

A. INTRODUCTION

The preceding chapters of this Environmental Impact Statement (EIS) discuss the potential for significant adverse environmental impacts to result from the proposed project. Such potential impacts were identified in the areas of traffic, pedestrians, and noise. Measures have been examined to minimize or eliminate these anticipated impacts. These mitigation measures are discussed below.

B. TRANSPORTATION

TRAFFIC

As discussed in Chapter 8, “Transportation,” traffic conditions were evaluated at 17 intersections for the weekday midday and PM, and Saturday midday and PM peak hours. As summarized in **Table 14-1**, the proposed project would result in significant adverse traffic impacts at 5 intersections in the weekday midday peak hour, 9 in the weekday PM peak hour, 7 in the Saturday midday peak hour, and 9 in the Saturday PM peak hour.

Table 14-1
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday Midday Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour		Saturday PM Peak Hour	
EB/WB Street	NB/SB Street	Significant Impacts	Mit	Significant Impacts	Mit	Significant Impacts	Mit	Significant Impacts	Mit
West Fordham Road	Major Deegan SB Off-Ramp	Not Impacted	NA	Not Impacted		Not Impacted		WB-L	Yes
West Fordham Road	Major Deegan NB On-Ramp	Not Impacted	NA	EB-L NB-R	No No	NB-R	No	EB-L NB-R	No No
West Fordham Road	Sedgwick Avenue	EB-L	No	EB-L	No	EB-L	No	EB-L	No
West Fordham Road	University Avenue	SB-L	Yes	SB-L	Yes	SB-L	Yes	NB-L	Yes
West Fordham Road	Jerome Avenue	SB-LTR	Yes	NB-LTR SB-LTR	Yes Yes	SB-LTR	Yes	NB-LTR SB-LTR	No No
West Kingsbridge Road	Sedgwick Avenue	Not Impacted	NA	WB-L	No	Not Impacted	NA	WB-L	Yes
West Kingsbridge Road	University Avenue	Not Impacted	NA	WB-DefL	No	EB-LTR WB-DefL	No No	WB-LTR	No
West Kingsbridge Road	Reservoir/ Aqueduct Avenue	Not Impacted	NA	Not Impacted	NA	Not Impacted	NA	SB-R	Yes
East Kingsbridge Road	Grand Concourse (Main Line)	NB-L	Yes	NB-L	Yes	Not Impacted	NA	Not Impacted	NA
West 195th Street	Reservoir Avenue	Not Impacted	NA	WB-LTR SB-DefL	Yes Yes	SB-DefL	Yes	Not Impacted	NA
West Kingsbridge Road	Reservoir/ Grand Avenue	EB-LT	No	EB-LT WB-LT	No No	EB-LT	No	EB-LT	No

Notes:
 EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn; DefL = Defacto Left Turn; MIT = Mitigation Provided; NA = Not Applicable

The following sections identify capacity improvements required to mitigate any potential significant adverse traffic impacts resulting from trips generated by the typical daily activities as well as during the peak event conditions. The majority of the mitigation measures proposed

include standard traffic capacity improvements, such as signal phasing and timing changes, lane re-striping and parking prohibitions. These standard traffic mitigation measures would fall within the purview of the New York City Department of Transportation (NYCDOT) which would employ these measures once the proposed project is operational.

PEAK EVENT TRAFFIC MANAGEMENT PLAN

Where standard traffic mitigation measures alone would not be sufficient to improve the traffic and pedestrian operating conditions, mitigation measures including the use of traffic cones or other similar physical means to delineate traffic lanes and the use of Traffic Enforcement Agents (TEAs) to regulate traffic and pedestrian circulation would be provided during peak event conditions (5,000 attendees). These non-standard traffic capacity improvements would be undertaken as part of an overall Traffic Management Plan (TMP) which will be in-effect during peak event conditions. Specifically, TEAs will manage traffic operations at the intersection of West Kingsbridge Road and Reservoir Avenue/ Aqueduct Avenue to regulate the heavy southbound traffic, namely the right turn movement from Reservoir Avenue for the post peak event condition. TEAs will manage pedestrian operations at two key locations near the Lehman College parking lot entrances and exits on Goulden Avenue north of West 197th Street to control pedestrian flows to and from the parking lot during peak events. Additionally, crosswalks at the intersections of West 195th Street and Reservoir Avenue and West Kingsbridge Road and Jerome Avenue will be managed by TEAs to provide enough crossing space. Based on the proposed mitigation measures requiring the use of TEAs to regulate the traffic and pedestrian flows, approximately seven TEAs are expected to be needed during the peak event (5,000 attendees).

The peak event TMP would also include additional traffic operation improvements, such as the use of Variable Message Signs (VMS). The VMS will be installed at critical locations—such as at Reservoir Avenue and West 195th Street—during the peak event conditions to guide patrons to the appropriate parking destination. For example, when the on-site parking garage is operating at full capacity, patrons will be informed by VMS to seek parking at the Lehman College parking lot, thereby eliminating the recirculation of vehicles on study area streets.

The measures to be enforced as part of the peak event TMP—such as the deployment of TEAs, and the deployment of temporary lane delineators—would fall within the purview of the New York Police Department (NYPD). The applicant will coordinate with NYPD (on an as needed basis) to ensure the enforcement of TMP measures during the peak event conditions. Furthermore, the specifics of the TMP will be refined over time based on actual operation conditions once the facility has opened.

RECOMMENDED MITIGATION MEASURES

Table 14-2 summarizes the recommended mitigation measures that are subject to review and approval by the relevant agencies, including the New York City Department of Transportation (NYCDOT).

