Chapter 19: Mitigation

A. INTRODUCTION

The technical analyses presented in Chapters 2 through 18 examine the potential for significant adverse impacts resulting from the proposed project. Where significant adverse impacts have been identified, measures are proposed to minimize or avoid them. This chapter discusses these mitigation measures in the areas of traffic and parking. The chapter also analyzes the air quality effects of the proposed traffic mitigation measures.

B. TRAFFIC AND PARKING

As discussed in Chapter 13, "Traffic and Parking," the proposed project would result in significant adverse traffic impacts at a number of locations in the traffic study area. This section describes the mitigation measures needed at each of these locations to reduce or eliminate the significant impacts, or whether they would remain unmitigated (**Figures 19-1 through 19-4** provide a graphic overview of these findings). **Table 19-1** summarizes the significant adverse traffic impacts and whether they could be fully or partially mitigated with the implementation of traffic improvement measures. Details of the intersection capacity analyses and all traffic mitigation measures (e.g., signal timing changes, parking regulation changes, lane reconfigurations, etc.) are presented at the end of this chapter and in **Appendix E**.

Table 19-1
Traffic Impact Mitigation Summary

Intersections	Weekday			Saturday
	AM	Midday	PM	Midday
No significant impact	15	16	12	13
Fully mitigated impact	9	5	8	5
Partially mitigated impact	0	0	3	5
Unmitigated impact	1	4	2	2

The major overall finding is that the vast majority of the 25 intersections analyzed would either not be significantly impacted or could be mitigated with traffic improvement measures, including signal timing changes, parking regulation changes to gain a travel lane at key intersections, intersection channelization, and lane markings and signage. These measures represent some of the standard traffic capacity improvements that are typically implemented by the New York City Department of Transportation (NYCDOT).

As shown in **Table 19-1**, in the weekday AM peak hour one of the 25 intersections would remain unmitigated; in the weekday midday peak hour four intersections would remain unmitigated; in the weekday PM peak hour two intersections would remain unmitigated and three others could only be partially mitigated; and in the Saturday midday peak hour two intersections would remain unmitigated and five others could only be partially mitigated. Nearly all of the intersections that could be partially mitigated or would remain unmitigatable are located at a substantial distance

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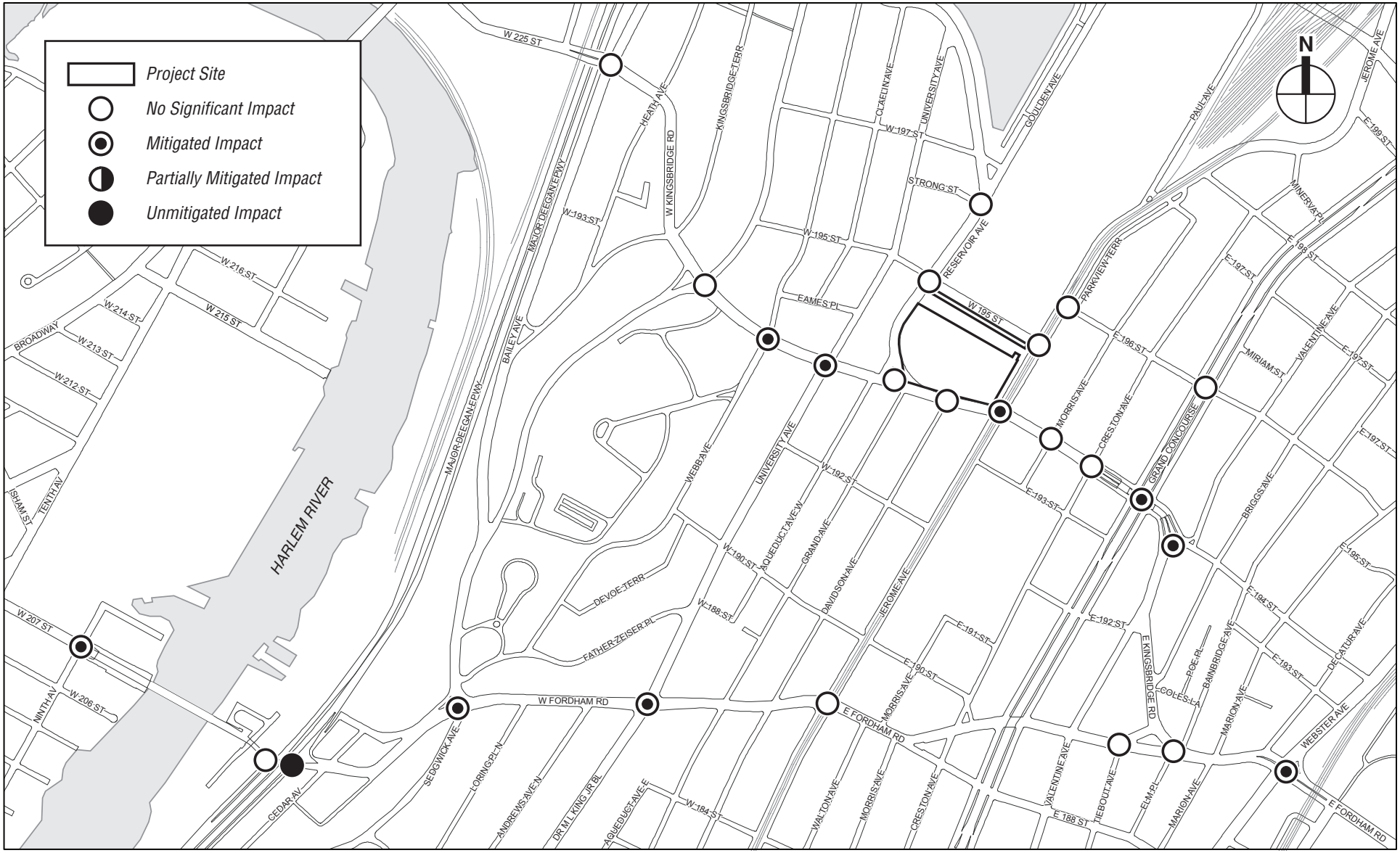

