
CHAPTER 21: MITIGATION

A. INTRODUCTION

The preceding chapter of this DEIS discussed the potential for significant adverse impacts to occur in each of the technical areas. Where significant impacts have been identified, in accordance with the *City Environmental Quality Review ("CEQR") Technical Manual*, mitigation measures are examined to minimize or eliminate these impacts. These mitigation measures are discussed below.

B. OPEN SPACE

As described in Chapter 5, "Open Space", the proposed project would result in a significant adverse impact to open space as a result of an introduction of a substantial number of new residents in the rezoning area. As described in Chapter 3D, Section 500 of the *CEQR Technical Manual*, measures to mitigate open space impacts can include: 1) creation of new public space of the type needed to serve the proposed action's new population either on the project site or in the study area; 2) improving existing open spaces in the study area; and, 3) in the case of alienation or conversion of parkland, replacement of the parkland. Only the first and second potential mitigation measures apply in the case of the proposed actions since no alienation of parkland is proposed. ~~Potential options available for off-setting the impact on study area open space include:~~

Between DEIS and FEIS potential measures to mitigate the significant adverse impact on passive open space resources were explored in coordination with the city's Department of Parks and Recreation (DPR). As was noted in the DEIS, there is limited City-owned vacant property that is available and suitable for open space creation, so options explored included improvements to existing open spaces, such as the Dutch Kills Playground and Queensbridge Park. These improvements could include:

- Overhaul the tennis courts at the Dutch Kills Playground at P.S. 112 by replacing the asphalt, reconstructing the perimeter walls, repainting the lines, and adding nets. Also rehab the basketball courts at the Playground by replacing the asphalt and reconstruct the backboards.
- Integrate the Queensbridge Park allee into the Queens East River and North Shore Greenway by adding new pavement, benches for seating, bike racks, and greenway signage.

However, funding for these improvements has not been programmed although both DPR and DCP are committed to pursue funding opportunities. Further, these would not constitute sufficient mitigation for the proposed actions significant adverse open space impact. DPR will continue to work with other city agencies to identify sites for long term opportunities for open space improvements in the Dutch Kills area. But, in the absence of the implementation of mitigation measures, unmitigated conditions would remain for the open space impacts of the proposed actions.

- ~~1. Funding portions or all of the unfunded improvements proposed by DCP/EDC to the currently underutilized Queensbridge Baby Park as part of the Queens Plaza project. Possible improvements include a handball court renovation. The total park acreage is approximately 2.10 acres.~~
- ~~2. Providing a new street plaza at 12th Street between 43rd Road and 44th Avenue. This space is approximately 0.22 acre.~~

Dutch Kills Rezoning and Related Actions EIS

- ~~3. Improvements to the space adjacent to Queensbridge Baby Park to integrate this space into the proposed Queens East River and North Shore Greenway. Acreage unknown.~~
- ~~4. Adding a comfort station to the playground 35 at Steinway Street, 35th Avenue. This feature would lead to an increase in community usage. Acreage unknown.~~
- ~~5. Provide improvements to the large asphalt yard at the Dutch Kills Playground at P.S. 112 at Cresecent Street between 36th and 37th Avenues which would increase its utilization. Approximate asphalt yard acreage: 0.8 acre.~~

~~These and other potential measures to mitigate the significant adverse impact on open space resources due to the proposed actions will be explored between the Draft and Final EIS.~~

C. TRAFFIC AND PARKING

TRAFFIC

As discussed in Chapter 15, “Traffic and Parking”, the proposed project would result in significant adverse traffic impacts at a total of four signalized intersections along Northern Boulevard in one or more peak hours by 2017. A traffic mitigation plan was therefore developed to address these impacts. This mitigation plan, summarized in Table 21-1, consists of changes to signal timing and phasing, and changes to curb side parking regulations in order to increase capacity. For Figures see Appendix E, Traffic and Parking: Background Developments and Mitigation Measures

According to the *CEQR Technical Manual*, a significant traffic impact can be considered mitigated if measures implemented return projected future conditions to what they would be if a proposed action were not in place, or to acceptable levels. For a future No-Action condition level of service (LOS) D, E or F, mitigation back to the No-Action condition is required; for No-Action LOS A, B or C, mitigating to mid-LOS D is required (45 seconds of delay for signalized intersections, and 30 seconds of delay for unsignalized intersections).