**Table 14-2
Recommended Mitigation Measures**

Intersection	Weekday Midday	Weekday PM	Saturday Midday	Saturday PM												
West Fordham Road and Major Deegan SB Off-Ramp	No significant Impact	No significant Impact	No significant Impact	Shift 2 second of green time from EB/WB phase to the exclusive WB phase (47s to 45s and 30s to 32s)												
West Fordham Road and Major Deegan NB On-Ramp	No significant Impact	Unmitigated	Unmitigated	Unmitigated												
West Fordham Road and Sedgwick Avenue	Unmitigated	Unmitigated	Unmitigated	Unmitigated												
West Fordham Road and University Avenue	Shift 2 seconds of green time from the WB lead phase to the NB/SB phase (11s to 9s and 42s to 44s).	Shift 2 seconds of green time from WB lead phase to NB/SB phase (11s to 9s and 42s to 44s).	Shift 2 seconds of green time from WB lead phase to NB/SB phase (11s to 9s and 42s to 44s).	1) Shift 1 second of green time from EB/WB phase to NB/SB phase (44s to 43s and 42s to 43s); 2) Prohibit parking (install No Standing 5PM - 8PM Saturday sign) along the south side of the EB approach for 250 ft.												
West Fordham Road and Jerome Avenue	1) Shift the centerline of Fordham Road west of Jerome Avenue 1 ft to the north. Restripe the EB approach from three 10 ft lanes to two 10.5 ft travel lanes and one 10 ft bus lane; 2) Shift 1 second of green time from EB/WB phase to NB/SB phase (81s to 80s and 29s to 30s).	1) Shift the centerline of Fordham Road west of Jerome Avenue 1 ft to the north. Restripe the EB approach from three 10 ft lanes to two 10.5 ft travel lanes and one 10 ft bus lane; 2) Shift 2 seconds of green time from EB/WB phase to NB/SB phase (81s to 79s and 29s to 31s).	1) Shift the centerline of Fordham Road west of Jerome Avenue 1 ft to the north. Restripe the EB approach from three 10 ft lanes to two 10.5 ft travel lanes and one 10 ft bus lane; 2) Shift 1 second of green time from EB/WB phase to NB/SB phase (73s to 72s and 37s to 38s).	Unmitigated 1) Shift the centerline of Fordham Road west of Jerome Avenue 1 ft to the north. Restripe the EB approach from three 10 ft lanes to two 10.5 ft travel lanes and one 10 ft bus lane.												
West Kingsbridge Road and Sedgwick Avenue ⁽¹⁾	Shift 18 seconds of green time from EB/WB phase to create a WB lead phase:															
	Phase	Green	Amber	Red	Phase	Green	Amber	Red	Phase	Green	Amber	Red	Phase	Green	Amber	Red
	WB	13	3	2	WB	13	3	2	WB	13	3	2	WB	13	3	2
	EB/WB	49	3	2	EB/WB	49	3	2	EB/WB	31	3	2	EB/WB	31	3	2
	NB/SB	43	3	2	NB/SB	43	3	2	NB/SB	31	3	2	NB/SB	31	3	2
	Cycle length = 120 Seconds				Cycle length = 120 Seconds				Cycle length = 90 Seconds				Cycle length = 90 Seconds			
West Kingsbridge Road and University Avenue	No significant Impact	Unmitigated	Unmitigated	Unmitigated												
West Kingsbridge Road and Reservoir/ Aqueduct Avenue	No significant Impact	No significant Impact	No significant Impact	1) Temporarily delineate (using cones and TEAs) SB Reservoir Avenue from one 16 ft left turn lane, one 16 ft right turn lane, and one 11 ft lane used for the BX22 and BX32 bus stop, to one 11 ft left turn lane and two 11 ft right turn lanes with a 10 ft lane for use by the BX22 and BX32 bus routes; 2) Prohibit parking (install No Standing 5PM to 8PM Saturday sign) along the north side of West Kingsbridge Road from Reservoir Avenue extending approximately 100 ft. west; 3) Shift 2 seconds of green time from the EB/WB phase to the NB/SB phase (49s to 47s and 31s to 33s).												
East Kingsbridge Road and Grand Concourse (Main Line)	Shift 4 seconds of green time from EB/WB phase to NB/SB phase (42s to 38s and 67s to 71s).	Shift 1 second of green time from EB/WB phase to NB/SB phase (42s to 41s and 67s to 68s).	No significant Impact	No significant Impact												
West 195th Street and Reservoir Avenue ⁽²⁾	1) Shift the centerline of the southbound approach 1 ft to the east. Restripe SB Reservoir Avenue from one 9 ft left-turn/ through lane and one 10 ft through/ right-turn lane, to one 11 ft left-turn/ through lane and one 9 ft through/ right-turn lane; 2) Update the mechanical signal to a computerized signal with a AAT signal plan of 31s green time, 3s amber, 2s red for the EB/WB phase, and 49s green time, 3s amber, and 2s red for the NB/SB phase.	1) Shift the centerline of the southbound approach 1 ft to the east. Restripe SB Reservoir Avenue from one 9 ft left-turn/ through lane and one 10 ft through/ right-turn lane, to one 11 ft left-turn/ through lane and one 9 ft through/ right-turn lane; 2) Update the mechanical signal to a computerized signal with a AAT signal plan of 31s green time, 3s amber, 2s red for the EB/WB phase, and 49s green time, 3s amber, and 2s red for the NB/SB phase.	1) Shift the centerline of the southbound approach 1 ft to the east. Restripe SB Reservoir Avenue from one 9 ft left-turn/ through lane and one 10 ft through/ right-turn lane, to one 11 ft left-turn/ through lane and one 9 ft through/ right-turn lane; 2) Update the mechanical signal to a computerized signal with a AAT signal plan of 31s green time, 3s amber, 2s red for the EB/WB phase, and 49s green time, 3s amber, and 2s red for the NB/SB phase.	1) Shift the centerline of the southbound approach 1 ft to the east. Restripe SB Reservoir Avenue from one 9 ft left-turn/ through lane and one 10 ft through/ right-turn lane, to one 11 ft left-turn/ through lane and one 9 ft through/ right-turn lane; 2) Update the mechanical signal to a computerized signal with a AAT signal plan of 31s green time, 3s amber, 2s red for the EB/WB phase, and 49s green time, 3s amber, and 2s red for the NB/SB phase.												
West Kingsbridge Road and Reservoir /Grand Avenue	Unmitigated	Unmitigated	Unmitigated	Unmitigated												

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound
⁽¹⁾ Mitigation not required for the weekday midday, PM, and Saturday midday peak hours.
⁽²⁾ Mitigation not required for the weekday midday and Saturday PM peak hours.

With the mitigation measures identified in **Table 14-2** in place, the majority of the significant adverse traffic impacts could be fully mitigated. However, significant adverse traffic impacts at two intersections during the weekday midday peak hour, five intersections during the weekday PM peak hour, four intersections during the Saturday midday peak hour, and five intersections during the Saturday PM peak hour would not be fully mitigated. **Tables 14-3** through **14-6** compare the level of service (LOS) conditions for the 2018 No Build, Build, and Mitigation conditions for the weekday midday and PM, and Saturday midday and PM peak hours. A discussion of each impacted intersection along with its recommended mitigation is discussed as follows.

WEST FORDHAM ROAD AND MAJOR DEEGAN EXPRESSWAY SOUTHBOUND OFF-RAMP

The significant adverse impact at the westbound left-turn of this intersection during the Saturday PM peak hour could be fully mitigated by shifting two seconds of green time from the eastbound/westbound phase to the exclusive westbound phase.

WEST FORDHAM ROAD AND MAJOR DEEGAN EXPRESSWAY NORTHBOUND ON-RAMP

The significant adverse impacts at the northbound right-turn of this intersection during the weekday PM, Saturday midday, and Saturday PM peak hours could not be fully mitigated. Additionally, the eastbound left-turn of this intersection during the weekday PM and Saturday PM peak hours could not be fully mitigated.

WEST FORDHAM ROAD AND SEDGWICK AVENUE

The significant adverse impacts at the eastbound left-turn of this intersection during the weekday midday and PM, and Saturday midday and PM peak hours could not be fully mitigated.

WEST FORDHAM ROAD AND UNIVERSITY AVENUE

The significant adverse impacts at the southbound left-turn of this intersection during the weekday midday and PM, and Saturday midday peak hours could be fully mitigated by shifting two seconds of green time from the westbound lead phase to the northbound/southbound phase.

The significant adverse impact at the northbound left-turn of this intersection during the Saturday PM peak hour could be fully mitigated by shifting one second of green time from the eastbound/westbound phase to the northbound/southbound phase, and by prohibiting parking (installing a No Standing 5 PM-8 PM Saturday sign) on the south side of West Fordham Road on the eastbound approach for approximately 250 feet from the intersection.