Traffic Mitigation Overview
Weekday AM Peak Hour

THE SHOPS AT THE ARMORY

Figure 19-1

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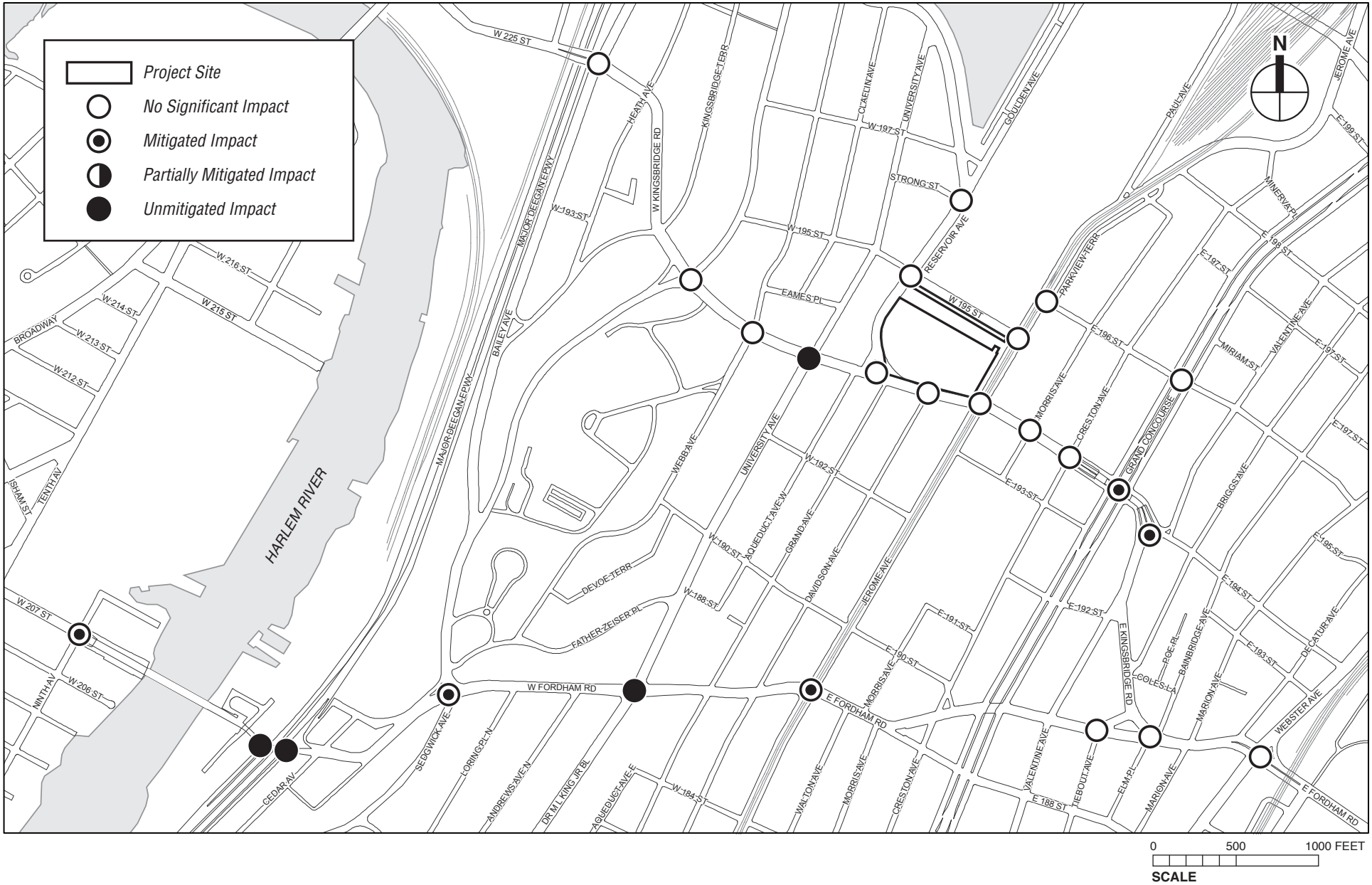

