9

Mitigation

In accordance with the *2020 City Environmental Quality Review (CEQR) Technical Manual*, where significant adverse impacts are identified, mitigation measures to reduce or eliminate the impacts to the fullest extent practicable are to be developed and evaluated.

Introduction

As discussed in the previous chapters of this Draft Environmental Impact Statement (DEIS), the Proposed Actions have the potential to result in significant adverse impacts to transportation (see **Chapter 4, Transportation**). More specifically, there would be impacts to traffic, pedestrian, and transit conditions at select locations. Mitigation measures that could address the significant adverse transportation impacts are discussed in this chapter.

Principal Conclusions

Traffic

Of the 21 intersections analyzed, the Proposed Actions would result in significant adverse traffic impacts at nine intersections during the weekday PM peak hour and seven intersections during the Saturday peak hour. The majority of impacts would be fully mitigated with implementation of signal timing changes, which are subject to review and approval by the New York City Department of Transportation (NYCDOT). These signal timing changes would provide full mitigation for six of the nine intersections impacted in the

weekday PM peak hour, and six of the seven intersection impacted in the Saturday peak hour. In terms of impacted movements, the identified signal timing changes would fully mitigate six out of eleven movements impacted in the weekday PM peak hour; and eight of the nine movements impacted in the Saturday peak hour. Mitigation measures such as signal timing modifications are standard traffic capacity improvements that are typically implemented by NYCDOT. The remaining significantly impacted intersections would remain unmitigated. One or more traffic movements at the following intersections could not be mitigated in at least one peak hour:

- Tenth Avenue and West 34th Street (weekday PM peak hour)
- Tenth Avenue and West 26th Street (weekday PM and Saturday peak hours)
- Tenth Avenue and West 23rd Street (weekday PM peak hour)

Transit

The Proposed Actions would not result in significant adverse bus impacts using the project's basic travel demand assumptions. However, with assumptions specifically oriented toward greater use of the M23-SBS route via subway-to-bus transfers, a significant impact would be expected to occur in the weekday PM peak hour to the M23-SBS in the eastbound direction. In order to mitigate this impact, the weekday PM peak bus frequency would need to be increased by three buses. Implementation of this service change is subject to NYCT's discretion as well as operational and fiscal constraints.

The Proposed Actions would result in significant adverse impacts to a pair of down mezzanine escalators during the weekday PM peak hour at the 34th Street-Hudson Yards Station. ~~These escalator impacts are currently identified as unmitigated. Between the Draft and Final EISs, measures will be explored in coordination with New York City Transit (NYCT) and presented in the Final EIS if practicable. If no feasible mitigation measure is identified, the impacts would remain identified as unmitigated.~~A possible mitigation would be to reverse the operating direction of an adjacent escalator (ES623) to run down in the PM peak hour; this would eliminate the impact to ES621 and ES622. Implementation of operational changes is subject to NYCT's discretion. However, upon consultation with NYCT, the decision to change escalator operations would depend on other factors such as future ridership patterns at the station, growth in the area, and the approval by NYCT's escalator maintenance group. Should another escalator not be reversed to run down, the impact would be unmitigated.

Pedestrians

Of the 67 pedestrian elements analyzed, it was determined that the Proposed Actions would result in significant adverse impacts at two elements in the weekday AM and midday peak hours (one sidewalk and crosswalk), six in the weekday PM peak hour (two sidewalks and four crosswalks), and one in the Saturday peak hour (crosswalk). These impacts could be mitigated by modest crosswalk widenings or signal timing changes at the majority of the impacted locations. Mitigation at one impacted sidewalk during the weekday AM peak hour (north side of West 25th Street between Eighth Avenue and Ninth Avenue) and two sidewalks (north side of West 25th Street between Eighth Avenue and Ninth Avenue and the west side of Hudson Boulevard between West 33rd Street and West 34th Street) during the

weekday PM peak hour were deemed infeasible and have thus been considered unmitigatable.

Transportation

As discussed in **Chapter 4, Transportation**, the Proposed Actions would result in significant adverse impacts at a number of locations in the study area. This section describes the mitigation measures that could reduce or eliminate significant impacts and indicates where impacts would remain unmitigated (see **Chapter 10, Unavoidable Significant Adverse Impacts**).

Traffic

Of the 21 intersections analyzed, the Proposed Actions would result in significant adverse traffic impacts at nine intersections (at 11 movements) during the weekday PM peak hour and seven intersections (at nine movements) during the Saturday peak hour. **Table 9-1** summarizes the number of significantly impacted intersections and whether they could be fully mitigated or partially mitigated. **Table 9-2** summarizes the significantly impacted traffic movements that could be fully mitigated by the proposed mitigation measures. Details of the intersection capacity analyses and the proposed traffic mitigation measures are summarized in **Table 9-3** and **Table 9-4**.