Table 14-3
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	Weekday Midday (3:00-4:00PM)											
	2018 No Build				2018 Build				2018 Build with 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
Signalized Intersections												
West Fordham Road & Sedgwick Avenue												
Eastbound	L	1.00	83.6	F	L	1.20	148.1	F+	Unmitigated			
	TR	0.54	14.9	B	TR	0.54	15.0	B				
Westbound	LT	0.93	45.8	D	LT	0.93	46.0	D				
	R	0.38	25.0	C	R	0.38	25.0	C				
Northbound	DefL	0.67	55.1	E	DefL	0.68	55.5	E				
	TR	0.57	40.3	D	TR	0.60	41.5	D				
Southbound	LT	0.68	41.5	D	LT	0.69	41.9	D				
	Intersection	38.5		D	Intersection	46.2		D				
West Fordham Road & Dr. MLK Jr. Boulevard/University Avenue												
Eastbound	T	0.76	37.8	D	T	0.76	37.8	D	T	0.76	37.8	D
	R	0.74	56.3	E	R	0.74	56.3	E	R	0.74	56.3	E
Westbound	L	0.41	25.8	C	L	0.41	25.8	C	L	0.47	29.1	C
	T	0.52	21.0	C	T	0.52	21.0	C	T	0.54	22.5	C
Northbound	R	0.57	27.5	C	R	0.57	27.5	C	R	0.59	30.0	C
	L	0.44	37.2	D	L	0.44	37.5	D	L	0.41	34.2	C
	T	0.58	35.8	D	T	0.63	37.3	D	T	0.60	35.0+	D
Southbound	R	0.74	48.5	D	R	0.74	48.5	D	R	0.70	43.3	D
	L	0.84	71.0	E	L	0.91	88.1	F+	L	0.83	68.1	E
	T	0.53	34.2	C	T	0.53	34.3	C	T	0.51	32.3	C
	R	0.66	42.2	D	R	0.66	42.2	D	R	0.62	38.6	D
Intersection	35.6		D	Intersection	36.5		D	Intersection	35.1		D	
West Fordham Road & Jerome Avenue												
Eastbound	LT	0.98	40.9	D	LT	0.99	41.5	D	LT	0.99	41.8	D
	R	0.17	7.8	A	R	0.17	7.8	A	R	0.17	8.2	A
Westbound	LT	0.80	18.3	B	LT	0.80	18.3	B	LT	0.81	19.5	B
	R	0.16	7.7	A	R	0.16	7.7	A	R	0.16	8.1	A
Northbound	LTR	0.77	61.6	E	LTR	0.81	65.1	E	LTR	0.77	60.3	E
Southbound	LTR	0.97	95.8	F	LTR	1.01	105.9	F+	LTR	0.96	91.8	F
Intersection	35.8		D	Intersection	37.3		D	Intersection	36.4		D	
West Kingsbridge Road and Sedgwick Avenue⁽¹⁾												
Eastbound	L	0.27	16.1	B	L	0.27	16.2	B	L	0.33	27.8	C
	T	0.38	15.4	B	T	0.39	15.7	B	T	0.54	28.5	C
Westbound	L	0.65	28.8	C	L	0.72	34.1	C	L	0.62	24.3	C
	TR	0.50	17.4	B	TR	0.50	17.4	B	TR	0.51	17.6	B
Northbound	LT	0.13	26.2	C	LT	0.13	26.2	C	LT	0.13	26.2	C
Southbound	LTR	0.92	61.5	E	LTR	0.92	61.5	E	LTR	0.92	61.5	E
Intersection	27.1		C	Intersection	27.4		C	Intersection	31.0		C	

Table 14-3 (cont'd)
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	Weekday Midday (3:00-4:00PM)													
	2018 No Build				2018 Build				2018 Build with 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		
Signalized Intersections (cont'd)														
East Kingsbridge Road & Grand Concourse (Main Line)														
Eastbound	LTR	0.56	35.6	D	LTR	0.58	36.2	D	LTR	0.65	41.5	D		
Westbound	LTR	0.29	29.5	C	LTR	0.29	29.5	C	LTR	0.33	32.9	C		
Northbound	L	0.72	37.7	D	L	0.88	59.4	E+	L	0.80	42.7	D		
	T	0.49	17.1	B	T	0.49	17.1	B	T	0.46	14.6	B		
Southbound	L	0.12	13.5	B	L	0.12	13.5	B	L	0.11	11.5	B		
	T	0.49	17.0	B	T	0.49	17.0	B	T	0.46	14.6	B		
Intersection			21.7	C	Intersection			23.8	C	Intersection			21.7	C
East Kingsbridge Road & Grand Concourse (Service Road) ⁽²⁾														
Eastbound	LTR	0.56	35.6	D	LTR	0.58	36.2	D	LTR	0.65	41.5	D		
Westbound	LTR	0.29	29.5	C	LTR	0.29	29.5	C	LTR	0.33	32.9	C		
Northbound	TR	0.43	17.0	B	TR	0.43	17.0	B	TR	0.41	14.5	B		
Southbound	TR	0.66	22.6	C	TR	0.71	24.5	C	TR	0.67	20.5	C		
Intersection			24.8	C	Intersection			25.7	C	Intersection			25.0	C
West 195th Street & Reservoir Avenue ⁽¹⁾														
Westbound	LTR	0.83	44.7	D	LTR	0.85	47.3	D	LTR	0.84	45.5	D		
Northbound	LTR	0.33	12.3	B	LTR	0.33	12.4	B	LTR	0.33	12.1	B		
Southbound	LTR	0.48	14.5	B	LTR	0.57	16.2	B	LTR	0.57	15.9	B		
Intersection			22.5	C	Intersection			23.8	C	Intersection			23.0	C
West Kingsbridge Road & Reservoir Avenue/ Grand Avenue														
Eastbound	LT	1.04	124.5	F	LT	1.86	451.8	F+	Unmitigated					
-	-	-	-	-	-	-	-	-						
Westbound	LT	0.26	25.1	D	LT	0.28	26.3	D						
-	-	-	-	-	-	-	-	-						
Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service. + Denotes a significant adverse traffic impact (1) Mitigation not required for the weekday midday peak hour (2) Mitigation as needed for the Grand Concourse Mainline														

**Table 14-4
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Weekday PM Peak Hour**

Intersection	Weekday PM (5:00-6:00PM)													
	2018 No Build				2018 Build				2018 Build with 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		
Signalized Intersections														
West Fordham Road & Major Deegan NB On-Ramp														
Eastbound	L	0.92	46.8	D	L	0.94	53.3	D+	Unmitigated					
	T	0.56	15.0	B	T	0.58	15.4	B						
Westbound	T	0.45	22.3	C	T	0.47	22.5	C						
Northbound	LT	0.65	42.7	D	LT	0.65	42.7	D						
	R	0.77	50.2	D	R	1.02	90.8	F+						
Intersection			26.4	C	Intersection			32.9		C				
West Fordham Road & Sedgwick Avenue														
Eastbound	L	0.98	77.8	E	L	1.44	248.4	F+	Unmitigated					
	TR	0.67	17.7	B	TR	0.67	17.7	B						
Westbound	LT	0.96	52.5	D	LT	0.96	52.5	D						
	R	0.36	24.5	C	R	0.36	24.5	C						
Northbound	LTR	0.58	39.1	D	LTR	0.59	39.4	D						
Southbound	LT	0.63	39.8	D	LT	0.64	40.1	D						
Intersection			38.8	D	Intersection			61.1	E					
West Fordham Road & Dr. MLK Jr Boulevard/University Avenue														
Eastbound	T	0.72	36.3	D	T	0.72	36.3	D	T	0.72	36.3	D		
	R	0.67	47.4	D	R	0.67	47.4	D	R	0.67	47.4	D		
Westbound	L	0.29	22.4	C	L	0.29	22.4	C	L	0.33	24.4	C		
	T	0.48	20.3	C	T	0.48	20.3	C	T	0.50	21.7	C		
Northbound	R	0.69	33.8	C	R	0.69	33.8	C	R	0.72	37.7	D		
	L	0.48	38.4	D	L	0.51	39.9	D	L	0.47	36.2	D		
	T	0.52	34.1	C	T	0.58	35.7	D	T	0.55	33.6	C		
Southbound	R	0.66	43.1	D	R	0.66	43.1	D	R	0.63	39.7	D		
	L	0.89	77.1	E	L	0.98	102.0	F+	L	0.90	78.1	E		
	T	0.47	32.8	C	T	0.50	33.4	C	T	0.48	31.5	C		
Intersection			35.5	D	Intersection			36.9	D	Intersection			35.3	D
West Fordham Road & Jerome Avenue														
Eastbound	LT	0.90	26.0	C	LT	0.90	26.0	C	LT	0.92	28.8	C		
	R	0.14	7.5	A	R	0.14	7.5	A	R	0.14	8.3	A		
Westbound	LT	0.74	15.6	B	LT	0.74	15.6	B	LT	0.76	17.6	B		
	R	0.15	7.5	A	R	0.19	8.0	A	R	0.20	8.8	A		
Northbound	LTR	0.93	82.8	F	LTR	1.01	102.1	F+	LTR	0.94	80.5	F		
Southbound	LTR	1.05	118.0	F	LTR	1.14	149.4	F	LTR	1.03	109.7	F		
Intersection			32.8	C	Intersection			37.6	D	Intersection			34.5	C
West Kingsbridge Road & Sedgwick Avenue ⁽¹⁾														
Eastbound	L	0.27	16.9	B	L	0.28	17.3	B	L	0.30	27.8	C		
	T	0.38	15.5	B	T	0.53	17.8	B	T	0.68	31.8	C		
Westbound	L	0.81	41.3	D	L	1.42	241.5	F+	L	1.08	104.3	F+		
	TR	0.63	20.1	C	TR	0.64	20.4	C	TR	0.66	20.8	C		
Northbound	LT	0.13	26.2	C	LT	0.13	26.2	C	LT	0.13	26.2	C		
Southbound	LTR	0.93	62.9	E	LTR	0.93	62.9	E	LTR	0.93	62.9	E		
Intersection			28.9	C	Intersection			49.1	D	Intersection			40.1	D
West Kingsbridge Road & University Avenue														
Eastbound	LTR	0.71	22.7	C	LTR	0.97	43.1	D	Unmitigated					
Westbound	LTR	0.75	25.3	C	DefL	1.23	184.3	F+						
					TR	0.86	33.4	C						
Northbound	LT	0.91	66.0	E	LT	0.91	66.0	E						
	R	0.52	36.0	D	R	0.63	40.9	D						
Southbound	LTR	0.40	31.5	C	LTR	0.40	31.5	C						
Intersection			31.4	C	Intersection			49.4	D					