Traffic Mitigation Overview
Weekday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 19-2

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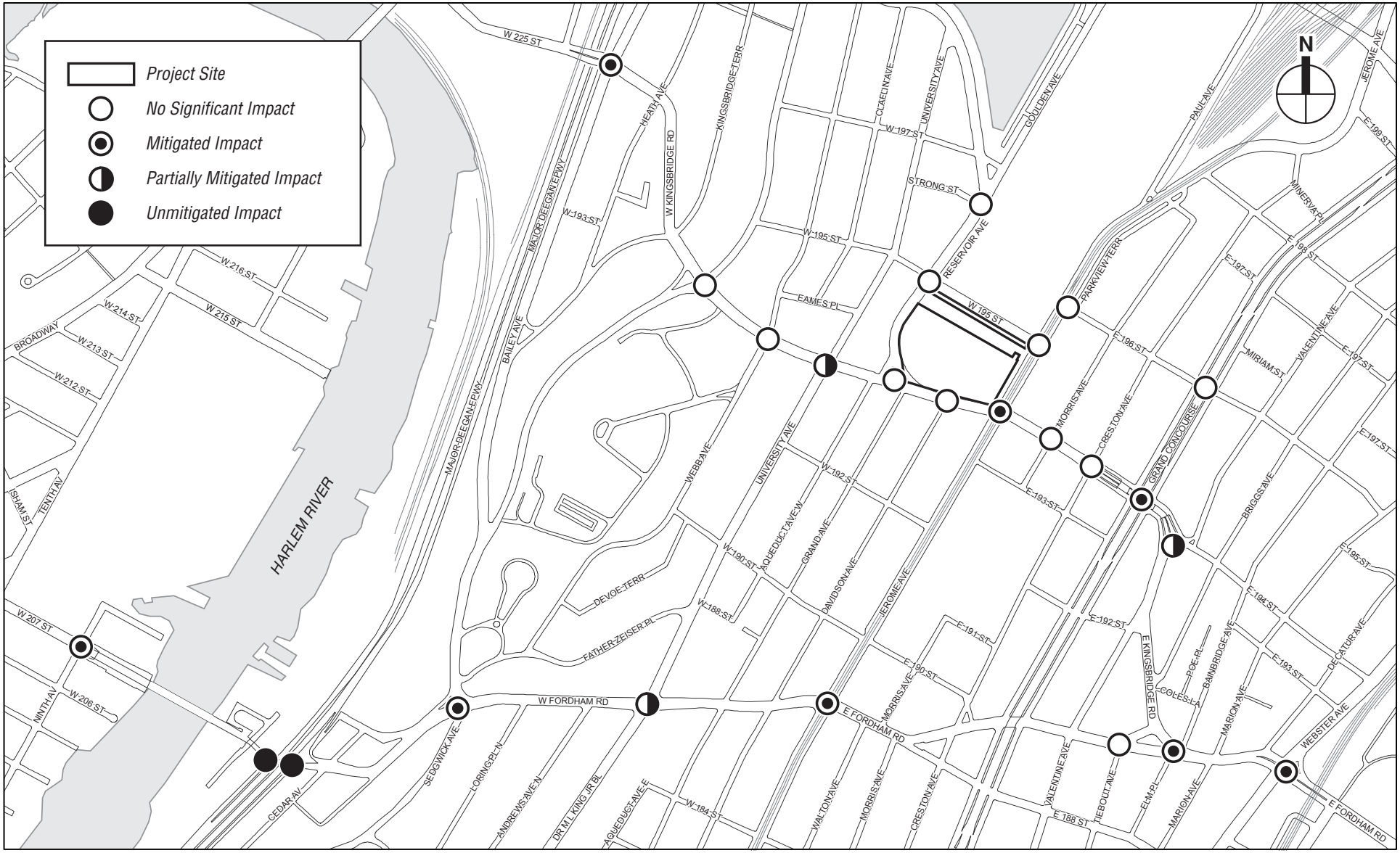