Table 9-1 Traffic Impact Mitigation Summary

Intersections	Weekday PM Peak Hour	Saturday Peak Hour
No significant impact	12	14
Fully mitigated impact	6	6
Partially mitigated impact	0	0
Unmitigated impact	3	1

Table 9-2 Summary of Impacted Traffic Movements

Intersections	Weekday PM Peak Hour	Saturday Peak Hour
Twelfth Avenue and West 29th Street		WB-R
Twelfth Avenue and West 26th Street	SB-L	
Eleventh Avenue and West 30th Street	EB-T	
Eleventh Avenue and West 24th Street	SB-TR	
Tenth Avenue and West 34th Street	EB-L, WB-T	EB-L, WB-T
Tenth Avenue and West 30th Street	EB-T	EB-L
Tenth Avenue and West 29th Street	WB-T	WB-T
Tenth Avenue and West 26th Street	EB-LT	EB-LT
Tenth Avenue and West 25th Street	WB-TR	WB-TR
Tenth Avenue and West 23rd Street	WB-R, NB-LTR	WB-T, WB-R
Number of unmitigated traffic movements	**5**	**1**

Notes:
Shading denotes an unmitigated impact
EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound; L=Left turn; T=Through; R=Right turn

Table 9-3 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Weekday PM Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
12th Avenue and West 30th Street														
West 30th Street	**EB**	LTR	0.14	64.5	E	LTR	0.14	64.5	E	LTR	0.14	64.5	E	Mitigation not required.
12th Avenue	**NB**	LTR	0.93	16.6	B	LTR	0.94	17.2	B	LTR	0.94	17.3	B	
	SB	L	1.06	129.4	F	L	1.06	130.3	F	L	1.06	130.3	F	
		TR	1.05	59.9	E	TR	1.06	62.2	E	TR	1.06	62.2	E	
Overall Intersection		-	-	**39.8**	**D**	-	-	**41.1**	**D**	-	-	**41.2**	**D**	
12th Avenue and West 29th Street														
West 29th Street	**WB**	L	0.30	56.1	E	L	0.30	56.1	E	L	0.30	56.1	E	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
		R	1.45	270.2	F	R	1.46	273.1	F	R	1.46	273.1	F	
12th Avenue	**NB**	T	0.75	6.2	A	T	0.75	6.4	A	T	0.75	5.8	A	
	SB	T	0.78	5.4	A	T	0.79	5.7	A	T	0.79	5.7	A	
Overall Intersection		-	-	**19.2**	**B**	-	-	**19.4**	**B**	-	-	**19.1**	**B**	
12th Avenue and West 26th Street														
12th Avenue	**NB**	TR	0.73	12.4	B	TR	0.74	12.6	B	TR	0.75	13.2	B	Modify signal timing. Shift 1 second (s) of green time from NBT/SBT phase to SBL phase. NBT/SBT green time shifts from 111 s to 110 s. SBL green time shifts from 27 s to 28 s.
	SB	L	0.80	57.0	E	L	0.86	62.3	E	L	0.82	58.0	E	
		T	0.69	10.7	B	T	0.69	10.8	B	T	0.69	11.4	B	
Overall Intersection		-	-	**13.5**	**B**	-	-	**14.0**	**B**	-	-	**14.4**	**B**	
11th Avenue and West 30th Street														
West 30th Street	**EB**	T	1.07	94.7	F	T	1.14	115.6	F	T	1.07	92.7	F	Modify signal timing. Shift 2 s of green time from SB phase to EB phase. SB green time shifts from 38 s to 36 s. EB green time shifts from 35 s to 37 s. Leading pedestrian interval (LPI) phase remains unchanged.
		R	0.71	40.0	D	R	0.71	40.0	D	R	0.67	34.7	C	
11th Avenue	**SB**	LT	0.57	21.1	C	LT	0.60	21.6	C	LT	0.63	23.4	C	
Overall Intersection		-	-	**40.4**	**D**	-	-	**46.1**	**D**	-	-	**41.2**	**D**	

