Chapter 21: Mitigation

A. INTRODUCTION

In accordance with the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, where significant adverse impacts have been identified, mitigation measures must be examined that eliminate or reduce the impacts to the fullest extent practicable. Therefore, mitigation measures are recommended below for those potentially significant adverse impacts that were identified in the preceding chapters.

PRINCIPAL CONCLUSIONS

Based on the analysis provided in the preceding chapters, the Proposed Actions are expected to result in significant adverse impacts related to open space, shadows, historic and cultural resources (architectural and archaeological resources), transportation (transit and pedestrian conditions), and construction (noise). Mitigation measures to address those impacts, where feasible and/or practical, are therefore proposed below. The New York City Department of City Planning (DCP), as the Lead Agency, will continue to coordinate with City agencies and further examine and refine these recommended measures between the Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS). If no feasible and practicable mitigation can be identified, the impacts would remain an unavoidable significant adverse impact of the Proposed Actions.

OPEN SPACE

The Proposed Actions would result in a significant adverse impact associated with the total, active, and passive open space ratios. Measures being considered by DCP to mitigate these significant adverse open space impact include the creation of additional passive open space in or near the Project Area or the provision of funding for open space improvements to partially mitigate the significant adverse open space impact. These measures will continue to be explored by DCP in consultation with the New York City Department of Parks and Recreation (NYC Parks) between the DEIS and FEIS. In addition, as summarized below, it is expected that the Proposed Actions would also result in a direct significant adverse shadow impact to two open space resources. Mitigation measures for these significant adverse impact shadow impacts are summarized below.

SHADOWS

The Proposed Actions would result in significant adverse impacts to six sunlight-sensitive resources: The Most Precious Blood Church on Baxter Street, the Merchant's House Museum on East Fourth Street, Grand Canal Court at Canal Street and Sixth Avenue, a Greenstreets space next to the Grand Canal Court, Petrosino Square at Centre and Spring Streets, and a planned future open space on East 4th Street between Lafayette Street and Bowery.

Possible measures that could mitigate these impacts include zoning modifications that could reduce the impact. To this end, DCP, as Lead Agency, will explore possible mitigation measures with the New York City Landmarks Preservation Commission (LPC) and NYC Parks between publication of the DEIS and FEIS. Potential measures that could also mitigate the significant

adverse shadow impact to the four open space resources— Grand Canal Court, a Greenstreets space next to the Grand Canal Court, Petrosino Square at Centre and Spring Streets, and a planned future open space on East 4th Street—may include relocating plantings or modifying resource layouts. Therefore, DCP will also coordinate with NYC Parks to explore potential mitigation measures between the DEIS and FEIS.

HISTORIC AND CULTURAL RESOURCES

Archaeological Resources

The Proposed Actions have the potential to result in an unmitigated significant adverse archaeology impact associated with all or portions of the 21 lots on 17 potential and projected development sites. Since these sites under private ownership, there is no mechanism to require a developer to conduct archaeological testing or require the preservation or documentation of archaeological resources, should they exist, and therefore, these significant adverse impacts would be unmitigated.

Architectural Resources

The Proposed Actions would result in direct significant adverse impacts due to the demolition of buildings within the State and National Registers of Historic Places (S/NR)-listed portion of the SoHo Historic District, the Bowery Historic District (S/NR-listed), and the Chinatown and Little Italy Historic District (S/NR-listed). In addition, significant adverse indirect contextual impacts could occur as a result of the addition of new buildings on projected and potential development sites that could adversely affect the setting and context of the Bowery Historic District as well as the Samuel Tredwell Skidmore House (S/NR-listed, NYCL) and the Old Merchant's House (NHL, S/NR-listed, NYCL, NYCL Interior).

TRANSPORTATION

Transit

The Proposed Actions would result in significant adverse impacts to one street stair in the AM and PM peak hours at the Canal Street (A/C/E) subway station on the Eighth Avenue Line. Stairway widening is the most common form of mitigation for significant stairway impacts, provided that New York City Transit (NYCT) deems it practicable (i.e., that it is worthwhile to disrupt service on an existing stairway to widen it and that a given platform and sidewalk affected by such mitigation are wide enough to accommodate the stairway widening). Another potential mitigation measure would be to add vertical capacity (i.e., adding an elevator, escalator, or additional stairway) in the vicinity of the impacted stairway. In the absence of practicable mitigation measures, the significant adverse impact to the street stairs at the Canal Street (A/C/E) subway station in the AM and PM peak hours would remain unmitigated. DCP, as lead agency, will explore potential mitigation measures in coordination with NYCT between publication of the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would mitigate the subway stair to the greatest extent practicable, the Proposed Actions would result in unmitigated significant adverse subway station impacts.