Table 14-4 (cont'd)
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	Weekday PM (5:00-6:00PM)													
	2018 No Build				2018 Build				2018 Build with 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		
Signalized Intersections														
East Kingsbridge Road & Grand Concourse (Main Line)														
Eastbound	DefL	0.47	36.2	C	DefL	0.55	39.1	D	DefL	0.56	40.6	D		
	TR	0.43	33.2	C	TR	0.50	34.9	C	TR	0.51	36.1	D		
Westbound	LTR	0.29	29.3	C	LTR	0.30	29.4	C	LTR	0.30	30.2	C		
Northbound	L	0.78	42.5	D	L	0.84	50.6	D+	L	0.82	46.6	D		
	T	0.51	17.4	B	T	0.51	17.4	B	T	0.50	16.8	B		
Southbound	L	0.28	17.4	B	L	0.28	17.4	B	L	0.28	16.6	B		
	T	0.49	17.1	B	T	0.49	17.1	B	T	0.48	16.5	B		
Intersection			22.1	C	Intersection			23.4	C	Intersection			22.9	C
East Kingsbridge Road & Grand Concourse (Service Road) ⁽²⁾														
Eastbound	DefL	0.47	36.2	C	DefL	0.55	39.1	D	DefL	0.56	40.6	D		
	TR	0.43	33.2	C	TR	0.50	34.9	C	TR	0.51	36.1	D		
Westbound	LTR	0.29	29.3	C	LTR	0.30	29.4	C	LTR	0.30	30.2	C		
Northbound	TR	0.43	16.8	B	TR	0.43	16.8	B	TR	0.42	16.2	B		
Southbound	TR	0.72	24.9	C	TR	0.87	34.5	C	TR	0.85	32.6	C		
Intersection			25.3	C	Intersection			30.1	C	Intersection			29.5	C
West 195th Street & Reservoir Avenue														
Westbound	LTR	0.75	37.6	D	LTR	0.86	46.6	D+	LTR	0.84	44.9	D		
Northbound	LTR	0.26	11.6	B	LTR	0.62	16.4	B	LTR	0.62	16.1	B		
Southbound	LTR	0.48	14.3	B	DefL	0.88	56.8	D+	DefL	0.84	44.3	D		
					LTR	0.54	16.3	B	LTR	0.55	16.5	B		
Intersection			20.0+	C	Intersection			26.3	C	Intersection			24.7	C
Unsignalized Intersections														
West Kingsbridge Road & Reservoir Avenue/ Grand Avenue														
Eastbound	LT	0.78	50.0	E	LT	3.05	968.2	F+	Unmitigated					
Westbound	-	-	-	-	-	-	-	-						
	LT	0.20	25.5	D	LT	0.25	32.3	D+						
-	-	-	-	-	-	-	-	-						

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact
(1) Mitigated for Saturday PM peak hour, unmitigated during the weekday PM peak hour.
(2) Mitigation as needed for the Grand Concourse Mainline

Table 14-5
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Saturday Midday Peak Hour

Intersection	Saturday Midday (2:30-3:30PM)											
	2018 No Build				2018 Build				2018 Build with 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
Signalized Intersections												
West Fordham Road & Major Deegan NB On-Ramp												
Eastbound	L	0.78	33.7	C	L	0.78	34.1	C	Unmitigated			
	T	0.56	14.9	B	T	0.59	15.4	B				
Westbound	T	0.53	23.6	C	T	0.53	23.6	C				
Northbound	LT	0.80	51.7	D	LT	0.80	51.7	D				
	R	0.84	57.1	E	R	1.10	113.5	F+				
	Intersection		27.6	C	Intersection		35.6	D				
West Fordham Road & Sedgwick Avenue												
Eastbound	L	0.94	67.8	E	L	1.58	307.7	F+	Unmitigated			
	TR	0.64	19.4	B	TR	0.64	19.4	B				
Westbound	LT	0.89	42.3	D	LT	0.89	42.3	D				
	R	0.27	23.5	C	R	0.27	23.5	C				
Northbound	DefL	0.40	34.4	C	LTR	0.46	32.5	C				
	TR	0.39	31.8	C								
Southbound	LT	0.50	32.6	C	LT	0.54	33.7	C				
	Intersection		33.5	C	Intersection		63.9	E				
West Fordham Road & Dr. MLK Jr Boulevard/University Avenue												
Eastbound	TR	0.99	62.3	E	TR	0.99	62.3	E	TR	0.99	62.3	E
Westbound	L	0.44	29.0	C	L	0.44	29.0	C	L	0.51	33.2	C
	TR	0.90	35.6	D	TR	0.90	35.6	D	TR	0.93	40.6	D
Northbound	L	0.43	34.9	C	L	0.44	35.1	D	L	0.41	32.6	C
	T	0.42	31.8	C	T	0.50	33.6	C	T	0.48	31.7	C
	R	0.53	36.6	D	R	0.53	36.6	D	R	0.50	34.0	C
Southbound	L	0.69	49.1	D	L	0.78	59.9	E+	L	0.72	51.1	D
	T	0.40	31.2	C	T	0.40	31.3	C	T	0.38	29.6	C
	R	0.25	29.0	C	R	0.25	29.0	C	R	0.23	27.4	C
	Intersection		43.3	D	Intersection		43.8	D	Intersection		44.8	D
West Fordham Road & Jerome Avenue												
Eastbound	LTR	1.07	71.5	E	LTR	1.07	71.5	E	LTR	1.08	72.6	E
Westbound	LT	0.87	27.8	C	LT	0.87	27.8	C	LT	0.89	30.1	C
	R	0.22	11.6	B	R	0.27	12.3	B	R	0.27	12.8	B
Northbound	LTR	0.55	40.4	D	LTR	0.61	42.5	D	LTR	0.59	40.9	D
Southbound	LTR	0.87	63.3	E	LTR	0.90	68.8	E	LTR	0.87	62.8	E
	Intersection		50.9	D	Intersection		51.1	D	Intersection		51.7	D
West Kingsbridge Road & Sedgwick Avenue ⁽¹⁾												
Eastbound	L	0.17	11.6	B	L	0.17	11.6	B	L	0.25	23.9	C
	T	0.32	11.7	B	T	0.47	13.4	B	T	0.74	30.2	C
Westbound	L	0.47	16.9	B	L	0.70	30.5	C	L	0.54	19.8	B
	TR	0.46	13.5	B	TR	0.47	13.5	B	TR	0.47	13.6	B
Northbound	LT	0.11	20.4	C	LT	0.11	20.4	C	LT	0.11	20.4	C
Southbound	LTR	0.73	35.9	D	LTR	0.73	35.9	D	LTR	0.73	35.9	D
	Intersection		17.4	B	Intersection		18.4	B	Intersection		24.1	C
West Kingsbridge Road & University Avenue												
Eastbound	LTR	0.84	27.8	C	LTR	1.16	103.9	F+	Unmitigated			
Westbound	LTR	0.85	30.5	C	DefL	1.70	385.5	F+				
					TR	0.83	30.2	C				
Northbound	LT	0.71	31.5	C	LT	0.71	31.5	C				
	R	0.28	19.9	B	R	0.40	22.1	C				
Southbound	LTR	0.33	20.4	C	LTR	0.33	20.4	C				
	Intersection		28.2	C	Intersection		82.8	F				