Traffic Mitigation Overview
Weekday PM Peak Hour

THE SHOPS AT THE ARMORY

Figure 19-3

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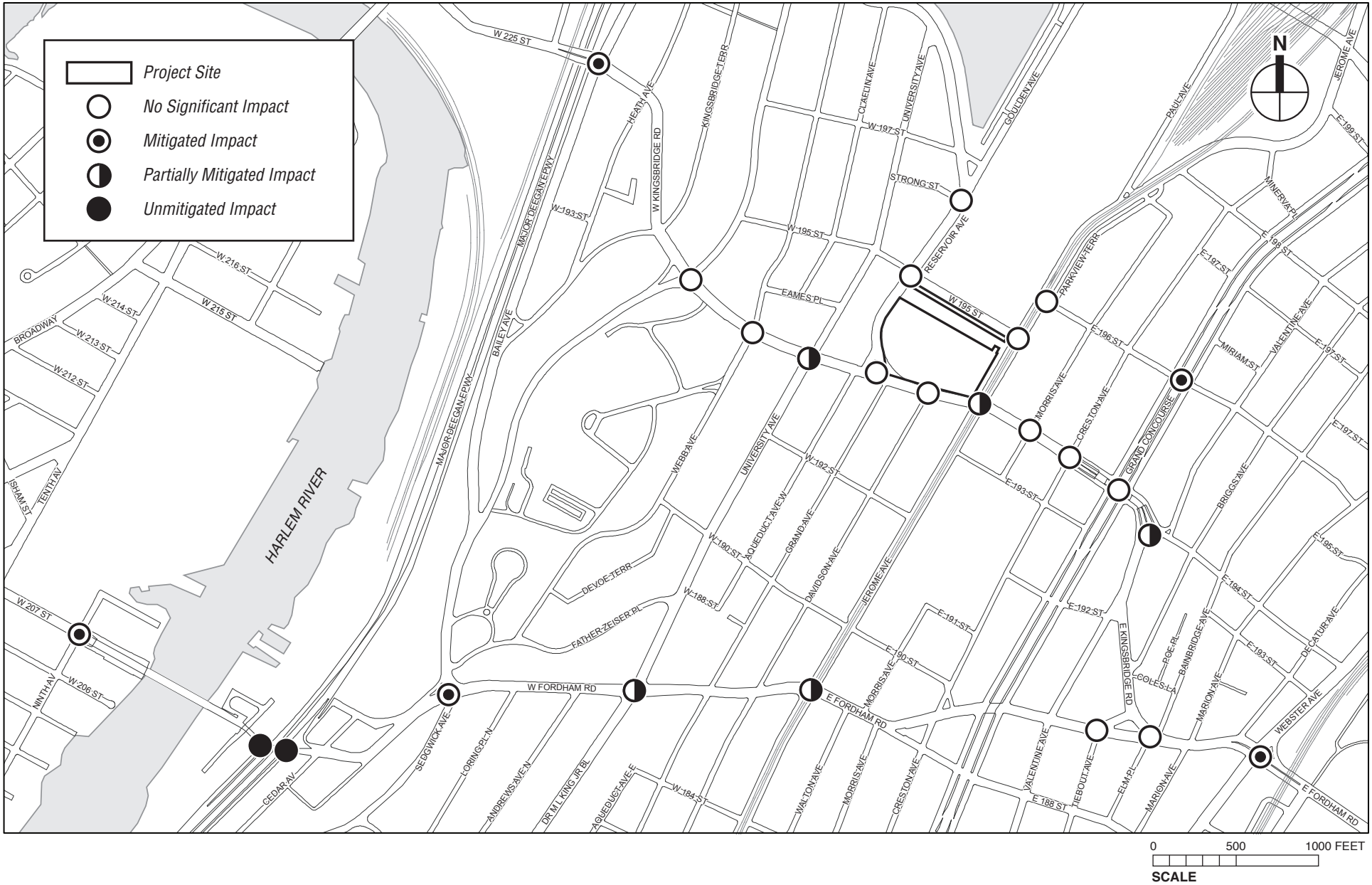