Pedestrians

The Proposed Actions would result in a significant adverse impact to the north sidewalk on Canal Street between Lafayette and Centre Streets during the Saturday peak hour at a location where pedestrian flow is constrained by the presence of a subway station elevator structure. While relocation of the subway station elevator is not practicable, DCP, as lead agency, will further explore potential mitigation measures in coordination with DOT between publication of the DEIS

and FEIS. Absent the identification and implementation of feasible mitigation measures that would mitigate the significant adverse impact to the north sidewalk on Canal Street between Lafayette and Centre Streets during the Saturday peak hour, the Proposed Actions would result in an unmitigated significant adverse pedestrian impact at this location.

CONSTRUCTION

The EIS analysis is based on conceptual and conservative construction phases and noise emission estimates. For example, the intensity of construction noise fluctuates throughout the days and months of construction, while the construction noise analysis is based on the worst-case time periods only, which is conservative. These noise impact analyses show that the predicted noise levels under these assumptions could exceed the *CEQR Technical Manual* impact criteria throughout the Project Area. Since this analysis is based on a conceptual site plan and construction schedule, it is also possible that the actual construction noise impacts may be of lesser magnitude, or that construction on multiple projected development sites may not overlap, in which case the construction noise impacts would be reduced.

Mitigation for these impacts could include a variety of source and path controls. Between publication of the DEIS and FEIS, all possible mitigation measures to address the identified construction noise impacts will be explored. In the event no additional practicable or feasible mitigation measures are identified, the significant adverse construction noise impacts would be unavoidable.

B. OPEN SPACE

The Proposed Actions would result in significant adverse impacts on the total, active, and passive open space ratios. In addition, the Proposed Actions would result in a direct significant adverse shadow impact to four open space resources, see below under Section C, "Shadows."

Potential open space mitigation measures to address this impact that are under consideration by DCP include the creation of additional passive open space in or near the Project Area, or the provision of funding for open space improvements to partially mitigate the significant adverse open space impact. These measures are to be further explored by DCP in consultation with NYC Parks between the DEIS and FEIS.

C. SHADOWS

The Proposed Actions would result in significant adverse shadow impacts to six sunlight-sensitive resources: The Most Precious Blood Church on Baxter Street, the Merchant's House Museum on East Fourth Street, Grand Canal Court at Canal Street and Sixth Avenue, a Greenstreets space next to the Grand Canal Court, Petrosino Square at Centre and Spring Streets, and a planned future open space on East 4th Street between Lafayette Street and Bowery. Each of these impacts and the potential for mitigation is described below. In each case, these mitigation measures are to be further explored in consultation with LPC or NYC Parks between publication of the DEIS and FEIS. If feasible mitigation is found, the impacts will be considered partially mitigated. In the absence of feasible mitigation, each significant adverse shadow impact would remain unavoidable.

MOST PRECIOUS BLOOD CHURCH

This church, listed on the State and National Registers of Historic Places, has large stained-glass windows on its front (west), Baxter Street façade and a row of stained-glass windows on its south façade, both of which face projected development sites, primarily Projected Development Site 27. The stained-glass windows would not be subject to any new shadows in winter but would receive

an hour and a half of new shadow on March 21 and September 21 afternoons and three to three and a half hours of new shadow on late spring and summer afternoons. The new shadow would cover large portions of the windows at times and would eliminate the remaining sun on the windows for 50 minutes to an hour in the late afternoons of the spring, summer, and fall months.

The *CEQR Technical Manual* identifies potential mitigation strategies to reduce or eliminate, to the greatest extent practicable, adverse shadow impacts to sunlight-sensitive architectural features, including changes to the bulk or configuration of projected or potential development sites that cause or contribute to the adverse impact. For adverse impacts to stained-glass windows, potential mitigation measures could also include the provision of artificial lighting to simulate the effect of direct sunlight or implementing some other mutually agreed-upon measure to improve the clarity of the sunlight and ambient light reaching the interior sanctuary. Between the DEIS and FEIS, DCP will continue to examine potential mitigation measures that would reduce or eliminate this impact.