Table 14-5 (cont'd)
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Saturday Midday Peak Hour

Intersection	Saturday Midday (2:30-3:30PM)													
	2018 No Build				2018 Build				2018 Build with 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		
Signalized Intersections														
West 195th Street & Reservoir Avenue														
Westbound	LTR	0.46	26.2	C	LTR	0.47	26.5	C	LTR	0.46	26.1	C		
Northbound	LTR	0.20	11.0	B	LTR	0.61	16.0	B	LTR	0.60	15.7	B		
Southbound	LTR	0.35	12.5	B	DefL	0.85	52.4	D+	DefL	0.79	41.7	D		
					LTR	0.46	14.7	B	LTR	0.47	14.7	B		
Intersection			15.4	B	Intersection			20.8	C	Intersection			19.5	B
Unsignalized Intersections														
West Kingsbridge Road & Reservoir Avenue/ Grand Avenue														
Eastbound	LT	0.33	14.5	B	LT	1.76	375.7	F+	Unmitigated					
	-	-	-	-	-	-	-	-						
Westbound	LT	0.21	28.8	D	LT	0.25	33.4	D						
	-	-	-	-	-	-	-	-						
Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service + Denotes a significant adverse traffic impact (1) Mitigation measure not required for the Saturday midday peak hour														

Table 14-6
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Saturday PM Peak Hour

Intersection	Saturday PM (5:45-6:45PM)											
	2018 No Build				2018 No Build				2018 Build with 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
Signalized Intersections												
West Fordham Road & Major Deegan SB Off-Ramp												
Eastbound	T	0.78	36.5	D	T	0.80	37.3	D	T	0.83	40.5	D
	R	0.13	24.0	C	R	0.13	24.0	C	R	0.14	25.3	C
Westbound	L	0.64	37.3	D	L	0.81	47.3	D+	L	0.78	45.0	D
	T	0.47	9.5	A	T	0.49	9.7	A	T	0.49	9.7	A
Southbound	LTR	0.90	61.1	E	LTR	0.90	61.1	E	LTR	0.90	61.1	E
	Intersection		31.3	C	Intersection		32.8	C	Intersection		33.5	C
West Fordham Road & Major Deegan NB On-Ramp												
Eastbound	L	0.96	62.6	E	L	1.06	97.3	F	Unmitigated			
	T	0.48	13.7	B	T	0.49	13.9	B				
Westbound	T	0.52	23.3	C	T	0.58	24.4	C				
Northbound	LT	0.76	48.3	D	LT	0.76	48.3	D				
	R	0.82	54.8	D	R	0.89	63.9	E+				
	Intersection		29.5	C	Intersection		33.7	C				
West Fordham Road & Sedgwick Avenue												
Eastbound	L	1.04	89.7	F	L	1.19	141.2	F+	Unmitigated			
	TR	0.76	22.9	C	TR	0.76	22.9	C				
Westbound	LT	0.97	55.3	E	LT	0.97	55.3	E				
	R	0.28	23.6	C	R	0.28	23.6	C				
Northbound	LTR	0.45	32.3	C	LTR	0.46	32.5	C				
Southbound	LT	0.58	34.6	C	LT	0.59	34.9	C				
	Intersection		41.8	D	Intersection		48.8	D				
West Fordham Road & Dr. MLK Jr Boulevard/University Avenue												
Eastbound	TR	1.02	71.1	E	TR	1.02	71.1	E	TR	0.98	60.9	E
Westbound	L	0.74	48.5	D	L	0.74	48.5	D	L	0.74	48.6	D
	TR	0.74	26.6	C	TR	0.74	26.6	C	TR	0.75	27.7	C
Northbound	L	0.63	44.1	D	L	0.70	50.2	D+	L	0.67	47.0	D
	T	0.38	31.0	C	T	0.42	31.7	C	T	0.41	30.8	C
	R	0.51	35.9	D	R	0.51	35.9	D	R	0.49	34.6	C
Southbound	L	0.35	32.9	C	L	0.37	33.6	C	L	0.36	32.4	C
	T	0.37	30.8	C	T	0.44	32.2	C	T	0.43	31.3	C
	R	0.51	35.7	D	R	0.51	35.7	D	R	0.49	34.4	C
	Intersection		44.7	D	Intersection		44.9	D	Intersection		41.5	D
West Fordham Road & Jerome Avenue												
Eastbound	LTR	1.06	67.3	E	LTR	1.06	67.3	E	Unmitigated			
Westbound	LT	0.94	37.3	D	LT	0.94	37.3	D				
	R	0.12	10.4	B	R	0.13	10.5	B				
Northbound	LTR	0.89	67.8	E	LTR	0.94	76.7	E+				
Southbound	LTR	1.01	93.4	F	LTR	1.29	192.9	F+				
	Intersection		58.0	E	Intersection		72.5	E				
West Kingsbridge Road & Sedgwick Avenue												
Eastbound	L	0.22	12.3	B	L	0.32	15.2	B	L	0.40	29.4	C
	T	0.34	12.0	B	T	0.39	12.5	B	T	0.61	27.0	C
Westbound	L	0.49	17.7	B	L	1.08	93.5	F+	L	0.90	42.3	D
	TR	0.46	13.4	B	TR	0.61	15.8	B	TR	0.62	16.0	B
Northbound	LT	0.12	20.5	C	LT	0.12	20.5	C	LT	0.12	20.5	C
Southbound	LTR	0.61	30.1	C	LTR	0.61	30.1	C	LTR	0.61	30.1	C
	Intersection		16.2	B	Intersection		27.1	C	Intersection		24.8	C

Table 14-6 (cont'd)
2018 No Build, Build, and Mitigated Conditions Level of Service Analysis
Saturday PM Peak Hour

Intersection	Saturday PM (5:45-6:45PM)											
	2018 No Build				2018 No Build				2018 Build with 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
Signalized Intersections												
West Kingsbridge Road & University Avenue												
Eastbound	LTR	0.68	20.9	C	LTR	0.94	38.9	D	Unmitigated			
Westbound	LTR	0.75	24.1	C	LTR	1.28	159.3	F+				
Northbound	LT	0.65	28.8	C	LT	0.65	28.8	C				
	R	0.45	23.6	C	R	0.51	25.0	C				
Southbound	LTR	0.41	21.8	C	LTR	0.41	21.8	C				
	Intersection		23.3	C	Intersection		85.3	F				
West Kingsbridge Road & Reservoir Avenue/ Aqueduct Avenue												
Eastbound	T	0.46	13.4	B	T	0.55	14.7	B	T	0.58	16.2	B
Westbound	T	0.26	11.2	B	T	0.26	11.2	B	T	0.27	12.3	B
Northbound	LR	0.26	22.5	C	LR	0.26	22.6	C	LR	0.25	21.0	C
Southbound	L	0.14	20.7	C	L	0.33	23.1	C	L	0.36	22.5	C
	R	0.22	22.0	C	R	1.33	191.1	F+	R	0.87	40.2	D
	Intersection		14.3	B	Intersection		58.1	E	Intersection		22.0	C
West 195th Street & Reservoir Avenue ⁽¹⁾												
Westbound	LTR	0.49	26.8	C	LTR	0.62	30.6	C	LTR	0.61	30.0	C
Northbound	LTR	0.20	11.0	B	LTR	0.31	12.2	B	LTR	0.30	11.9	B
Southbound	LTR	0.29	11.9	B	LTR	0.75	20.1	C	LTR	0.74	19.6	B
	Intersection		15.8	B	Intersection		20.4	C	Intersection		19.9	C
Unsignalized Intersections												
West Kingsbridge Road & Reservoir Avenue/ Grand Avenue												
Eastbound	LT	0.39	23.4	C	LT	1.14	141.9	F+	Unmitigated			
Westbound	LT	0.06	16.7	C	LT	0.09	22.1	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) Mitigation not required for the Saturday PM peak hour												

WEST FORDHAM ROAD AND JEROME AVENUE

The significant adverse impacts at the northbound and southbound approaches during the weekday midday and PM peak hours could be fully mitigated by restriping the eastbound approach to provide two 10.5 foot travel lanes and one 10 foot bus lane to improve service conditions at the eastbound/westbound approach. This restriping would allow shifting one second of green time during the weekday midday peak hour and two seconds of green time during the weekday PM peak hour from the eastbound/westbound phase to the northbound/southbound phase without resulting in additional significant adverse traffic impacts.