Traffic Mitigation Overview
Saturday Midday Peak Hour

THE SHOPS AT THE ARMORY

Figure 19-4

from the project site. These include the intersections of West Fordham Road with Jerome Avenue, University Avenue, and the Major Deegan Expressway northbound and southbound ramps, and the intersection of East Kingsbridge Road and Valentine Avenue/East 194th Street. West Fordham Road is characterized by substantial traffic volumes due to commercial activities along it and the heavy background traffic coming off or turning onto the Major Deegan Expressway and crossing between Upper Manhattan and the Bronx at one of only a few crossing locations. At most of these intersections, the addition of even a moderate amount of project-generated traffic is expected to create significant impacts since most of these intersections have at least one, if not several, traffic movements operating at unacceptable LOS E or F under future No Build conditions. The intersections of West Fordham Road and the Major Deegan Expressway northbound and southbound ramps, in particular, are major known congestion points today, at which even minimal traffic additions would not be mitigatable.

Significant adverse traffic impacts that would result from the proposed actions could not be fully mitigated at the following intersections:

- In the weekday AM peak hour, one intersection (West Fordham Road and the Major Deegan Expressway northbound ramp) would remain unmitigated.
- In the weekday midday peak hour, four intersections (West Kingsbridge Road and University Avenue, West Fordham Road and University Avenue, and West Fordham Road and the Major Deegan Expressway northbound and southbound ramps) would remain unmitigated.
- In the weekday PM peak hour, three intersections (West Kingsbridge Road and University Avenue, West Fordham Road and University Avenue, and East Kingsbridge Road and Valentine Avenue/East 194th Street) could only be partially mitigated, and two intersections (West Fordham Road and the Major Deegan Expressway northbound and southbound ramps) could not be mitigated at all.
- In the Saturday midday peak hour, five intersections (Kingsbridge Road and Jerome Avenue, West Kingsbridge Road and University Avenue, Fordham Road and Jerome Avenue, West Fordham Road and University Avenue, and East Kingsbridge Road and Valentine Avenue/East 194th Street) could only be partially mitigated, and two intersections (West Fordham Road with the Major Deegan Expressway northbound and southbound ramps) could not be mitigated at all.

Traffic mitigation measures needed for each intersection are described below.

KINGSBRIDGE ROAD CORRIDOR

Five of the eleven intersections analyzed along Kingsbridge Road would be significantly impacted during the weekday AM peak hour, three would be significantly impacted during the weekday midday peak hour, five would be significantly impacted during the weekday PM peak hour, and four would be significantly impacted during the Saturday midday peak hour. Each of these impacts could be fully mitigated with traffic capacity improvements with the exception of: Kingsbridge Road and Jerome Avenue, which could be partially mitigated in the Saturday midday peak hour, West Kingsbridge Road and University Avenue, which could not be mitigated during the weekday midday peak hour, and could be partially mitigated in the weekday PM and Saturday midday peak hours; and the intersection of East Kingsbridge Road and Valentine Avenue/East 194th Street, which could be partially mitigated in the weekday PM and Saturday midday peak hours.