The effectiveness of the proposed traffic mitigation plan, in terms of addressing significant adverse impacts that would result from the proposed project, is shown in Table 21-2. As discussed below, the proposed traffic mitigation measures would fully mitigate most of the traffic impacts that would occur as a result of the proposed actions in each peak hour. However, two impacts at the intersection of Northern Boulevard and Steinway Street/39th Street would remain unmitigated in the weekday PM peak hour.

NORTHERN BOULEVARD AT 40TH AVENUE/31ST STREET

As shown in Table 21-1, at this intersection it is proposed to implement a new leading eastbound signal phase with 11 seconds of signal time in the weekday AM, midday and Saturday midday peak periods and 12 seconds in the weekday midday, and to transfer two seconds of green time from the eastbound/westbound phase to the southbound phase in the AM peak hour, and one second in the PM peak hour. As shown in Table 21-2, with these adjustments to signal timing and phasing, the significant adverse impacts to the southbound approach in the AM peak hour and the eastbound left-turn movement in the weekday midday, PM and Saturday midday peak hours would be fully mitigated. The southbound approach would operate with 71.9 seconds of delay (LOS E) in the AM compared to 78.8 seconds of delay (LOS E) under the future condition without the proposed actions. The eastbound left-turn movement would operate with 72.7 seconds of delay (LOS E) in the weekday midday peak hour compared to 205.0 seconds (LOS F) in the future condition without the proposed actions; 240.6 seconds

of delay (LOS F) in the PM compared to 649.3 seconds (LOS F) in the future condition without the proposed actions; and 76.4 seconds of delay (LOS E) in the Saturday midday compared to 170.8 seconds (LOS F) in the future condition without the proposed actions.

NORTHERN BOULEVARD AT 39TH AVENUE/HONEYWELL STREET BRIDGE

As shown in Table 21-1, at this intersection it is proposed to implement a no-standing anytime regulation along the length of the north curb (approximately 140 feet) on the westbound Northern Boulevard approach, and to transfer one second of green time from the eastbound/westbound phase to the northbound (Honeywell Street Bridge) phase in the weekday PM peak period. As shown in Table 21-2, with these parking regulation and signal timing adjustments, the significant adverse impacts to the westbound approach in the weekday midday and PM peak hours and to the northbound approach in the PM peak hour would be fully mitigated. The westbound approach would operate with 39.9 seconds of delay (LOS D) in the midday and 148.6 seconds (LOS F) in the PM compared to 42.9 seconds of delay (LOS D) and 161.9 seconds (LOS F) during these periods, respectively, in the future condition without the proposed actions. The northbound approach would operate with 59.8 seconds of delay (LOS E) in the PM peak hour, compared to 60.6 seconds (LOS E) in the future condition without the proposed actions. As discussed below in the Parking section, implementation of a no standing anytime regulation on the westbound approach at this intersection would displace four metered parking spaces.

**Table 21-1
Proposed Traffic Mitigation Measures**

Intersection	Approach	Period	Current Signal Timing (Seconds)	Mitigation Signal Timing (Seconds)	Description of Mitigation
Northern Boulevard (E-W) @ 40th Avenue (WB)/ 31st Street (N-S)	EB/WB EB SB	ALL	90/90/90/90 30/30/30/30	77/79/77/79 11/11/12/11 32/30/31/30*	Introduce new leading EB phase. Transfer 2 sec. of green time from EB/WB phase to SB phase in AM peak hour. Transfer 1 sec. of green time from EB/WB phase to SB phase in PM peak hour.
Northern Boulevard (E-W) @ 39th Avenue (NB)/ Honeywell Street Bridge (N-S)	EB/WB NB	MD/PM	90/90/90/90 30/30/30/30	90/90/89/90 30/30/31/30*	Implement "no standing anytime" regulation along length of WB approach. Transfer 1 sec. of green time from EB/WB phase to NB phase in PM peak hour.
Northern Boulevard (E-W) @ 38th Avenue (N-S)/ 35st Street (NB)	EB/WB SB	PM	90/90/90/90 30/30/30/30	90/90/90/90 30/30/30/30*	Implement "no standing 4-7 PM" regulation for 100 feet along the WB approach.
Northern Boulevard (E-W) @ Steinway Street (SB)/ 39th Street Bridge (NB)	EB/WB NB SB	ALL	73/67/73/67 25/31/25/31 22/22/22/22	73/67/73/67 25/31/25/31 22/22/22/22*	Implement "no standing anytime" regulation for 100 feet along the EB approach. Implement "no standing anytime" regulation for 100 feet along the WB approach.