The significant adverse impact at the southbound approach during the Saturday midday peak hour could be fully mitigated by restriping the eastbound approach to provide two 10.5 travel lanes and one 10 foot bus lane, and shifting one second of green time from the eastbound/westbound phase to the northbound/southbound phase.

The significant adverse impacts at the northbound and southbound approaches during the Saturday PM peak hour could not be fully mitigated.

WEST KINGSBRIDGE ROAD AND SEDGWICK AVENUE

The significant adverse impact at the westbound left-turn of this intersection during the Saturday PM peak hour could be fully mitigated by shifting 18 seconds of green time from the eastbound/westbound phase to create an exclusive westbound phase (see **Table 14-2**). The addition of the exclusive westbound phase to the signal timing plan would be installed for all time periods.

The significant adverse impact at the westbound left-turn of this intersection during the weekday PM peak hour could not be fully mitigated.

WEST KINGSBRIDGE ROAD AND UNIVERSITY AVENUE

The significant adverse impacts at the westbound left-turn of this intersection during the weekday PM and Saturday midday peak hours could not be fully mitigated. In addition, the eastbound approach during the Saturday midday peak hour and the westbound approach during the Saturday PM peak hour could not be fully mitigated.

WEST KINGSBRIDGE ROAD AND RESERVOIR AVENUE / AQUEDUCT AVENUE

The significant adverse impact at the southbound right-turn of this intersection during the Saturday PM peak hour could be fully mitigated by temporarily delineating the southbound approach used to provide one exclusive left-turn lane and two exclusive right-turn lanes by deploying TEAs and with the use of traffic cones other similar physical means to delineate traffic lanes. Additionally, TEAs will manage traffic conditions, including bus turning movements of the BX32 and BX22, during all post peak events with 5,000 attendees at this intersection.

Parking prohibiting would also be required on the north side of West Kingsbridge Road from Reservoir Avenue extending approximately 100 feet west, and by shifting two seconds of green time from the eastbound/westbound phase to the northbound/southbound phase. The prohibition of on-street parking would result in a displacement of approximately 5 on-street metered parking spaces in the Saturday PM peak hour during the peak event conditions. Given the availability of on-street parking within the ¼-mile study area during the Saturday PM peak hour, the displaced parking would be accommodated within the study area. Therefore, the displacement of 5 on-street metered parking spaces resulting from the proposed mitigation measure would not adversely affect the on-street parking supply and utilization in the study area.

EAST KINGSBRIDGE ROAD AND GRAND CONCOURSE (MAIN LINE)

The significant adverse impact at the northbound left-turn from the mainline of Grand Concourse during the weekday midday and PM peak hours could be fully mitigated by shifting four seconds of green time during the weekday midday peak hour and one second of green time during the weekday PM peak hour from the eastbound/westbound phase to the northbound/southbound phase.

WEST 195TH STREET AND RESERVOIR AVENUE

The significant adverse impacts at the westbound approach and at the southbound left-turn of this intersection during the weekday PM peak hour could be fully mitigated by restriping the southbound approach to provide one 11 foot left-turn/through lane and one 9 foot through/right-turn lane, and updating the mechanical signal to a computerized signal with an At All Times (AAT) signal plan of 31 seconds of green time, 3 seconds of amber time, and 2 seconds of red

Kingsbridge Armory National Ice Center

time for the eastbound/westbound phase, and 49 seconds of green time, 3 seconds of amber time, and 2 seconds of red time for the northbound/southbound phase.

WEST KINGSBRIDGE ROAD AND RESERVOIR AVENUE / GRAND AVENUE

The significant adverse impact at the eastbound approach of this intersection during the weekday midday and PM, and Saturday midday and PM peak hours, as well as the westbound approach during the weekday PM peak hour, could not be fully mitigated with standard traffic engineering measures. Additional feasible mitigation measures, such as an installation of a new traffic signal to better regulate the eastbound and westbound traffic flows, will be explored in coordination with NYCDOT between the Draft and Final EIS. In case, the additional mitigation measures are not deemed feasible by NYCDOT, the impacts at the eastbound and westbound approaches of West Kingsbridge Road would remain unmitigated.

PEDESTRIANS

As discussed in Chapter 8, “Transportation,” the proposed project would result in significant adverse pedestrian impacts at the following locations:

- The west sidewalk on Goulden Avenue north of West 197th Street;
- The north and south crosswalks at Goulden Avenue and West 197th Street;
- The south sidewalk on West 195th Street east of Reservoir Avenue;
- The east crosswalk at Reservoir Avenue and West 195th Street;
- The north sidewalk on Kingsbridge Road west of Jerome Avenue; and
- The north crosswalk at Kingsbridge Road and Jerome Avenue.

Subject to approvals from relevant agencies, including NYCDOT, measures to mitigate these significant adverse impacts are described below and the mitigated conditions are summarized in **Tables 14-7** and **14-8**.

Although significant adverse pedestrian impacts have not been identified on the east sidewalk of Goulden Avenue south of West 197th Street, pedestrian conditions at this sidewalk would be revisited once the facility is operational. At that time, a survey of patrons attending major events would be conducted as part of the Traffic Monitoring Plan discussed below. Based on the monitoring plan results, if necessary, additional pedestrian improvement measures would be considered at this location in coordination with New York City Department of Transportation (NYCDOT).

CROSSWALK LOCATIONS

Goulden Avenue and West 197th Street—North Crosswalk

The north crosswalk at this intersection would deteriorate from LOS A (115.8 SFP) to LOS E (11.9 SFP), LOS A (249.2 SFP) to LOS E (11.6 SFP), and LOS A (2899.5 SFP) to LOS E (9.4 SFP), during the weekday PM, Saturday midday, and Saturday PM peak periods, respectively. Deploying TEAs north of 197th Street at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow would be required to fully mitigate the projected significant adverse crosswalk impacts during the peak event conditions.

Table 14-7
2018 No Build, Build, and Mitigated Conditions
Pedestrian Level of Service Crosswalk Analysis

