

**A. INTRODUCTION**

The technical analyses presented in Chapters 2 through 21 discuss the potential for significant adverse environmental impacts to result from the proposed project. Such potential impacts were identified in the areas of historic resources, air quality and traffic. Measures have been examined to minimize or eliminate these anticipated impacts. These mitigation measures are discussed below.

**B. HISTORIC RESOURCES****OVERVIEW**

As described in Chapter 7, “Historic Resources,” the proposed project includes the construction of a new steel sheet pile bulkhead along the eastern boundary of the project site. An anchoring system consisting of “deadmen” and steel tie rods would be installed, and would extend up to 40 feet landward of the bulkhead. The tie rods would run from the new sheeting to the deadmen approximately every eight feet for the length of the bulkhead. The installation of the tie rods would require that trenches between the bulkhead and the deadmen be excavated. The installation of the tie rods could require removal of portions of the existing cribwork sufficient to allow the steel tie rods to pass through the area. The proposed bulkhead rehabilitation design described above may require modification based on the requirements of the New York State Department of Environmental Conservation (DEC) and/or U.S. Army Corps of Engineers (ACOE).

Two new storm water outfalls would also be constructed through the existing bulkhead, one at the end of 1st Street and the other at the end of 2nd Street. The proposed bulkhead work and storm water outfall installation described above would adversely impact portions of the existing bulkhead at the project site.

**PROPOSED MITIGATION**

To mitigate the significant adverse impact on the existing bulkhead under the New York City Environmental Quality Review (CEQR), an archaeological field investigation would be undertaken in coordination with the New York City Landmarks Preservation Commission (LPC) that would document the extent and significant characteristics of the portion of the Gowanus Canal bulkhead on the project site. The goals of the investigation would be to determine the length and width of a single crib, document and/or sample fill contained within the timber cribwork, and to evaluate and document the bulkhead’s construction, including the joinery between adjacent cribs. This field investigation would occur either in advance of or in concert with the bulkhead reconstruction and storm water outfall installation. An Archaeological Testing Protocol in compliance with the *LPC’s Guidelines for Archaeological Work in New York City* (2002) would be prepared and implemented in coordination with LPC.

## C. AIR QUALITY

As described in Chapter 18, “Air Quality,” an analysis was performed to determine if local odor conditions near the project site could impact the proposed project. Based on real-time sampling of odors at the project site, it was determined that at times, the concentration of hydrogen sulfide (H<sub>2</sub>S)—an indicator of potential odors—was above the 10 parts per billion (ppb) nuisance-based threshold. In accordance with the *CEQR Technical Manual*, these levels would constitute a potential significant odor impact that could occur with respect to both future open space users and residents at the project site.

Given that local waterway and infrastructure is assumed to be the greatest contributor of H<sub>2</sub>S, to the ambient condition, this impact could potentially be reduced through the implementation of the City-proposed infrastructure projects for the area by 2013 (described above) which include:

- *Rehabilitation of the Gowanus Canal Flushing Tunnel*—This rehabilitation will increase the capacity for water intake from the East River to the canal from 154 mgd to 215 mgd. This would improve water quality and dissolved oxygen levels, enhance flow through and circulation, and reduce stagnation and organic matter concentrations in the canal waters which is one potential source of H<sub>2</sub>S.
- *Reconstruction of the Gowanus Pump Station*—This reconstruction would result in the expansion of the capacity of the Gowanus Pump Station through the installation of four new pumps and the redirection of sewage to a force main that currently runs along the inside of the Flushing Tunnel. Because the current force main is not operational, that flow is diverted to the Bond Street sewer, which could be another source of H<sub>2</sub>S through manholes and vents. Moreover, relieving the capacity of the Bond Street combined sewer reduced the potential for CSO discharges into the canal (the reconstruction of the Pump Station and replacement of the force main is projected to reduce the annual volume of CSO discharges to the canal by 34 percent) which in-turn reduces another potential source of H<sub>2</sub>S.
- *Dredging*—Dredging the upper 750 feet of the Gowanus Canal will eliminate exposed sediment mounds which has previously been identified as another potential source of H<sub>2</sub>S in the area.

As a result of the above-described proposed infrastructure improvements, it is possible that the identified odor impacts could potentially be reduced by 2013 (or upon completion of dredging). Since it is anticipated that these improvements would be implemented after the proposed project’s build year, the odor impacts would be considered unmitigated unavoidable adverse impacts until the completion of the improvements. To the extent that none of these measures are implemented or in the event that such measures are ineffective, H<sub>2</sub>S levels at the site could remain above 10 ppb for an hourly average, thereby constituting an unmitigated unavoidable adverse impact of the proposed project.

## D. TRAFFIC

### OVERVIEW

As described in Chapter 16, “Traffic and Parking,” two of the intersections in the study area would experience significant adverse traffic impacts as a result of the proposed project. The sections below identify the mitigation needed at each location.