Table 9-3 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Weekday PM Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
11th Avenue and West 29th Street														
West 29th Street	**WB**	L	0.55	20.4	C	L	0.61	21.2	C	L	0.61	21.7	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
		T	0.54	18.6	B	T	0.54	17.8	B	T	0.54	18.1	B	
11th Avenue	**SB**	TR	0.63	7.7	A	TR	0.64	7.7	A	TR	0.64	7.8	A	
Overall Intersection		-	-	**11.1**	**B**	-	-	**11.2**	**B**	-	-	**11.4**	**B**	
11th Avenue and West 28th Street														
West 28th Street	**EB**	TR	0.27	25.5	C	TR	0.32	26.4	C	TR	0.32	26.4	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
11th Avenue	**SB**	LT	0.65	10.5	B	LT	0.67	11.5	B	LT	0.67	11.6	B	
Overall Intersection		-	-	**11.6**	**B**	-	-	**12.7**	**B**	-	-	**12.8**	**B**	
11th Avenue and West 27th Street														
West 27th Street	**WB**	LT	0.61	28.9	C	LT	0.71	31.1	C	LT	0.71	31.4	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
11th Avenue	**SB**	TR	0.50	1.6	A	TR	0.52	1.8	A	TR	0.52	1.8	A	
Overall Intersection		-	-	**6.8**	**A**	-	-	**7.8**	**A**	-	-	**7.9**	**A**	
11th Avenue and West 26th Street														
West 26th Street	**EB**	T	0.62	33.6	C	T	0.62	33.6	C	T	0.62	33.6	C	Mitigation not required.
		R	0.44	31.8	C	R	0.57	38.0	D	R	0.57	38.0	D	
11th Avenue	**SB**	LT	0.53	2.9	A	LT	0.58	3.5	A	LT	0.58	3.5	A	
Overall Intersection		-	-	**11.9**	**B**	-	-	**12.8**	**B**	-	-	**12.8**	**B**	
11th Avenue and West 25th Street														
West 25th Street	**WB**	LT	0.85	47.4	D	LT	0.86	46.5	D	LT	0.86	47.9	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections
11th Avenue	**SB**	TR	0.51	4.2	A	TR	0.53	4.5	A	TR	0.53	4.5	A	
Overall Intersection		-	-	**13.6**	**B**	-	-	**13.4**	**B**	-	-	**13.7**	**B**	

Table 9-3 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Weekday PM Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
11th Avenue and West 24th Street														
West 24th Street	**EB**	R	0.28	27.9	C	R	0.28	27.9	C	R	0.29	28.8	C	Modify signal timing. Shift 1 s of green time from EB/NB/SBL phase to SBLTR phase. EB/NB/SBL green time shifts from 24 s to 23 s. SBLTR green time shifts from 27 s to 28 s. Pedestrian-only phase remains unchanged.
11th Avenue	**NB**	L	0.45	29.8	C	L	0.46	30.0	C	L	0.48	31.1	C	
	SB	L	0.48	6.1	A	L	0.49	6.3	A	L	0.49	6.1	A	
		TR	1.48	245.1	F	TR	1.53	265.2	F	TR	1.47	239.9	F	
Overall Intersection		-	-	**141.7**	**F**	-	-	**152.6**	**F**	-	-	**139.0**	**F**	
10th Avenue and West 34th Street														
West 34th Street	**EB**	L	3.00+	500.0+	F	L	3.00+	500.0+	F	L	3.00+	500.0+	F	**Unmitigable.** Changes in delays are a result of mitigation measures at other intersections.
		T	1.03	81.3	F	T	1.03	81.3	F	T	1.03	81.3	F	
	WB	T	1.44	242.2	F	T	1.51	271.3	F	T	1.51	271.3	F	
		R	2.49	500.0+	F	R	2.49	500.0+	F	R	2.49	500.0+	F	
10th Avenue	**NB**	LTR	1.13	72.7	E	LTR	1.13	72.3	E	LTR	1.13	72.2	E	
Overall Intersection		-	-	**228.7**	**F**	-	-	**242.1**	**F**	-	-	**242.1**	**F**	
10th Avenue and West 33rd Street														
West 33rd Street	**WB**	TR	0.99	51.5	D	TR	0.98	52.7	D	TR	0.98	52.7	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	LT	0.81	34.7	C	LT	0.81	33.5	C	LT	0.81	33.2	C	
Overall Intersection		-	-	**38.0**	**D**	-	-	**37.3**	**D**	-	-	**37.1**	**D**	
10th Avenue and West 31st Street														
West 31st Street	**WB**	R	1.24	156.8	F	R	1.24	156.8	F	R	1.24	156.8	F	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	T	0.64	5.0	A	T	0.65	4.7	A	T	0.65	4.9	A	
Overall Intersection		-	-	**41.8**	**D**	-	-	**41.4**	**D**	-	-	**41.5**	**D**	