Location	Mitigation Measures	No Build		Build		Mitigated Build	
		SFP	LOS	SFP	LOS	SFP	LOS
Weekday PM Peak 15-Minutes							
Goulden Avenue and West 197th Street-North Crosswalk	Deploy TEAs at two key locations to control pedestrian flow	115.8	A	11.9	E+	35.7	C
Goulden Avenue and West 197th Street-South Crosswalk	Deploy TEAs at two key locations to control pedestrian flow	1235.0	A	20.4	D+	75.3	A
Reservoir Avenue and West 195th Street-East Crosswalk	Deploy TEAs to control pedestrian flow and ensure that pedestrians have adequate crosswalk space	215.9	A	23.7	D+	36.2	C
Jerome Avenue and Kingsbridge Road-North Crosswalk	Restripe width of crosswalk from 13 ft to 19 ft; shift 1 sec of FDW to Walk, and 4 sec of FDW from E/W crosswalk to Walk for N/S crosswalk	61.3	A	12.3	E+	Unmitigated	
Saturday Midday Peak 15-Minutes							
Goulden Avenue and West 197th Street-North Crosswalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits located north of 197th Street to control pedestrian flow	249.2	A	11.6	E+	41.2	B
Goulden Avenue and West 197th Street-South Crosswalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits located to control pedestrian flow	1800.4	A	15.6	D+	60.1	A
Reservoir Avenue and West 195th Street-East Crosswalk	Deploy TEAs to control pedestrian flow and ensure that pedestrians have adequate crosswalk space	292.0	A	18.9	D+	29.3	C
Jerome Avenue and Kingsbridge Road-North Crosswalk	Restripe width of crosswalk from 13 ft to 19 ft; shift 1 sec of FDW to Walk, and 4 sec of FDW from E/W crosswalk to Walk for N/S crosswalk	80.6	A	10.2	E+	Unmitigated	
Saturday PM Peak 15-Minutes							
Goulden Avenue and West 197th Street-North Crosswalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits located to control pedestrian flow	2899.5	A	9.4	E+	38.5	C
Goulden Avenue and West 197th Street-South Crosswalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits located to control pedestrian flow	6659.4	A	13.4	E+	54.2	B
Reservoir Avenue and West 195th Street-East Crosswalk	Deploy TEAs to control pedestrian flow and ensure that pedestrians have adequate crosswalk space	760.6	A	17.5	D+	27.2	C
Jerome Avenue and Kingsbridge Road-North Crosswalk	Restripe width of crosswalk from 13 ft to 19 ft; shift 1 sec of FDW to Walk, and 4 sec of FDW from E/W crosswalk to Walk for N/S crosswalk	88.7	A	9.0	E+	Unmitigated	
Note: SFP = square feet per pedestrian. + Denotes a significant adverse pedestrian impact							

Table 14-8
2018 No Build, Build, and Mitigated Build Conditions
Pedestrian Level of Service Analysis for Sidewalks

Location	Mitigation Measures	No Build		Build		Mitigated Build	
		PMF	LOS	PMF	LOS	PMF	LOS
Weekday PM Peak 15-Minutes							
Goulden Avenue north of West 197th Street-West Sidewalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow	0.40	A	11.0	D+	3.60	C
West 195th Street between Reservoir Avenue and Jerome Avenue-South Sidewalk	No feasible mitigation measure is proposed	0.69	B	6.7	D+	Unmitigated	
Saturday Midday Peak 15-Minutes							
Goulden Avenue north of West 197th Street-West Sidewalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow	0.38	A	13.8	E+	4.43	C
West 195th Street between Reservoir Avenue and Jerome Avenue-South Sidewalk	No feasible mitigation measure is proposed	0.55	B	8.1	D+	Unmitigated	
Saturday PM Peak 15-Minutes							
Goulden Avenue north of West 197th Street-West Sidewalk	Deploy TEAs at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow	0.38	A	15.8	E+	4.97	C
West 195th Street between Reservoir Avenue and Jerome Avenue-South Sidewalk	No feasible mitigation measure is proposed	0.57	B	9.3	D+	Unmitigated	
Kingsbridge Road between Davidson Avenue and Jerome Avenue-North Sidewalk	No feasible mitigation measure is proposed	1.05	B	7.4	D+	Unmitigated	
Note: PMF = pedestrians per minute per foot + Denotes a significant adverse pedestrian impact							

Goulden Avenue and West 197th Street—South Crosswalk

The south crosswalk at this intersection would deteriorate from LOS A (1235.0 SFP) to LOS D (20.4 SFP), LOS A (1800.4 SFP) to LOS D (15.6 SFP), and LOS A (6659.4 SFP) to LOS E (13.4 SFP), during the weekday PM, Saturday midday, and Saturday PM peak periods, respectively. Deploying TEAs north of 197th Street at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow would be required to fully mitigate the projected significant adverse crosswalk impacts during the peak event conditions.

West 195th Street and Reservoir Avenue—East Crosswalk

The east crosswalk at this intersection would deteriorate from LOS A (215.9 SFP) to LOS D (23.7 SFP), LOS A (292.0 SFP) to LOS D (18.9 SFP), and LOS A (760.6 SFP) to LOS D (17.5 SFP) during the Weekday PM, Saturday midday, and Saturday PM peak periods, respectively. Deploying TEAs at this location near the Lehman College parking lot entrances/exits to control

pedestrian flow and to ensure that pedestrians have adequate crosswalk space available would be required to fully mitigate the projected significant adverse crosswalk impacts.

West Kingsbridge Road and Jerome Avenue—North Crosswalk

The north crosswalk at this intersection would deteriorate from LOS A (61.3 SFP) to LOS E (12.3 SFP), LOS A (80.6 SFP) to LOS E (10.2 SFP), and LOS A (88.7 SFP) to LOS E (9.0 SFP) during the weekday PM, Saturday midday, and Saturday PM peak periods, respectively. Restriping the width of this crosswalk from its existing width of 13 feet to 19 feet, shifting one second of flashing don't walk time to walk time for the north crosswalk, and four seconds of green time from the west and east crosswalks to the north and south crosswalks are proposed as mitigation measures; however, these measures would not fully mitigate the projected significant adverse crosswalk impacts. Hence, this crosswalk would remain unmitigated for the weekday PM, Saturday midday, and Saturday PM peak periods during event conditions. However, there are strategies that could be implemented as part of the TMP to minimize the pedestrian impact at this crosswalk location during peak events. For example, the event organizers could deploy TEAs at the north crosswalk of Jerome Avenue to better control the pedestrian surge during both the pre-and post-event conditions. This type of arrangement is not unusual during the peak pedestrian surge conditions and has been implemented citywide (for example, in Lower Manhattan during the peak commuter morning rush hour for patrons using the crosswalks after exiting the Port Authority Trans-Hudson [PATH] train station at the World Trade Center site).

SIDEWALK LOCATIONS

Goulden Avenue North of West 197th Street—West Sidewalk

The west sidewalk would deteriorate from LOS A (0.40 PMF) to LOS E (11.0 PMF), LOS A (0.38 PMF) to LOS E (13.8 PMF), and LOS A (0.38 PMF) to LOS E (15.8 PMF) during the weekday PM, Saturday midday, and Saturday PM peak periods, respectively. Deploying traffic enforcement agents (TEAs) north of 197th Street at two key locations near the Lehman College parking lot entrances/exits to control pedestrian flow would be required to fully mitigate the projected significant adverse sidewalk impacts.

West 195th Street between Reservoir Avenue and Jerome Avenue—South Sidewalk

The south sidewalk would deteriorate from LOS B (0.69 PMF) to LOS D (6.7 PMF), LOS B (0.55 PMF) to LOS D (8.1 PMF), and LOS B (0.57 PMF) to LOS D (9.3 PMF) during the weekday PM, Saturday midday, and Saturday PM peak periods, respectively. The pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by tree planters, sign posts, and “shy-distances” (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of this sidewalk segment following the 2010 Highway Capacity Manual guidelines. These assumptions reduced the effective sidewalk width to approximately 50 percent of the overall width. The combination of all these factors resulted in the potential for a significant adverse sidewalk impact at this location in the future 2018 Build condition. This potential significant adverse pedestrian impact could not be fully mitigated by removing portable street furniture (e.g., sign posts, etc.) on this sidewalk. Thus, the potential significant adverse sidewalk impact would be unmitigated.

West Kingsbridge Road between Davidson Avenue and Jerome Avenue—North Sidewalk

The north sidewalk would deteriorate from LOS B (1.05 PMF) to LOS D (7.4 PMF) during the Saturday PM peak period. No sidewalk obstructions can be removed to fully mitigate the projected significant adverse sidewalk impacts; therefore, this impact would remain unmitigated.

EFFECTS OF PEDESTRIAN MITIGATION ON TRAFFIC OPERATIONS

As described above, some mitigation measures associated with the significant adverse pedestrian impacts would alter traffic operations, including changes to existing signal timings. A review of the effects of these changes on traffic circulation and service levels showed that they would not alter the conclusions made for the traffic impact analyses, nor would they result in the potential for any additional significant adverse traffic impacts.