**PROPOSED MITIGATION MEASURES**

Measures proposed to mitigate the project-related traffic impacts would primarily involve retiming signal controls to increase green time for impacted movements and prohibition of curbside parking at one of the intersection approaches to provide an additional travel lane. The proposed mitigation measures are summarized in Table 22-1 and are discussed below.

**Table 22-1  
Proposed Mitigation Measures**

<b>Intersections</b>	<b>AM Peak Hour</b>	<b>PM Peak Hour</b>
3rd Avenue and Carroll Street	Prohibit parking on the south curb of eastbound Carroll Street approach for approximately 150 feet to provide an additional moving lane of traffic.	Shift 3 seconds of green time from the northbound/southbound phase to the eastbound phase.
4th Avenue and Carroll Street	Shift 4 seconds of green time from the northbound/southbound phase to the eastbound phase.	Shift 2 seconds of green time from the northbound/southbound phase to the eastbound phase.

*3RD AVENUE AND CARROLL STREET*

The impact at the eastbound approach of Carroll Street at 3rd Avenue during the weekday AM peak hour could be mitigated by prohibiting the curbside parking along the south side of the eastbound approach for approximately 150 feet during the AM peak hour. Currently, the curbside parking on the south side of Carroll Street is regulated by alternate side parking (street cleaning) regulations. With the proposed mitigation measure in place, no vehicular parking/standing would be allowed during the weekday AM peak hour (displacing approximately 7 parking spaces at the intersection approach) to provide an additional travel lane. The displaced parking spaces would increase the on-street parking utilization in the study area to approximately 98 percent during the early morning hours.

The impact at the eastbound approach of Carroll Street at 3rd Avenue during the weekday PM peak hour could be mitigated by shifting 3 seconds of green time from the northbound/southbound phase to the eastbound phase.

*4TH AVENUE AND CARROLL STREET*

The impact at the eastbound approach of Carroll Street at 4th Avenue during the weekday AM peak hour could be mitigated by shifting 4 seconds of green time from the northbound/southbound phase to the eastbound phase.

The impact at the eastbound approach of Carroll Street at 4th Avenue during the weekday PM peak hour could be mitigated by shifting 2 seconds of green time from the northbound/southbound phase to the eastbound phase.

As presented in Table 22-2, with the above mitigation measures in place, all the impacted approaches would operate at the same or better service conditions than the No Build conditions. It should be noted that all of the mitigation measures discussed above are subject to review and approval by NYCDOT.

**Table 22-2**  
**2011 No Build, Build and Build with Mitigation Conditions Level of Service Analysis**

	AM Peak Hour												PM Peak Hour															
	2011 No Build				2011 Build				2011 Build with Mitigation				2011 No Build				2011 Build				2011 Build with Mitigation							
	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS	Lane Group	v/c Ratio	Delay (spv)	LOS
<b>3rd Avenue and Carroll Street</b>																												
Eastbound	LTR	1.02	100.0	F	LTR	1.21	164.7	F	+	LT	0.74	55.5	E*	LTR	1.16	140.9	F	LTR	1.26	178.3	F	+	LTR	1.13	127.0	F		
										R	0.54	47.4	D*															
Northbound	TR	1.10	79.5	E	TR	1.10	80.2	F		TR	1.10	80.2	F	TR	0.55	12.6	B	TR	0.55	12.6	B		TR	0.57	14.6	B		
Southbound	LT	0.75	20.1	C	LT	0.75	20.2	C		LT	0.75	20.2	C	LT	0.91	31.9	C	LT	0.91	32.1	C		LT	0.95	39.9	D		
	Intersection	66.5	E	Intersection	79	E		Intersection	59.6	E		Intersection	54.7	D	Intersection	66.1	E		Intersection	56.2	E		Intersection	56.2	E			
<b>4th Avenue and Carroll Street</b>																												
Eastbound	LTR	0.90	72.8	E	LTR	1.02	101.3	F	+	LTR	0.90	69.2	E	LTR	0.99	91.0	F	LTR	1.05	108.1	F	+	LTR	0.98	87.5	F		
Northbound	TR	0.68	14.0	B	TR	0.68	14.0	B		TR	0.71	16.9	B	TR	0.63	13.2	B	TR	0.63	13.2	B		TR	0.65	14.6	B		
Southbound	L	0.43	24.2	C	L	0.43	24.2	C		L	0.47	31.3	C	L	0.40	19.1	B	L	0.40	19.1	B		L	0.42	21.2	C		
	T	0.43	10.3	B	T	0.43	10.3	B		T	0.45	12.3	B	T	0.59	12.4	B	T	0.59	12.4	B		T	0.60	13.6	B		
	Intersection	18.0	B	Intersection	21.4	C		Intersection	20.6	C		Intersection	19.9	B	Intersection	21.8	C		Intersection	21.0	C		Intersection	21.0	C			
<b>Notes:</b> L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service + implies a significant project impact * The overall approach delay at eastbound Carroll Street at 3rd Avenue will be 52.7 spv (LOS D)																												

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