Table 9-3 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Weekday PM Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
10th Avenue and West 30th Street														
West 30th Street	**EB**	L	1.51	272.9	F	L	1.39	217.4	F	L	1.34	197.4	F	Modify signal timing. Shift 1 s of green time from NB phase to EB phase. NB green time shifts from 44.5 s to 43.5 s. EB green time shifts from 28.5 s to 29.5 s. LPI phase remains unchanged.
		T	1.27	178.6	F	T	1.33	189.9	F	T	1.28	177.1	F	
10th Avenue	**NB**	TR	1.12	6.8	A	TR	1.14	7.1	A	TR	1.16	8.2	A	
Overall Intersection		-	-	**56.6**	**E**	-	-	**49.3**	**D**	-	-	**46.6**	**D**	
10th Avenue and West 29th Street														
West 29th Street	**WB**	T	0.72	39.8	D	T	0.79	45.2	D	T	0.76	41.9	D	Modify signal timing. Shift 1 s of green time from NB phase to WB phase. NB green time shifts from 44.5 s to 43.5 s. WB green time shifts from 28.5 s to 29.5 s. LPI phase remains unchanged.
		R	0.82	51.9	D	R	0.82	51.9	D	R	0.79	47.1	D	
10th Avenue	**NB**	LT	0.70	1.5	A	LT	0.72	1.6	A	LT	0.73	2.3	A	
Overall Intersection		-	-	**10.6**	**B**	-	-	**11.4**	**B**	-	-	**11.1**	**B**	
10th Avenue and West 28th Street														
West 28th Street	**EB**	LT	0.60	22.9	C	LT	0.60	23.9	C	LT	0.60	23.9	C	Mitigation not required.
10th Avenue	**NB**	TR	0.75	1.6	A	TR	0.77	1.7	A	TR	0.77	1.7	A	
Overall Intersection		-	-	**4.1**	**A**	-	-	**4.3**	**A**	-	-	**4.3**	**A**	
10th Avenue and West 27th Street														
West 27th Street	**WB**	TR	0.03	21.6	C	TR	0.03	21.7	C	TR	0.03	21.7	C	Mitigation not required.
10th Avenue	**NB**	LT	0.84	5.4	A	LT	0.88	6.9	A	LT	0.88	6.9	A	
Overall Intersection		-	-	**5.5**	**A**	-	-	**7.0**	**A**	-	-	**7.0**	**A**	

Table 9-3 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Weekday PM Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
10th Avenue and West 26th Street														
West 26th Street	**EB**	LT	0.89	43.8	D	LT	1.12	106.2	F	LT	1.12	106.2	F	**Unmitigable.** Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	TR	0.89	9.6	A	TR	0.90	10.2	B	TR	0.90	10.7	B	
Overall Intersection		-	-	**13.6**	**B**	-	-	**22.9**	**C**	-	-	**23.4**	**C**	
10th Avenue and West 25th Street														
West 25th Street	**WB**	TR	1.05	90.4	F	TR	1.10	107.1	F	TR	1.03	81.7	F	Modify signal timing. Shift 2 s of green time from NB phase to WB phase. NB green time shifts from 44.5 s to 42.5 s. WB green time shifts from 28.5 s to 30.5 s. LPI phase remains unchanged.
10th Avenue	**NB**	LT	0.77	3.5	A	LT	0.79	3.6	A	LT	0.82	4.8	A	
Overall Intersection		-	-	**17.2**	**B**	-	-	**19.9**	**B**	-	-	**16.9**	**B**	
10th Avenue and West 24th Street														
West 24th Street	**EB**	LT	0.79	49.9	D	LT	0.81	51.2	D	LT	0.81	53.7	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections
10th Avenue	**NB**	TR	0.81	15.9	B	TR	0.82	19.7	B	TR	0.82	19.7	B	
Overall Intersection		-	-	**21.1**	**C**	-	-	**24.6**	**C**	-	-	**25.0**	**C**	
10th Avenue and West 23rd Street														
West 23rd Street	**EB**	LT	0.74	44.6	D	LT	0.76	46.4	D	LT	0.76	46.4	D	**Unmitigable.**
	WB	T	1.04	98.7	F	T	1.04	100.6	F	T	1.04	100.6	F	
		R	0.89	63.7	E	R	0.92	69.5	E	R	0.92	69.5	E	
10th Avenue	**NB**	LTR	0.93	47.6	D	LTR	0.94	54.3	D	LTR	0.94	54.3	D	
Overall Intersection		-	-	**53.6**	**D**	-	-	**59.3**	**E**	-	-	**59.3**	**E**	

[1] Control delay is measured in seconds per vehicle,
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
Shading denotes a significantly impacted movement

Table 9-4 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Saturday Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
12th Avenue and West 30th Street														
West 30th Street	**EB**	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
12th Avenue	**NB**	LTR	0.73	8.6	A	LTR	0.75	9.3	A	LTR	0.75	9.2	A	
	SB	L	0.69	47.7	D	L	0.72	50.3	D	L	0.72	50.3	D	
		TR	0.75	19.5	B	TR	0.75	19.5	B	TR	0.75	19.5	B	
Overall Intersection		-	-	**15.2**	**B**	-	-	**15.7**	**B**	-	-	**15.6**	**B**	
12th Avenue and West 29th Street														
West 29th Street	**WB**	L	0.24	43.3	D	L	0.24	43.3	D	L	0.22	41.3	D	Modify signal timing. Shift 2 s of green from NB/SB phase to WB phase. NB/SB green time shifts from 78 s to 76 s. WB green time shifts from 23 s to 25 s. LPI phase remains unchanged.
		R	1.20	161.6	F	R	1.28	189.5	F	R	1.16	146.1	F	
12th Avenue	**NB**	T	0.56	8.0	A	T	0.57	8.0	A	T	0.59	9.0	A	
	SB	T	0.68	3.8	A	T	0.69	3.8	A	T	0.70	4.7	A	
Overall Intersection		-	-	**17.3**	**B**	-	-	**19.9**	**B**	-	-	**17.5**	**B**	
12th Avenue and West 26th Street														
12th Avenue	**NB**	TR	0.54	10.5	B	TR	0.55	10.7	B	TR	0.55	10.7	B	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
	SB	L	0.41	44.6	D	L	0.43	45.1	D	L	0.43	46.1	D	
		T	0.63	3.8	A	T	0.63	3.8	A	T	0.63	3.2	A	
Overall Intersection		-	-	**8.5**	**A**	-	-	**8.7**	**A**	-	-	**8.5**	**A**	
11th Avenue and West 30th Street														
West 30th Street	**EB**	T	0.48	24.8	C	T	0.59	27.4	C	T	0.59	27.4	C	Mitigation not required.
		R	0.45	26.1	C	R	0.48	27.2	C	R	0.48	27.2	C	
11th Avenue	**SB**	LT	0.62	23.2	C	LT	0.66	24.1	C	LT	0.66	24.1	C	
Overall Intersection		-	-	**23.8**	**C**	-	-	**25.0**	**C**	-	-	**25.0**	**C**	

