glass windows and an alternative means of ventilation (i.e., central air conditioning units), which would be expected to provide approximately 30 dBA window/wall attenuation. Consequently, interior noise levels during construction in this area would be in the high 40s dBA, up to approximately 4 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines.

No ~~feasible and~~ practicable mitigation measures have been identified that would fully mitigate the construction-period noise impacts. As described below, the identified the construction-period noise impacts would remain unmitigated.

The provision of replacement windows is not anticipated to provide substantial improvement in the amount of façade attenuation or reduction in interior noise levels at ~~all~~ impacted receptor locations at buildings with existing through-the-wall air conditioning units, PTAC units, or window air conditioning units. These air conditioning units, which are necessary to maintain the closed-window condition, would remain as a pathway for construction noise to enter the affected building. No feasible and practicable mitigation measures have been identified that would fully mitigate the construction-period noise impacts. The provision of replacement windows at the residences west of Site 4 (4A/4B) (including One Manhattan Square) is not anticipated to be practicable as these buildings are currently under construction and would be expected to be provided with high-quality double glazed windows.

Between the DEIS and FEIS, further measures to reduce or eliminate the potential for these significant construction-period noise impacts ~~will be~~were considered and evaluated, such as the use of quieter construction equipment, changes to the construction logistics plans, and alternative noise barriers or other shielding methods. It was found that there are no ~~further reasonable~~ practicable ~~means to ensure~~ measures beyond those to be employed that would mitigate, partially or fully, the significant adverse construction-period noise impacts. ~~If feasible mitigation measures are identified, the impacts would be considered partially mitigated. In the absence of feasible mitigation,~~ Therefore, the significant adverse construction-period noise impacts would be considered partially mitigated, ~~the proposed projects would~~ resulting in unmitigated significant adverse construction-period noise impacts. ✶