MERCHANT'S HOUSE MUSEUM REAR GARDEN

The Merchants House and Museum Garden is both a New York City and a National Historic Landmark and is under the jurisdiction of NYC Parks and open six days a week in the afternoons, to members (for free) and visitors (for a fee) can enjoy the house by appointment only. The rear yard garden has lush plantings, flower beds, and marble benches, and is enclosed by high walls. The walls and the townhouse itself cast shadows on the garden; however, in the No Action condition, the garden receives sun in the late morning and early afternoon, particularly in the spring, summer, and fall. With the Proposed Actions, the west-adjacent Potential Development Site J would cast new shadow on the garden during these times throughout the year, for approximately an hour up to an hour and 45 minutes, depending on the season, eliminating all the sunlight for most of these periods.

Following the guidelines of the *CEQR Technical Manual*, potential mitigation measures for a historic garden could potentially include a modification of the height or bulk configuration of Potential Development Site J to reduce or avoid incremental shadow; evaluating the feasibility of relocating sensitive plantings or uses to locations within the garden less affected or unaffected by incremental shadow; modifying the layout of the garden to minimize the effects of the incremental shadow on sensitive plantings or uses; and replacing plantings in the affected area with similar but more shade-tolerant plantings. Between the DEIS and FEIS, DCP will continue to examine options with NYC Parks that would reduce or eliminate this impact.

GRAND CANAL COURT

Grand Canal Court is a full-size basketball court with benches, trees, and a high chain-link fence around the perimeter. The Proposed Actions would result in new shadows, primarily from Projected Development Sites 5 and 6, lasting for three to four hours in the morning in every season. In fall, winter, and early spring, incremental shadow from Projected Development Site 6 would fall to the north and shadow areas of the court at times and in winter would eliminate remaining sun for nearly two hours. In late spring and summer months, incremental shadow from Projected Development Site 5 would fall to the southwest across the space early in the early morning for two to three hours, at times eliminating most or all the remaining sun until about 8:00 AM (9:00 AM EDT).

The *CEQR Technical Manual* identifies several different measures that could mitigate significant adverse shadow impacts on open spaces. With regard to passive and active open space uses, such as those in Grand Canal Court, these measures can include modifying the height, shape, size, or

orientation of Projected Development Sites 5 and 6 to eliminate or reduce the extent and duration of incremental shadow on the court; relocating the affected features or uses to another location unaffected by the new shadows within the open space or to another nearby location or replacement facility, if feasible; and providing improvements that would enhance the usability, condition, or attractiveness of the open space. Between the DEIS and FEIS, DCP will continue to examine options with NYC Parks that would reduce or eliminate this impact.

GREENSTREET BETWEEN THOMPSON STREET AND CANAL STREET

This triangular of sidewalk—where Canal Street, Sixth Avenue, and Thompson Street meet—contains several trees in tree pits. The trees appear to be four Japanese zelkova and one northern pin oak. Both species generally require full sun, i.e., a minimum of six hours. There are no benches or other amenities. In the spring, summer, and fall, incremental shadow primarily from Projected Development Site 6 would fall on the space for four to five hours throughout the morning, covering much or all of the space at times, particularly in the March to May and July to September periods. In addition, Projected Development Site 7 would contribute substantial incremental shadow on the March 21/September 21 analysis day. Given these species' sun requirements and the generally stressed nature of this location, in small pits surrounded by traffic, the new shadows would likely cause significant adverse impacts to the health of these trees.

The *CEQR Technical Manual* identifies potential mitigation strategies to reduce or eliminate, to the greatest extent practicable, adverse shadow impacts to open spaces. With regard to plantings, such as the trees in this space, these measures include modifying the height or bulk configuration of Projected Development Sites 6 and 7 to reduce incremental shadow on the space; relocating or replacing the plantings; or undertaking additional maintenance to reduce the likelihood of species loss. Between the DEIS and FEIS, DCP will continue to examine options with NYC Parks that would reduce or eliminate this impact.

PETROSINO SQUARE

This small but heavily used City park at Centre and Spring Streets is a passive space with as seating benches, water fountains, trees, and landscaping. In the late spring and summer, shadow primarily from Projected Development Site 28, and to a lesser degree from Potential Development Site GG, would enter the northern part of the park at about 2:30 PM (3:30 PM EDT) and move eastward. This incremental shadow would eliminate the remaining sun on the northern third of the park from 4:00 PM to 5:00 PM on May 6/August 6 (5:00 PM to 6:00 PM EDT) and on June 21 from 4:30 PM to about 6:00 PM (5:30 PM to 7:00 PM EDT). Total duration of incremental shadow on these dates would be 2½ to 3½ hours, depending on the month, and for nearly half of that period the incremental shadow would eliminate the remaining sunlit area on the north side of the park.