Table 9-4 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Saturday Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
11th Avenue and West 29th Street														
West 29th Street	**WB**	L	0.32	11.4	B	L	0.39	11.6	B	L	0.39	12.1	B	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
		T	0.48	12.3	B	T	0.51	12.2	B	T	0.51	12.9	B	
11th Avenue	**SB**	TR	0.57	6.0	A	TR	0.59	5.9	A	TR	0.59	5.9	A	
Overall Intersection		-	-	**7.7**	**A**	-	-	**7.7**	**A**	-	-	**7.9**	**A**	
11th Avenue and West 28th Street														
West 28th Street	**EB**	TR	0.39	28.5	C	TR	0.46	30.4	C	TR	0.46	30.4	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
11th Avenue	**SB**	LT	0.55	7.2	A	LT	0.58	8.2	A	LT	0.58	8.3	A	
Overall Intersection		-	-	**9.6**	**A**	-	-	**10.8**	**B**	-	-	**10.9**	**B**	
11th Avenue and West 27th Street														
West 27th Street	**WB**	LT	0.74	30.5	C	LT	0.85	36.8	D	LT	0.85	37.7	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
11th Avenue	**SB**	TR	0.43	2.8	A	TR	0.45	3.0	A	TR	0.45	3.0	A	
Overall Intersection		-	-	**9.9**	**A**	-	-	**12.1**	**B**	-	-	**12.4**	**B**	
11th Avenue and West 26th Street														
West 26th Street	**EB**	T	0.44	29.2	C	T	0.43	29.0	C	T	0.43	29.0	C	Mitigation not required.
		R	0.40	30.7	C	R	0.52	36.7	D	R	0.52	36.7	D	
11th Avenue	**SB**	LT	0.48	3.5	A	LT	0.53	4.4	A	LT	0.53	4.4	A	
Overall Intersection		-	-	**10.3**	**B**	-	-	**11.3**	**B**	-	-	**11.3**	**B**	
11th Avenue and West 25th Street														
West 25th Street	**WB**	LT	0.41	30.2	C	LT	0.46	30.4	C	LT	0.46	31.6	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
11th Avenue	**SB**	TR	0.38	3.2	A	TR	0.39	3.3	A	TR	0.39	3.3	A	
Overall Intersection		-	-	**7.2**	**A**	-	-	**7.4**	**A**	-	-	**7.6**	**A**	

Table 9-4 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Saturday Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
11th Avenue and West 24th Street														
West 24th Street	**EB**	R	0.22	27.0	C	R	0.22	27.0	C	R	0.22	27.0	C	Mitigation not required.
11th Avenue	**NB**	L	0.23	26.8	C	L	0.24	26.9	C	L	0.24	26.9	C	
	SB	L	0.33	4.7	A	L	0.35	4.6	A	L	0.35	4.6	A	
		TR	0.92	34.9	C	TR	0.97	41.8	D	TR	0.97	41.8	D	
Overall Intersection		-	-	**25.9**	**C**	-	-	**29.5**	**C**	-	-	**29.5**	**C**	
10th Avenue and West 34th Street														
West 34th Street	**EB**	L	1.37	229.8	F	L	1.47	270.9	F	L	1.30	200.2	F	Modify signal timing. Shift 2 s of green time from NB phase to EB/WB phase. NB green time shifts from 44.5 s to 42.5 s. EB/WB green time shifts from 28.5 s to 30.5 s. LPI phase remains unchanged.
		T	0.66	35.0	C	T	0.66	35.0	C	T	0.61	31.6	C	
	WB	T	0.83	47.8	D	T	0.88	53.7	D	T	0.82	44.6	D	
		R	0.82	56.6	E	R	0.82	56.6	E	R	0.75	46.8	D	
10th Avenue	**NB**	LTR	0.74	9.9	A	LTR	0.78	10.6	B	LTR	0.82	11.2	B	
Overall Intersection		-	-	**38.5**	**D**	-	-	**42.3**	**D**	-	-	**34.9**	**C**	
10th Avenue and West 33rd Street														
West 33rd Street	**WB**	TR	0.96	29.8	C	TR	0.95	30.0	C	TR	0.95	30.0	C	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	LT	0.57	7.3	A	LT	0.59	7.5	A	LT	0.59	7.4	A	
Overall Intersection		-	-	**11.2**	**B**	-	-	**11.4**	**B**	-	-	**11.3**	**B**	
10th Avenue and West 31st Street														
West 31st Street	**WB**	R	0.84	50.9	D	R	0.84	50.9	D	R	0.84	50.9	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	T	0.45	2.7	A	T	0.47	3.4	A	T	0.47	3.8	A	
Overall Intersection		-	-	**12.1**	**B**	-	-	**12.3**	**B**	-	-	**12.6**	**B**	