*This portion of the table was reformatted between the DEIS and FEIS. Notes: Signal timings indicate green plus yellow (including all-red) for each phase. EB – eastbound; WB – westbound; NB – northbound; SB - southbound

Dutch Kills Rezoning and Related Actions EIS

NORTHERN BOULEVARD AT 38TH AVENUE/35TH STREET

As shown in Table 21-1, at this intersection it is proposed to implement a no standing 4-7 PM regulation for 100 feet along the north curb on the westbound Northern Boulevard approach. As shown in Table 21-2, with this proposed regulation, the significant adverse impact to the eastbound left-turn movement in the weekday PM peak hour would be fully mitigated. This movement would operate with 37.2 seconds of delay (LOS D) compared to 90.5 seconds (LOS F) in the future condition without the proposed actions. As discussed below in the Parking section, implementation of a no standing 4-7 PM anytime regulation on the westbound approach at this intersection would displace parking from approximately four metered spaces during this period.

NORTHERN BOULEVARD AT STEINWAY STREET/39TH STREET BRIDGE

As shown in Table 21-1, under the traffic mitigation plan it is proposed to implement a no-standing anytime regulation for 100 feet along both the eastbound and westbound Northern Boulevard approaches. (Implementation of the no standing anytime regulation along the westbound approach would result in the displacement of approximately four metered parking spaces at which parking is presently prohibited during the weekday PM peak period.) As shown in Table 12-2, with these measures, the significant adverse traffic impacts to the westbound left-turn movement in the weekday AM and midday peak hours, the eastbound left-turn movement in the weekday midday and Saturday midday peak hours, and the eastbound through-right movement in the Saturday midday peak hour would be fully mitigated. The westbound left-turn movement would operate with 86.1 seconds of delay (LOS F) in both the AM and midday peak hours, compared to 229.2 seconds of delay (LOS F) and 328.5 seconds (LOS F) in these

**Table 21-2
2017 Future Conditions with the Proposed Actions w/Mitigation Conditions
Levels of Service at Signalized Intersections**

SIGNALIZED INTERSECTION	Lane Group	AM PEAK HOUR									
		2017 No-Action			2017 With-Action			2017 With-Action w/Mitigation			
		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	
Northern Boulevard (E-W) @ 40th Avenue (W)/ 31st Street (SB)	EB-L	1.30	184.4	F	1.22	155.3	F	1.12	147.3	F	
	EB-T	0.58	9.8	A	0.58	9.8	A	0.59	10.9	B	
	WB-T	0.73	12.0	B	0.72	11.9	B	0.85	23.4	C	
	SB-LTR	0.94	78.8	E	0.98	89.3	F *	0.91	71.9	E	
Northern Boulevard (E-W) @ Steinway Street (SB)/ 39th Street Bridge (NB)	EB-L	0.40	33.3	C	0.40	33.3	C	0.40	33.3	C	
	EB-TR	0.80	25.1	C	0.83	26.3	C	EB-T	0.61	18.9	B
								EB-R	0.30	14.6	B
	WB-L	1.36	229.2	F	1.46	271.7	F *	0.98	86.1	F	
	WB-TR	0.88	27.2	C	0.87	26.4	C	0.87	26.4	C	
	NB-L	1.13	148.1	F	1.12	145.3	F	1.12	145.3	F	
	NB-TR	1.21	176.0	F	1.21	174.5	F	1.21	174.5	F	
SB-LTR	0.92	78.2	E	0.92	77.8	E	0.92	77.8	E		