The *CEQR Technical Manual* identifies potential measures that could mitigate significant adverse shadow impacts on open spaces. With regard to this park, such measures could include relocating or replacing the bench seating in the affected area to another location in the park; providing improvements to enhance the attractiveness or condition of the bench seating or other passive amenities in the park; relocating or replacing plantings; or undertaking additional maintenance to reduce the likelihood of species loss. Between the DEIS and FEIS, DCP will continue to examine options with NYC Parks that would reduce or eliminate this impact.

BOWERY & EAST 4TH STREET PLANNED OPEN SPACE

A new publicly accessible open space will be developed on East 4th Street between Lafayette Street and Bowery (east-adjacent to the Merchant's House Museum and Garden, see above) as

part of a New York city Environmental Protection (DEP) infrastructure project. This space will be mostly paved with a small turf oval in the center, and planted buffers and benches around the west, north, and east perimeters. Incremental shadow would fall on this space in all seasons. In the fall, winter, and early spring, incremental shadow primarily from Projected Development Site 13 would fall on the space in the late morning and midday hours. Incremental shadow from Projected Development Site 2 would fall on the space in the late afternoon for 90 minutes in the fall and early spring. In the late spring and summer months, incremental shadow from Potential Development Site J would fall on the space in the mid-to late afternoons.

Potential measures that could mitigate the significant adverse shadow impact to this park could include modifying the height or bulk configuration of Projected Development Sites 13, 1, and 2; planting shade-tolerant plantings in the sections of the space affected by incremental shadow occurring during the growing season (represented by the May 6/August 6, June 21, and to a lesser extent March 21/September 21 analysis days); locating the bench seating in the areas of the space least affected by incremental shadow; or providing improvements to enhance the attractiveness or condition of the bench seating or other passive amenities in the park. Between the DEIS and FEIS, DCP will continue to examine options with NYC Parks that would reduce or eliminate this impact.

D. HISTORIC AND CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

A Phase 1A Archaeological Documentary Study determined that all or portions of 21 lots on 17 projected and potential development sites are potentially archaeologically sensitive for resources associated with the 19th Century occupation of the Project Area. The Phase 1A Study recommended additional archaeological analysis for certain development sites, including Phase 1B Archaeological Testing and continued consultation with LPC to determine the presence or absence of any resources on these sites.

All of the 21 lots are under private ownership and are expected to be developed as-of-right subsequent to the proposed rezoning. Since there is no mechanism in place to require a private land owner to conduct Phase 1B archaeological testing or to require the preservation or documentation of archaeological resources, should they exist, this is a significant adverse impact that would remain unmitigated.

ARCHITECTURAL RESOURCES

The Proposed Actions would result in direct significant adverse impacts due to the demolition of buildings within the State and National Registers of Historic Places (S/NR)-listed portion of the SoHo Historic District, the Bowery Historic District, and the Chinatown and Little Italy Historic District. The Proposed Actions also have the potential to result in indirect significant adverse impacts to the S/NR-listed Bowery Historic District with the introduction of new, larger buildings on projected development sites that could adversely affect the setting of architectural resources within the historic district. In addition, the Proposed Actions also have the potential to result in indirect significant adverse impacts to two individual historic architectural resources: the Samuel Tredwell Skidmore House (S/NR-listed, NYCL) and the Old Merchant's House (NHL, S/NR-listed, NYCL, NYCL Interior) with new buildings on the projected and potential development sites in close proximity to these historic architectural resources that could adversely impact their setting.

Privately owned properties that are NYCLs, in NYCHDs, or pending designation as landmarks are protected under the New York City Landmarks Law, which requires LPC review and approval

before any alteration or demolition can occur, regardless of whether the project is publicly or privately funded. In contrast, alterations or demolition of contributing buildings in S/NR-listed historic districts or individually S/NR-listed resources are not subject to LPC's review and approval. Therefore, alterations or demolition of contributing buildings in S/NR-listed historic districts or individually S/NR-listed resources could result in significant adverse direct and indirect impacts to these resources. The significant adverse impacts to these resources as a result of demolition would be unavoidable, as the contributing buildings are privately owned and could be demolished and modified to allow for developments constructed as-of-right absent the Proposed Actions.

To address this impact, measures to partially mitigate the significant adverse impacts will be developed by DCP in consultation with LPC between the DEIS and FEIS.

E. TRANSPORTATION

The Proposed Actions would result in significant adverse impacts to: a) one street stair at the Canal Street (A/C/E) subway station, and b) pedestrian conditions at one sidewalk. Mitigation measures that could address the significant adverse impacts are discussed below.