Table 9-4 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Saturday Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
10th Avenue and West 30th Street														
West 30th Street	**EB**	L	0.71	63.8	E	L	0.94	90.9	F	L	0.79	64.1	E	Modify signal timing. Shift 4 s of green time from NB phase to EB phase. NB green time shifts from 44.5 s to 40.5 s. EB green time shifts from 28.5 s to 32.5 s. LPI phase remains unchanged.
		T	0.69	54.1	D	T	0.76	56.8	E	T	0.67	48.6	D	
10th Avenue	**NB**	TR	1.00	7.1	A	TR	1.02	7.1	A	TR	1.13	10.8	B	
Overall Intersection		-	-	**17.5**	**B**	-	-	**21.5**	**C**	-	-	**20.8**	**C**	
10th Avenue and West 29th Street														
West 29th Street	**WB**	T	0.83	47.9	D	T	0.92	59.9	E	T	0.86	48.7	D	Modify signal timing. Shift 2 s of green time from NB phase to WB phase. NB green time shifts from 44.5 s to 42.5 s. WB green time shifts from 28.5 s to 30.5 s. LPI phase remains unchanged.
		R	0.71	41.3	D	R	0.71	41.3	D	R	0.66	35.7	D	
10th Avenue	**NB**	LT	0.60	1.9	A	LT	0.62	2.0	A	LT	0.65	3.2	A	
Overall Intersection		-	**14.0**	**B**	-	-	**16.4**	**B**	-	-	**14.7**	**B**	-	
10th Avenue and West 28th Street														
West 28th Street	**EB**	LT	0.69	19.4	B	LT	0.70	20.6	C	LT	0.70	20.6	C	Mitigation not required.
10th Avenue	**NB**	TR	0.59	1.0	A	TR	0.61	1.1	A	TR	0.61	1.1	A	
Overall Intersection		-	-	**4.2**	**A**	-	-	**4.5**	**A**	-	-	**4.5**	**A**	
10th Avenue and West 27th Street														
West 27th Street	**WB**	TR	0.05	21.9	C	TR	0.05	21.9	C	TR	0.05	21.9	C	Mitigation not required.
10th Avenue	**NB**	LT	0.80	4.3	A	LT	0.85	5.7	A	LT	0.85	5.7	A	
Overall Intersection		-	-	**4.5**	**A**	-	-	**5.9**	**A**	-	-	**5.9**	**A**	
10th Avenue and West 26th Street														
West 26th Street	**EB**	LT	0.87	53.5	D	LT	1.06	95.9	F	LT	1.06	95.9	F	**Unmitigable.** Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	TR	0.70	6.7	A	TR	0.72	6.7	A	TR	0.72	7.2	A	

Table 9-4 No-Action vs With-Action vs Mitigation Traffic Levels of Service Comparison – Saturday Peak Hour

		No-Action				With-Action				Mitigation				
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Proposed Measures**
Overall Intersection		-	-	**14.8**	**B**	-	-	**23.3**	**C**	-	-	**23.7**	**C**	
10th Avenue and West 25th Street														
West 25th Street	**WB**	TR	0.87	53.6	D	TR	0.99	78.8	E	TR	0.89	54.6	D	Modify signal timing. Shift 3 s of green time from NB phase to WB phase. NB green time shifts from 44.5 s to 41.5 s. WB green time shifts from 28.5 s to 31.5 s. LPI phase remains unchanged.
10th Avenue	**NB**	LT	0.65	3.2	A	LT	0.67	3.4	A	LT	0.72	3.9	A	
Overall Intersection		-	-	**11.9**	**B**	-	-	**16.4**	**B**	-	-	**12.6**	**B**	
10th Avenue and West 24th Street														
West 24th Street	**EB**	LT	0.77	47.0	D	LT	0.82	51.5	D	LT	0.82	51.6	D	Mitigation not required. Changes in delays are a result of mitigation measures at other intersections.
10th Avenue	**NB**	TR	0.69	11.4	B	TR	0.71	12.0	B	TR	0.71	12.6	B	
Overall Intersection		-	-	**17.7**	**B**	-	-	**19.2**	**B**	-	-	**19.7**	**B**	
10th Avenue and West 23rd Street														
West 23rd Street	**EB**	LT	0.75	42.4	D	LT	0.78	44.8	D	LT	0.76	42.8	D	Modify signal timing. Shift 1 s of green time from NB phase to EB/WB phase. NB green time shifts from 37 s to 36 s. EB/WB green time shifts from 25 s to 26 s. LPI and EBL phases remain unchanged.
	WB	T	1.04	104.6	F	T	1.05	108.0	F	T	1.02	96.3	F	
		R	0.87	61.8	E	R	0.92	69.3	E	R	0.87	60.0	E	
10th Avenue	**NB**	LTR	0.74	25.9	C	LTR	0.76	26.7	C	LTR	0.78	28.4	C	
Overall Intersection		-	-	**40.7**	**D**	-	-	**42.8**	**D**	-	-	**41.3**	**D**	