Chapter 21: Mitigation

	Lane Group	MIDDAY PEAK HOUR										
		2017 No-Action			2017 With-Action			2017 With-Action w/Mitigation				
		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS		
Northern Boulevard (E-W) @ 40th Avenue (W)/ 31st Street (SB)	EB-L	1.35	205.0	F	1.37	215.9	F	*	0.91	72.7	E	
	EB-T	0.63	10.7	B	0.63	10.7	B		0.63	10.7	B	
	WB-T	0.66	11.3	B	0.66	11.3	B		0.76	19.7	B	
	SB-LTR	0.85	65.4	E	0.86	67.2	E		0.86	67.2	E	
Northern Boulevard (E-W) @ 39th Avenue (N)/ Honeywell Street Bridge (N-S)	EB-L	0.23	9.1	A	0.23	9.3	A		0.23	9.3	A	
	EB-TR	0.63	10.7	B	0.63	10.7	B		0.63	10.7	B	
	WB-LTR	1.01	42.9	D	1.08	65.5	E	*	1.00	39.9	D	
	NB-LTR	0.64	48.6	D	0.65	49.1	D		0.65	49.1	D	
Northern Boulevard (E-W) @ Steinway Street (SB)/ 39th Street Bridge (NB)	EB-L	1.00	129.0	F	1.01	133.1	F	*	1.00	129.0	F	
	EB-TR	0.93	39.3	D	0.94	40.3	D		EB-T	0.70	24.5	C
									EB-R	0.33	18.1	B
	WB-L	1.54	328.5	F	1.61	357.3	F	*	0.91	86.1	F	
	WB-TR	0.87	32.4	C	0.87	32.7	C		WB-T	0.80	28.2	C
									WB-R	0.01	14.1	B
	NB-L	0.68	54.2	D	0.70	55.3	E		0.70	55.3	E	
	NB-TR	1.19	157.0	F	1.18	155.9	F		1.18	155.9	F	
SB-LTR	1.01	98.3	F	1.01	98.3	F		1.01	98.3	F		
	Lane Group	PM PEAK HOUR										
		2017 No-Action			2017 With-Action			2017 With-Action w/Mitigation				
		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS		
Northern Boulevard (E-W) @ 40th Avenue (W)/ 31st Street (SB)	EB-L	2.35	649.3	F	2.67	790.8	F	*	1.37	240.6	F	
	EB-T	0.68	10.9	B	0.68	10.9	B		0.69	11.6	B	
	WB-T	0.79	14.8	B	0.80	15.1	B		0.95	34.2	C	
	SB-LTR	1.05	105.4	F	1.04	104.7	F		1.00	92.2	F	

Dutch Kills Rezoning and Related Actions EIS

Table 21-2 (Continued)
2017 Future Conditions with the Proposed Actions w/Mitigation Conditions
Levels of Service at Signalized Intersections

Northern Boulevard (E-W) @ 39th Avenue (N)/	EB-L	0.25	10.6	B	0.26	11.4	B	0.28	12.3	B	
	EB-TR	0.67	10.9	B	0.68	10.9	B	0.68	11.5	B	
Honeywell Street Bridge (N-S)	WB-LTR	1.31	161.9	F	1.36	184.3	F *	1.28	148.6	F	
	NB-LTR	0.86	60.6	E	0.90	65.2	E *	0.87	59.8	E	
Northern Boulevard (E-W) @ 38th Avenue (NS)/ 35th Street (NB)	EB-L	0.95	90.5	F	1.01	108.8	F *	0.72	37.2	D	
	EB-TR	0.58	9.4	A	0.59	9.5	A	0.59	9.5	A	
	WB-TR	0.82	15.7	B	0.83	16.4	B	WB-T	0.66	11.1	B
	NB-LTR	1.13	133.6	F	1.12	128.2	F	WB-R	0.21	6.5	A
Northern Boulevard (E-W) @ Steinway Street (SB)/ 39th Street Bridge (NB)	EB-L	0.65	47.4	D	0.69	55.0	D *	0.66	49.7	D *	
	EB-TR	0.99	40.0	D	0.98	39.0	D	0.98	39.0	D	
	WB-L	1.00	112.6	F	1.00	112.6	F	WB-L	1.00	112.6	F
	WB-T	0.83	26.2	C	0.85	27.2	C	WB-T	0.77	23.3	C
	WB-R							WB-R	0.02	11.5	B
	NB-L	0.85	78.0	E	0.89	83.0	F *	0.89	83.0	F *	
	NB-TR	1.22	176.3	F	1.21	174.9	F	1.21	174.9	F	
	SB-LTR	1.03	102.8	F	1.03	102.8	F	1.03	102.8	F	