TRAFFIC MONITORING PLAN

In order to verify the need and effectiveness of the proposed mitigation measures identified above, the applicant would develop and conduct a detailed traffic monitoring plan once the proposed project is operational. The applicant would inform DOT of the status of the plan’s development and will submit for DOT’s review and approval a scope of work that would include critical locations where significant traffic impacts have been identified. Data collection to be conducted for the monitoring plan would include 24-hour Automatic Traffic Recorder (ATR) machine counts, manual turning movement counts, vehicle classification counts, pedestrian counts, intersection geometry and field information, signal timing and signal progression and any relevant information necessary for conducting the traffic monitoring plan. The traffic monitoring program would also include intersection capacity, and level of service analyses to determine whether actual future Build conditions have, in fact, resulted in significant traffic and pedestrian impacts and verify the need for mitigation measures identified in the DEIS or similar measures identified through the traffic monitoring plan. The applicant would be responsible for any cost associated with the monitoring effort warranted due to project-generated traffic.

C. AIR QUALITY

EFFECTS OF PROPOSED TRAFFIC MITIGATION MEASURES

Chapter 9, “Air Quality,” presents the maximum predicted carbon monoxide (CO) and particulate matter (PM₁₀ and PM_{2.5}) concentrations related to traffic generated by 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 with the proposed project, the localized air quality impacts with mitigation were modeled for each of the intersections analyzed in Chapter 9, “Air Quality.” The results of this modeling analysis (performed in accordance with methodologies described in Chapter 9, “Air Quality”) indicate that CO and particulate matter concentrations would not exceed National Ambient Air Quality Standards (NAAQS) or the city’s *de minimis* criteria for PM_{2.5}, and therefore would not affect the conclusions in Chapter 9 (see **Tables 14-9 through 14-12**). Therefore, no significant adverse air quality impacts would occur as a result of the proposed traffic mitigation measures.

**Table 14-9
2018 Maximum Predicted 8-Hour Average No Build
and Build CO Concentration with Traffic Mitigation**

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)		
			No Build	Build	Build with Mitigation
1	Kingsbridge Road and Reservoir Avenue	Weekend PM	2.3	2.7	2.7
2	Kingsbridge Road and University Avenue	Weekend PM	2.2	2.7	2.7
Note: 8-hour standard is 9 ppm.					

Table 14-10
2018 Maximum Predicted 24-Hour Average No Build
and Build PM₁₀ Concentrations with Traffic Mitigation

Receptor Site	Location	24-Hour Concentration ($\mu\text{g}/\text{m}^3$)		
		No Build	Build	Build with Mitigation
1	Kingsbridge Road and Reservoir Avenue	46.9	48.6	48.6
2	Kingsbridge Road and University Avenue	47.9	50.3	50.2

Note: National Ambient Air Quality Standard—24-hour, 150 $\mu\text{g}/\text{m}^3$.

Table 14-11
2018 Maximum Predicted 24-Hour Average PM_{2.5} Concentrations
with Traffic Mitigation

Receptor Site	Location	24-Hour Concentration ($\mu\text{g}/\text{m}^3$)	
		Increment	Increment (with Mitigation)
1	Kingsbridge Road and Reservoir Avenue	0.98	0.98
2	Kingsbridge Road and University Avenue	1.30	1.27

Note: PM_{2.5} *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu\text{g}/\text{m}^3$.

Table 14-12
2018 Maximum Predicted Annual Average PM_{2.5} Concentrations
with Traffic Mitigation

Receptor Site	Location	Annual Concentration ($\mu\text{g}/\text{m}^3$)	
		Increment	Increment (with Mitigation)
1	Kingsbridge Road and Reservoir Avenue	0.065	0.062
2	Kingsbridge Road and University Avenue	0.094	0.083

Note: PM_{2.5} *de minimis* criteria—annual (neighborhood scale), 0.1 $\mu\text{g}/\text{m}^3$.

D. NOISE

As discussed in Chapter 11, “Noise,” in 2018, when the proposed project would be complete and operational, $L_{\text{eq}(1)}$ noise levels from project-generated traffic would exceed the 2012 *City Environmental Quality Review (CEQR) Technical Manual* impact criteria during the weekday PM, weekend midday, and weekend PM time periods and result in significant adverse noise impacts during those time periods at residences and the church along the west side of Reservoir Avenue between West 195th Street and West Kingsbridge Road, the principal feeder street to and from the parking facility for the proposed project. Noise levels at this location in the future with the proposed project would be considered “marginally unacceptable” according to CEQR criteria, which is not unusual for residential areas in New York City. Furthermore, these noise level increases are expected to occur only during the hour preceding and following high attendance events at the proposed project, when most of the participants and spectators would be arriving and departing. As such these exceedances would occur during limited hours of the day and would not occur during the nighttime periods. At all other times, noise levels along this roadway would be expected to be similar to conditions predicted in the future without the proposed project.

Kingsbridge Armory National Ice Center

The noise levels predicted in this assessment are based on conservative assumptions regarding traffic generation and mode of transportation for users of the proposed project. Noise levels would be lower if the traffic generation is less than forecast in this assessment. Therefore, since the significant noise level increases described above are expected to occur during only limited times of day and only in the hour before and after high attendance events at the Armory, a post-construction noise monitoring program would be enacted to determine whether the proposed project would result in a significant increase in noise levels. The applicant would prepare a monitoring protocol for review and approval by the New York City Department of Environmental Protection (DEP). The applicant would perform post-construction noise monitoring as approved by DEP and submit the results for DEP consideration. If, based on the post-construction noise monitoring program, the predicted increase in noise levels materializes, measures to mitigate the significant adverse noise impact would be made available.

At any impacted locations that do not already have double-glazed windows and a form of alternative ventilation (i.e., air conditioning), the project sponsors would make these measures available at no cost for purchase and installation to owners of residences. These measures would partially mitigate project impacts for residential uses.

If, based on the post-construction noise monitoring program, the mitigation measures described above are determined to be necessary, at locations where owners elect not to take advantage of these mitigation measures, the noise level increases resulting from the proposed project would constitute unmitigated significant adverse impacts.

Also as discussed in Chapter 11, "Noise," the level of interior noise within the commercial portion of the proposed project along the south façade of the Armory building resulting from exterior sources may be greater than the 50 dBA $L_{10(1)}$ level considered acceptable for commercial use according to *CEQR* interior noise level guidelines. Between the DEIS and FEIS, noise levels will be measured inside the Armory building along the south façade in order to determine whether interior $L_{10(1)}$ noise levels resulting from exterior noise sources do actually exceed 50 dBA. If the interior $L_{10(1)}$ noise levels resulting from exterior noise sources do exceed 50 dBA, this would constitute a significant adverse impact based on *CEQR* interior noise level criteria.

Typically, a project involving the reuse of an existing structure would meet the attenuation requirements by replacing existing windows with well-sealed double-glazed windows and alternate means of ventilation. However, the Kingsbridge Armory is listed on the State/National Registers of Historic Places (S/NR), and the windows on the façade along West Kingsbridge Road are a significant element of the structure's design. Thus, the removal and replacement of the windows on the façade facing West Kingsbridge Road would adversely affect one of the Armory's essential physical features that convey its historic identity (i.e., its integrity). Furthermore, the project is seeking federal historic preservation tax credits, and to receive the credits the Armory must be rehabilitated to the Secretary of the Interior's Standards for Rehabilitation of Historic Properties. The Secretary of the Interior's Standards for Rehabilitation of Historic Properties state that "the removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided." Removal of the Armory's existing windows would not conform to the Secretary's Standards, and therefore an alteration of the building's façade elements (i.e., by replacing the existing windows) to provide the required amount of attenuation would likely result in the project's inability to receive federal historic preservation tax credits. To the extent practicable, the proposed project would undertake measures to improve the noise attenuation of the existing structure while preserving the building's historic integrity. All existing windows requiring replacement would be replaced with

well-sealed windows, and all existing windows to remain would be repaired/resealed to be weather-tight. Other openings in the façade would be tightly sealed as required.

Even with those improvements, however, interior noise levels resulting from exterior noise sources may be greater than the 50 dBA $L_{10(1)}$ level considered acceptable for commercial use according to *CEQR* interior noise level guidelines. Consequently, this would constitute an unmitigated significant adverse noise impact. *