[1] Control delay is measured in seconds per vehicle,

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
Shading denotes a significantly impacted movement

As shown in **Table 9-1**, six impacted intersections could be fully mitigated in both the weekday PM and Saturday peak hours. As shown in **Table 9-2**, six and eight impacted movements could be fully mitigated in the weekday PM and Saturday peak hours, respectively, with implementation of signal timing modifications. Overall, with implementation of the proposed measures, three intersections (and five movements) in the weekday PM peak hour and one intersection (and one movement) in the Saturday peak hour would remain unmitigated.

One or more traffic movements at the following intersections could not be mitigated in at least one peak hour:

- Tenth Avenue and West 34th Street (weekday PM peak hour)
- Tenth Avenue and West 26th Street (weekday PM and Saturday peak hours)
- Tenth Avenue and West 23rd Street (weekday PM peak hour)

Transit

Bus

As presented in **Chapter 4, Transportation**, the bus line haul analyses using the project's basic travel demand assumptions would not result in significant adverse bus impacts. However, as noted in **Chapter 4**, with assumptions specifically oriented toward greater use of the M23-SBS route via subway transfers, a significant impact would be expected to occur in the weekday PM peak hour in the eastbound direction. In order to mitigate that impact, weekday PM peak bus frequency would need to be increased by three buses (for a total of 10 buses in the weekday PM peak hour). Implementation of this service change is subject to NYCT's discretion as well as operational and fiscal constraints.

Subways

As discussed in **Chapter 4, Transportation,** the Proposed Actions would result in significant impacts to a pair of down mezzanine escalators (ES621/ES622) during the weekday PM peak hour at the 34th Street-Hudson Yards Station.

Table 9-5 summarizes the capacities, v/c ratios, and levels of service for the impacted escalators. ~~These impacts are currently identified as unmitigated. Between the Draft and Final EISs, measures will be explored in coordination with NYCT and presented in the Final EIS if practicable. If no feasible mitigation measures are identified, the impacts would remain identified as~~A possible mitigation would be to reverse the operating direction of an adjacent escalator (ES623) to run down in the PM peak hour; this would eliminate the impact to escalators ES621 and ES622. Implementation of operational changes is subject to NYCT's discretion. However, upon consultation with New York City Transit, the decision to change escalator operations would depend on other factors such as future ridership patterns at the station, growth in the area, and the approval by NYCT's escalator maintenance group. Should another escalator not be reversed to run down, the impact would be unmitigated.

Table 9-5 Escalator Level of Service Summary Comparison

		No-Action			With-Action			With-Action with Mitigation		
Peak Hour	Escalator	Capacity (ped/ 15-min)[1]	v/c Ratio	LOS	Capacity (ped/ 15-min)[1]	v/c Ratio	LOS	Capacity (ped/ 15-min)[1]	v/c Ratio	LOS
AM	ES621/ES622	2,340	0.09	A	2,340	0.10	A	2,340	0.10	A
PM	ES621/ES622	2,340	0.95	D	2,340	1.01	D	2,340	1.01	D

Note: Methodology based on *2020 CEQR Technical Manual* guidelines
[1] All escalators are assumed to continue operating at a speed of 120 feet per minute
Shading denotes significantly impacted escalator

Pedestrians

As discussed in **Chapter 4, Transportation,** the Proposed Actions would result in significant impacts at two pedestrian elements during the AM and midday peak hours (one sidewalk and crosswalk), six pedestrian elements during the PM peak hour (two sidewalks and four crosswalks), and one pedestrian element during the Saturday peak hour (crosswalk).

Table 9-6 summarizes the number of significantly impacted pedestrian elements by peak hour and whether they could be mitigated or would remain unmitigable. Detailed pedestrian levels of services and the proposed mitigation measures are summarized in **Table 9-7** and **Table 9-8**. With implementation of these improvements, sidewalk impacts (one in the weekday AM peak hour and two in the weekday PM peak hour) would remain while all crosswalk impacts in all peak hours would be mitigated.