East Kingsbridge Road and the Grand Concourse: Significant impacts would occur during the weekday AM, midday, and PM peak hours. These impacts could be fully mitigated in the weekday AM and midday peak hours by restriping the northbound Grand Concourse mainline roadway to increase the left turn lane width by two feet and by installing "No Standing Anytime" parking regulations (entailing the loss of approximately four parking spaces) along the southbound Grand Concourse service road-to allow for a right turn lane for 100 feet approaching East Kingsbridge Road. Significant impacts in the weekday PM peak hour could be fully mitigated by signal timing modifications in addition to this restriping. There would be no significant impacts at this intersection for the Saturday midday peak hour, but the same physical mitigation measures would be in place.

Kingsbridge Road and Jerome Avenue: Significant impacts would occur during the weekday AM and PM peak hours and the Saturday midday peak hour, and would require the following mitigation measures: (1) shift the West Kingsbridge Road centerline by one foot to the north and restripe the eastbound approach as one shared left-through lane, one through lane, and one right turn lane; (2) install "No Standing 11 AM–2 PM Saturday" parking regulations (entailing the loss of approximately three parking spaces) along the south side of eastbound West Kingsbridge Road adjacent to the bus stop; (3) install signage along the eastbound approach informing motorists that the curb lane is for buses and right turns only; (4) shift the East Kingsbridge centerline by one foot to the south to provide an additional westbound travel lane during the weekday PM peak period; (5) install "No Standing 4-7 PM Monday to Friday" parking regulations (entailing the loss of approximately five parking spaces) along the north side of westbound East Kingsbridge Road; and (6) modify the signal timing. With these measures in place, significant traffic impacts during the weekday AM and PM peak hours would be fully mitigated and significant impacts during the Saturday midday peak hour would be partially mitigated; there would be no significant impacts in the weekday midday peak hour, but the same physical mitigation measures would be in place. As mentioned in the DEIS, the feasibility of an additional mitigation measure that would fully mitigate impacts at this intersection during all peak periods analyzed was to be evaluated. The measure would prohibit parking along the Jerome Avenue approaches and restripe the parking lanes as right turn only lanes. After further discussions with NYCDOT after the certification of the DEIS, this measure is no longer considered feasible due to the installation of neckdowns along the Jerome Avenue approaches as part of a safety improvement proposal at this intersection; the Saturday midday peak hour would remain partially mitigated for the FEIS.

West Kingsbridge Road and University Avenue: Significant impacts would occur during all peak hours analyzed. The following measures would be needed to fully mitigate these impacts during the weekday AM peak hour and to partially mitigate them during the weekday PM and Saturday midday peak hours: (1) eliminate the northbound University Avenue hatched median and shift the northbound approach centerline two feet to the west to gain an additional travel lane during the weekday midday and PM peak periods, and Saturday midday peak period; (2) install "No Standing 11 AM–2 PM, 4–7 PM Monday to Friday, 11 AM–2 PM Saturday" parking regulations (entailing the loss of approximately eight parking spaces) along the east side of northbound University Avenue; (3) shift the westbound West Kingsbridge Road centerline 1.5 feet to the south to gain an additional travel lane during the weekday AM peak period; (4) install "No Standing 7–10 AM Monday to Friday" parking regulations (entailing the loss of approximately seven parking spaces) along the north side of westbound West Kingsbridge Road; and (5) modify the signal timing. This intersection could not be mitigated during the weekday midday peak hour, but the same physical mitigation measures would be in place.

West Kingsbridge Road and Webb Avenue: Significant impacts in the weekday AM peak hour could be fully mitigated with signal timing modifications.