TRANSIT

Under the Proposed Actions, street stair S6/M8 at the Canal Street (A/C/E) subway station on the Eighth Avenue Line would experience a significant adverse impact due to project-generated demand in both the AM and PM peak hours. Stairway widening is the most common form of mitigation for significant stairway impacts, provided that NYCT deems it practicable (i.e., that it is worthwhile to disrupt service on an existing stairway to widen it and that a given platform and sidewalk affected by such mitigation are wide enough to accommodate the stairway widening). Another potential mitigation measure would be to add vertical capacity (i.e., adding an elevator, escalator or additional stairway) in the vicinity of the impacted stairway.

Table 21-1 shows the minimum stair widening that would be required to fully mitigate the significant adverse stair impact at the Canal Street (A/C/E) subway station based on *CEQR Technical Manual* criteria. As shown in **Table 21-1**, widening stair S6/M8 by four inches would result in a width increment threshold (WIT) below the *CEQR Technical Manual* impact threshold in both the AM and PM peak hours, fully mitigating the significant stair impacts.

Table 21-1
Minimum Required Subway Stairway Widening to Mitigate Impacts at the Canal Street (A/C/E) Station

		With Action						Action-With-Mitigation						
Peak Hour	Stair	Total Width (ft.)	Effective Width (ft.)	V/C Ratio	LOS	WIT	Impact Threshold (inches)	Total Width (ft.)	Effective Width (ft.)	V/C Ratio	LOS	WIT (inches)	Impact Threshold (inches)	Minimum Required Widening
AM	S6/M8	4.67	3.67	1.50	E *	4.76	3	5.00	4.00	1.37	E	4.76	5	0'-4"
PM	S6/M8	4.67	3.67	1.35	E *	5.20	5	5.00	4.00	1.24	D	5.20	6	0'-4"

Notes:
WIT - Width Increment Threshold
* - Denotes a significant adverse impact per *CEQR Technical Manual* criteria.

It should be noted that actual stair widening is planned based on NYCT guidance. Typically, stair widths are considered in terms of 30-inch (2.5-foot) pedestrian lanes. Thus, this stair would ideally be widened to 7.5 feet to provide three pedestrian lanes.

DCP, as lead agency, will explore potential mitigation measures in coordination with NYCT between publication of the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would mitigate the subway station impacts to the greatest extent practicable, the Proposed Actions would result in unmitigated significant adverse subway station impacts.

PEDESTRIANS

The Proposed Actions would result in a significant adverse pedestrian impact to the north sidewalk on Canal Street between Lafayette and Centre Streets during the Saturday peak hour. This impact is located at a point where pedestrian flow is constrained by the presence of a subway station elevator located on the sidewalk adjacent to the curb.

Under *CEQR Technical Manual* guidance, a significant adverse pedestrian impact is considered mitigated if measures implemented return the anticipated conditions to an acceptable level, following the same criteria used in determining impacts. Standard mitigation for projected significant adverse sidewalk impacts typically include relocating or removing street furniture or other impediments to pedestrian flow and sidewalk widening. While relocating this elevator or widening the sidewalk at this location would likely prove impracticable, DCP, as lead agency, will further explore potential mitigation measures in coordination with DOT between publication of the DEIS and FEIS. Absent the identification and implementation of feasible mitigation measures that would mitigate the significant adverse impact to the north sidewalk on Canal Street between Lafayette and Centre Streets, during the Saturday peak hour, this significant adverse impact would remain unmitigated.

F. CONSTRUCTION

The conceptual construction schedule conservatively accounts for overlapping construction activities at development sites in proximity to one another to capture the cumulative nature of construction impacts with respect to number of worker vehicles, trucks, and construction equipment at any given time, within reasonable construction scheduling constraints for each of the development sites in the rezoning area. Because the analysis is based on construction phases, it does not capture the natural daily and hourly variability of construction noise at each receptor. The level of noise produced by construction fluctuates throughout the days and months of the construction phases, while the construction noise analysis is based on the worst-case time periods only, which is conservative.

Construction of each projected or potential development would be required to meet the requirements of the New York City Noise Control Code for construction noise control. To meet these requirements, specific noise control measures would be incorporated in noise mitigation plan(s) required under the New York City Noise Control Code. These measures could include a variety of source and path controls.

The following mitigation measures beyond the noise control measures already identified in Chapter 20, "Construction," could further partially mitigate significant adverse impacts (and substantially reduce construction-related noise levels) at some locations:

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

The measures presented above would address the pieces of construction equipment that would produce the highest noise levels. However, even with the mitigation measures described, significant adverse construction noise impacts associated with the construction of some Projected and Potential Development Sites would be unavoidable and remain unmitigated. ✶