Table 9-6 Summary of Elements with Significant Adverse Pedestrian Impacts

Peak Hour	Elements Analyzed	Elements with No Significant Impacts	Elements with Significant Impacts	Unmitigated Elements
Sidewalk Elements				
Weekday AM	18	17	1	1
Weekday Midday	18	18	0	0
Weekday PM	18	16	2	2
Saturday	18	18	0	0
Crosswalk Elements				
Weekday AM	17	16	1	0
Weekday Midday	17	15	2	0
Weekday PM	17	13	4	0
Saturday	17	16	1	0

Note: 32 corner elements were also analyzed and none are expected to be impacted during any of the peak hours analyzed.

Table 9-7 Sidewalk Impact Mitigation Summary

	No-Action		With-Action		With-Action with Mitigation		
Sidewalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Mitigation Measures
Weekday AM Peak Hour							
West 25th Street between 8th Avenue and 9th Avenue (north side)	39.2	D	29.5	D	29.5	D	- Unmitigable
Weekday PM Peak Hour							
West 25th Street between 8th Avenue and 9th Avenue (north side)	36.9	D	19.7	E	19.7	E	- Unmitigable
Hudson Boulevard between West 33rd Street and West 34th Street (west side)	20.7	E	17.8	E	17.8	E	- Unmitigable

Note: Methodology based on *2020 CEQR Technical Manual* guidelines
Shading denotes a significantly impacted sidewalk

Table 9-8 Crosswalk Impact Mitigation Summary

		No-Action		With-Action		With-Action with Mitigation		
Intersection	Crosswalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Mitigation Measures
AM Peak Hour								
8th Avenue and West 25th Street	North	21.2	D	17.6	D	22.8	D	- Widen crosswalk by 3 ft, from 11 ft to 14 ft.
Midday Peak Hour								
10th Avenue and West 25th Street	North	22.5	D	18.3	D	21.8	D	- Widen crosswalk by 2 ft, from 12 ft to 14 ft.
8th Avenue and West 25th Street	North	26.0	C	19.5	D	25.3	C	- Widen crosswalk by 3 ft, from 11 ft to 14 ft.
Weekday PM Peak Hour								
11th Avenue and West 26th Street	North	46.9	B	18.6	D	20.4	D	- Widen crosswalk by 1 ft, from 11 ft to 12 ft.
10th Avenue and West 25th Street	North	23.8	D	15.4	D	21.0	D	- Widen crosswalk by 2 ft, from 12 ft to 14 ft. - Modify signal timing. Shift 2 s of walk time (during 90 s signal cycle) from the north/south crosswalks to the east/west crosswalks. This measure is needed for mitigation of traffic impacts at this intersection.
9th Avenue and West 25th Street	North	33.2	C	18.5	D	20.2	D	- Widen crosswalk by 1 ft, from 12 ft to 13 ft.
8th Avenue and West 25th Street	North	19.0	D	12.6	E	19.2	D	- Widen crosswalk by 3 ft, from 11 ft to 14 ft.
SAT Peak Hour								
11th Avenue and West 30th Street	East	25.9	C	17.2	D	20.5	D	- Widen crosswalk by 2 ft, from 12 ft to 14 ft.

Note: Methodology based on *2020 CEQR Technical Manual* guidelines
Shading denotes a significantly impacted crosswalk

Potential measures to mitigate the weekday AM and PM peak hour impacts to the north sidewalk along West 25th Street between Eighth Avenue and Ninth Avenue include the extension of the sidewalk into the adjacent roadway or relocation of subway station stairways. Potential measures to mitigate the weekday PM peak hour impact to the west sidewalk along Hudson Boulevard between West 33rd Street and West 34th Street include the removal of obstructions (tree pit) or extension of the sidewalk into the adjacent roadway. However, these measures are generally considered to be infeasible and, consequently, are not proposed. Therefore, as shown in **Table 9-7**, one sidewalk impact and two ~~sidewalks~~sidewalk impacts would remain unmitigable during the weekday AM and PM peak hours, respectively (see **Chapter 10, Unavoidable Significant Adverse Impacts**).

The crosswalk widenings identified in **Table 9-8** would fully mitigate all crosswalk impacts. Implementation of these widenings would not result in changes to traffic operations. In addition, signal timing changes proposed as traffic mitigation would not result in any impacts to analyzed crosswalks or corners at affected intersections. Implementation of these widenings would be subject to review and approval by NYCDOT. ~~Between the Draft and Final EISs, NYCDOT will investigate the feasibility of these measures. Should a particular mitigation measure be deemed~~If prior to implementation NYC DOT determines that an identified mitigation measure is infeasible and no other practical mitigation measures can be identified, the predicted significant adverse pedestrian impact at that location ~~could potentially be~~would remain unmitigated.