West Kingsbridge Road/West 225th Street and Bailey Avenue: Significant impacts in the weekday PM and Saturday midday peak hours could be fully mitigated by the following measures: (1) restripe westbound West Kingsbridge Road to provide one exclusive left turn lane, two through lanes, and one right turn lane; (2) install "No Standing 4-7 PM Monday-Friday" parking regulations (entailing the loss of approximately three parking spaces) along the north side of the westbound approach; (3) install signage along the westbound approach informing motorists that the curb lane is for buses and right turns only; and (4) modify the signal timing. There would be no significant impacts at this intersection for the weekday AM and midday peak hours, but the same physical mitigation measures would be in place during these peak hours.

East Kingsbridge Road and Valentine Avenue/East 194th Street: Significant impacts would occur during all peak hours analyzed. Significant impacts could be fully mitigated during the weekday AM and midday peak hours, and partially mitigated during the weekday PM and Saturday midday peak hours with signal timing modifications.

FORDHAM ROAD/WEST 207TH STREET CORRIDOR

Five of the nine intersections analyzed along Fordham Road/West 207th Street would be significantly impacted during the weekday AM peak hour, six would be significantly impacted during the weekday midday peak hour, eight would be significantly impacted during the weekday PM peak hour, and seven would be significantly impacted during the Saturday midday peak hour. Each of these impacts could be fully mitigated with traffic capacity improvements with the exception of: Fordham Road and Jerome Avenue, which could only be partially mitigated during the Saturday midday peak hour; Fordham Road and University Avenue, which could not be mitigated during the weekday midday peak hour, and could only be partially mitigated during the weekday PM and the Saturday midday peak hours; the intersection of West Fordham Road and the Major Deegan Expressway northbound ramp, which could not be mitigated during any of the peak hours analyzed; and the intersection of West Fordham Road and the Major Deegan Expressway southbound ramp, which could not be mitigated during the weekday midday and PM peak hours, and the Saturday midday peak hour.

East Kingsbridge Road/Elm Place and East Fordham Road: Significant impacts during the weekday PM peak hour could be fully mitigated by signal timing modifications.

East Fordham Road and Tiebout Avenue: There would be no significant impacts during all peak hours analyzed; however, signal timing modifications would be needed during the weekday PM peak hour to coordinate with mitigation measures at the intersection of East Kingsbridge Road/Elm Place and East Fordham Road.

Fordham Road and Jerome Avenue: Significant impacts would occur during the weekday midday and PM peak hours and the Saturday midday peak hour. All impacts could be fully mitigated during the weekday midday and PM peak hours, and partially mitigated during the Saturday midday peak hour, with signal timing modifications.

West Fordham Road and University Avenue: Significant impacts would occur during all peak hours analyzed and could be fully mitigated during the weekday AM peak hour, and partially mitigated during the weekday PM and Saturday midday peak hours by the following measures: (1) restripe the northbound approach to provide one shared left-through lane, one through lane and one right turn lane; (2) install "No Standing Anytime" parking regulations (entailing the loss of

approximately five parking spaces) along the east curb of northbound University Avenue; (3) install signage along the northbound approach informing motorists that the curb lane is for buses and right turns only; and (4) modify the signal timing. This intersection could not be mitigated during the weekday midday peak hour but the same physical mitigation measures would be in place. During the period between the DEIS and FEIS, NYCDOT's proposed traffic operational improvements at this location have been incorporated in the FEIS' analyses. As a result, with these changes in place, the weekday midday peak hour conditions could not be mitigated, and the weekday PM and Saturday midday peak hours would only be partially mitigated, thus representing a change from the DEIS.

East Fordham Road and Webster Avenue Significant impacts during the weekday AM and PM peak hours, and the Saturday midday peak hour could be fully mitigated with signal timing modifications.

West Fordham Road and Sedgwick Avenue: Significant impacts would occur during all peak hours analyzed. The following measures would be needed to fully mitigate these impacts: (1) install "No Standing Anytime" parking regulations (entailing the loss of approximately seven parking spaces) along the east curb of northbound Sedgwick Avenue to gain an additional travel lane; (2) shift the West Fordham Road centerline two feet to the north and restripe the eastbound approach to increase the left turn lane width by two feet; (3) install "No Standing 4-7 PM Monday – Friday" parking regulations (entailing the loss of approximately seven parking spaces) along the west curb of southbound Sedgwick Avenue; and (4) modify the signal timing.