	Lane Group	SATURDAY MIDDAY PEAK HOUR									
		2017 No-Action			2017 With-Action			2017 With-Action w/Mitigation			
		V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	
Northern Boulevard (E-W) @ 40th Avenue (W)/ 31st Street (SB)	EB-L	1.27	170.8	F	1.37	209.9	F *	0.95	76.4	E	
	EB-T	0.56	9.5	A	0.56	9.5	A	0.56	9.5	A	
	WB-T	0.60	10.1	B	0.60	10.2	B	0.69	17.5	B	
	SB-LTR	0.71	54.8	D	0.73	55.7	E	0.73	55.7	E	
Northern Boulevard (E-W) @ Steinway Street (SB)/ 39th Street Bridge (NB)	EB-L	0.70	52.3	D	0.74	59.0	E *	0.66	46.2	D	
	EB-TR	1.00	52.6	D	1.02	58.2	E *	EB-T	0.77	26.8	C
								EB-R	0.40	19.6	B
	WB-L	1.80	447.1	F	1.80	447.1	F	1.19	182.1	F	
	WB-TR	0.78	27.4	C	0.80	28.1	C	WB-T	0.70	24.4	C
								WB-R	0.09	15.0	B
	NB-L	0.48	46.0	D	0.52	47.4	D	0.52	47.4	D	
	NB-TR	1.02	102.3	F	1.02	100.7	F	1.02	100.7	F	
SB-LTR	1.06	113.3	F	1.06	112.6	F	1.06	112.6	F		

Notes:

EB - eastbound, WB - westbound, NB - northbound, SB - southbound

L-left, T-through, R-right, DfL-analysis considers a defacto left lane on this approach.

V/C Ratio - Volume to capacity ratio, sec/veh - seconds per vehicle

Sec/veh - seconds per vehicle

LOS - Level of service

* Denotes a significant adverse impact in the With-Action condition based on *CEQR Technical Manual* criteria.

** Denotes an unmitigated significant adverse impact based on *CEQR Technical Manual* criteria.

Analysis is based on the 2000 Highway Capacity Manual methodology (HCS 2000 4.1f).

periods, respectively, in the future condition without the proposed actions. The eastbound left-turn movement would operate with 129.0 seconds of delay (LOS F) in the weekday midday peak hour and 46.2 seconds (LOS D) in the Saturday midday. This compares to delays of 129 seconds (LOS F) and 52.3 seconds (LOS D) during these periods, respectively, in the future condition without the proposed actions. In the Saturday midday peak hour, the eastbound through movement would operate with 26.8 seconds of delay (LOS C) and the eastbound right-turn movement with 19.6 seconds of delay (LOS B) compared to 52.6 seconds of delay (LOS D) for the combined eastbound through-right movement in the future condition without the proposed actions.

As shown in Table 21-2, in the weekday PM peak hour, traffic generated by the proposed actions would significantly adversely impact the eastbound left-turn on Northern Boulevard and the northbound left-turn from the 39th Street Bridge. These movements would operate with 49.7 seconds of delay (LOS D) and 83.0 seconds of delay (LOS F), respectively, in the PM peak hour. Signal timing adjustments to return these movements to their No-Action condition levels of service would be impractical as they would result in new or worsened impacts on other approaches. Increasing capacity through additional changes to curbside regulations or modifications to lane striping was also found to be ineffective. As no practicable mitigation was identified to address the proposed action's PM peak hour impacts to the eastbound and northbound left-turn movements at this intersection, these significant adverse impacts would remain unmitigated.

Application and implementation of the traffic engineering improvements described above would require the approval of NYCDOT. Coordination would be undertaken in order to implement the proposed mitigation measures. Approval of each proposed mitigation measure would depend upon the applicable agency. In the absence of the implementation of mitigation measures, additional unmitigated conditions would remain.

PARKING

As discussed in Chapter 15, "Traffic and Parking," it is anticipated that all parking demand from development of the reasonable worst case development scenario (RWCDS) under in the future condition with the proposed actions would be accommodated in accessory parking facilities, and would not contribute to a projected deficit of 1,283 off-street public parking spaces in the parking study area in the weekday midday. The displacement of one existing off-street public parking facility under the RWCDS would, however, reduce available capacity in the study area by 200 spaces, although this would not be considered a significant adverse impact under *CEQR Technical Manual* criteria.

There are presently a total of approximately 416 metered curbside parking spaces within one quarter-mile of projected development sites. The changes to curbside parking regulations proposed as part of the traffic mitigation plan would result in the displacement of approximately eight metered spaces along Northern Boulevard (four at 39th Avenue and four at Steinway Street/39th Street), and restrict parking at an additional four spaces at 38th Avenue during the weekday PM peak period. The elimination of eight metered parking spaces would represent a change of less than two percent in the total on-street parking capacity available at metered parking spaces within one quarter-mile of projected development sites, and would not constitute a new significant adverse impact.