West Fordham Road and the Major Deegan Expressway Southbound Ramp: Significant impacts would occur during the weekday midday and PM peak hours, and the Saturday midday peak hour and cannot be mitigated.

West Fordham Road and the Major Deegan Expressway Northbound Ramp: Significant impacts would occur during all peak hours analyzed and cannot be mitigated.

West 207th Street and 9th Avenue: Significant impacts during all peak hours analyzed could be fully mitigated with signal timing modifications.

RESERVOIR AVENUE/JEROME AVENUE CORRIDORS

Significant impacts are not expected during any of the analysis periods at the four intersections analyzed along Reservoir Avenue/Jerome Avenue.

GRAND CONCOURSE CORRIDOR

Grand Concourse and East 196th Street: Significant impacts during the Saturday midday peak hour could be fully mitigated with signal timing modifications.

IMPLEMENTATION

Each of the traffic capacity improvements described above fall within the jurisdiction of NYCDOT for implementation. The implementation of these measures would result in the loss of approximately 18 to 39 parking or "standing" spaces during various times of the day and days of the week, including up to seven metered parking spaces. Kingsbridge Road would lose up to eight spaces (including meters) between Bailey Avenue and Morris Avenue; University Avenue would lose up to 13 spaces between West 192nd Street and Eames Place; Sedgwick Avenue would lose about 14 spaces; and Grand Concourse would lose about four spaces along the southbound service road. No

designated truck loading/unloading zones or bus layover space would be affected by the proposed parking modifications for mitigation. If it is determined that on-street parking should be retained at locations where such mitigation was assumed, additional unmitigated traffic impacts would result.

C. AIR QUALITY

Chapter 15, "Air Quality," presents the maximum predicted carbon monoxide (CO) and particulate matter (PM_{10} and $PM_{2.5}$) concentrations for the proposed project, and concludes that the proposed project would not result in significant adverse air quality impacts. Therefore, no air quality mitigation is required.

Since the proposed traffic mitigation measures described above would alter traffic conditions when compared to the proposed project, the localized air quality impacts with mitigation were modeled for the affected intersections. The results of this modeling analysis (performed in accordance with methodologies described in Chapter 15, "Air Quality") indicate that carbon monoxide and particulate matter concentrations would not affect the conclusions in Chapter 15 (see **Tables 19-2 through 19-5** below for modeled concentrations). Therefore, no significant air quality impacts would occur as a result of the proposed traffic mitigation measures.

Table 19-2
2013 Maximum Predicted 8-Hour Average No Build and Build CO Concentrations (with Traffic Mitigation)

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)		
			No Build	Build	Build with Mitigation
1	Kingsbridge Road and University Avenue	Weekday PM	3.3	3.9	3.7
2	Kingsbridge Road and Reservoir Avenue	Weekday PM	3.3	4.0	4.1
3	West Fordham Road and University Avenue	Weekday PM	4.0	4.0	3.9
Note: 8-hour standard is 9 ppm.					

Table 19-3
2013 Maximum Predicted 24-Hour Average No Build and Build PM_{10} Concentrations (with Traffic Mitigation)

Receptor Site	Location	24-Hour Concentration ($\mu g/m^3$)		
		No Build	Build	Build with Mitigation
2	Kingsbridge Road and Reservoir Avenue	53.6	54.7	55.4
Note: National Ambient Air Quality Standards—24-hour, 150 $\mu g/m^3$.				

Table 19-4
2013 Maximum Predicted 24-Hour Average $PM_{2.5}$ Concentrations (with Traffic Mitigation)

Receptor Site	Location	Increment	Increment (with Mitigation)
2	Kingsbridge Road and Reservoir Avenue	0.10	0.10
Note: $PM_{2.5}$ interim guidance criteria—24-hour average, 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value).			

Table 19-5
2013 Maximum Predicted Annual Average $PM_{2.5}$ Concentrations (with Traffic Mitigation)

Receptor Site	Location	Increment	Increment (with Mitigation)
2	Kingsbridge Road and Reservoir Avenue	0.01	0.01
Note: $PM_{2.5}$ interim guidance criteria—annual (neighborhood scale), 0.1 $\mu g/m^3$.			

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