

FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CROTON WATER TREATMENT PLANT

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9. MITIGATION OF POTENTIAL IMPACTS

9.1. EASTVIEW SITE

9.1.1. Introduction

The NYCDEP has made an effort to plan a project that would not result in the potential for significant adverse impact on the environment. Avoidance of potential environmental impacts would be an integral part of the construction plans. For example, a vibration prevention/monitoring program would be implemented during construction. Similarly, paving of interior construction roadways and dust suppression techniques are incorporated in construction plans to eliminate nuisances to the extent practical and feasible. Stormwater management both during construction and operations would be provided to prevent the release of particulate material into the nearby Mine Brook.

This section details mitigation measures that have been developed to address the potential significant impacts that could not simply be avoided or anticipated in the project's design. No significant adverse impacts were identified in the following impacts categories for the Croton WTP project alone and are therefore not considered in this section: Land Use, Zoning, and Public Policy; Open Space; Visual Character; Community Facilities; Neighborhood Character; Infrastructure and Energy; Growth Inducement; Water Resources; EMF/ELF; Solid Waste; Public Health; Air Quality; Historic and Archaeological Resources, Hazardous Materials; and Socioeconomic Analysis. Potential significant or temporary adverse impacts were identified in the areas of Traffic, Noise, and Natural Resources. At the Eastview Site with the Catskill/Delaware (Cat/Del) UV Facility, it is anticipated that the proposed project could have potential significant or temporary adverse impacts in the areas of: traffic neighborhood character; traffic and transportation; noise; historic resources; and natural resources. The potential impacts on these parameters are described in the appropriate construction and project impact sections. The following section summarizes the proposed mitigation measures that have been developed for each area.

9.1.2. Neighborhood Character

9.1.2.1. *Without Cat/Del UV Facility at Eastview Site*

The construction of the Croton WTP is consistent with the light industrial, institutional, and office park environment around the site. No significant adverse impact on neighborhood character would result from the construction and operation of the Croton WTP alone.

9.1.2.2. *With Cat/Del UV Facility at Eastview Site*

Impacts from the simultaneous construction of both the proposed Croton project and the Cat/Del UV Facility may be more noticeable off-site in terms of the traffic and noise that would be generated by construction worker vehicles and trucks. The introduction of the Croton project to the site would result in construction truck trips greater than the number of the truck trips

generated if the Cat/Del UV Facility were under construction alone, because of the reduction of staging area available for the UV Facility with both projects under construction. As a result, significant adverse traffic and temporary adverse noise impacts could occur at numerous intersections and road segments, throughout the study area. Due to constraints involving road geometry, mitigation of these construction-period traffic impacts may not be feasible. Therefore, during construction, temporary adverse impacts to neighborhood character, due to traffic congestion and elevated noise levels, would likely occur. Traffic impacts during construction would result in widespread congestion in the regional area, resulting in potential temporary inconvenience to commercial, institutional, retail and residential uses, within the surrounding area. Potential traffic mitigation measures will continue to be pursued by the New York City Department of Environmental Protection (NYCDEP) to minimize traffic impacts on the community and thus reduce temporary adverse impacts on neighborhood character in the future with the Cat/Del UV Facility scenario.

9.1.3. Traffic Mitigation

9.1.3.1. Without Cat/Del UV Facility at Eastview Site

9.1.3.1.1. 2010 Potential Project Impacts and Mitigations

The traffic analyses compared the proposed Croton project's 2010 Build conditions with a 2010 Future Without Project condition (without the Cat/Del UV Facility). Under these conditions in 2010, it was found that traffic from the proposed Croton project would be anticipated to result in potential significant adverse traffic impacts at one (1) signalized intersection and two (2) unsignalized intersections with a total of four potential significant adverse traffic impacts, two during the PM peak hour, and two during the AM peak hour. These impacts could be fully mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2010 Future Without Project and 2010 Build conditions (see Figure 9.1-1 and Table 9.1-1).

The tables showing the results of applying the mitigation measures, also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. Once the Cat/Del UV Facility is built and operational, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the PM peak hour, the eastbound through movement would continue to operate at LOS F with a 1.0 second increase in delay. As recommended, the installation of a traffic signal would

fully mitigate this location During the PM peak hour such that all movements would operate at LOS C or better.

Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps

During the AM peak hour, the northbound left-turn movement at Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps would continue to operate with a LOS F, but there would be a 6.5 second increase in delay. The installation of a traffic signal at this location would fully mitigate this impact. As a result of this mitigation, the northbound left-turn would improve compared to Future Without Project conditions, to LOS C and all of the other traffic movements and approaches would operate at LOS C or better.

During the PM peak hour, the northbound left-turn movement would continue to operate at LOS F with delays increased beyond 240 seconds. Similar to the AM peak hour, this impact could be fully mitigated with the installation of a traffic signal at this location. As a result of this mitigation, the northbound left-turn movement would improve compared to Future Without Project conditions, to LOS C and all of the other movements and approaches would operate at LOS C or better.

It should be noted that the traffic analyses conducted for this area indicate that conditions at this location are already operating unacceptably under existing conditions, and are anticipated to deteriorate further in the future, even without the proposed Croton project's additional traffic. Therefore, the installation of a traffic signal at this intersection may be warranted even without the proposed Croton project, to improve the operation of this intersection.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement would deteriorate from LOS E, to LOS F, with an 8.3-second increase in delay. A shift of 1 second of green time from the east-west signal phase to the northbound phase would fully mitigate this impact.

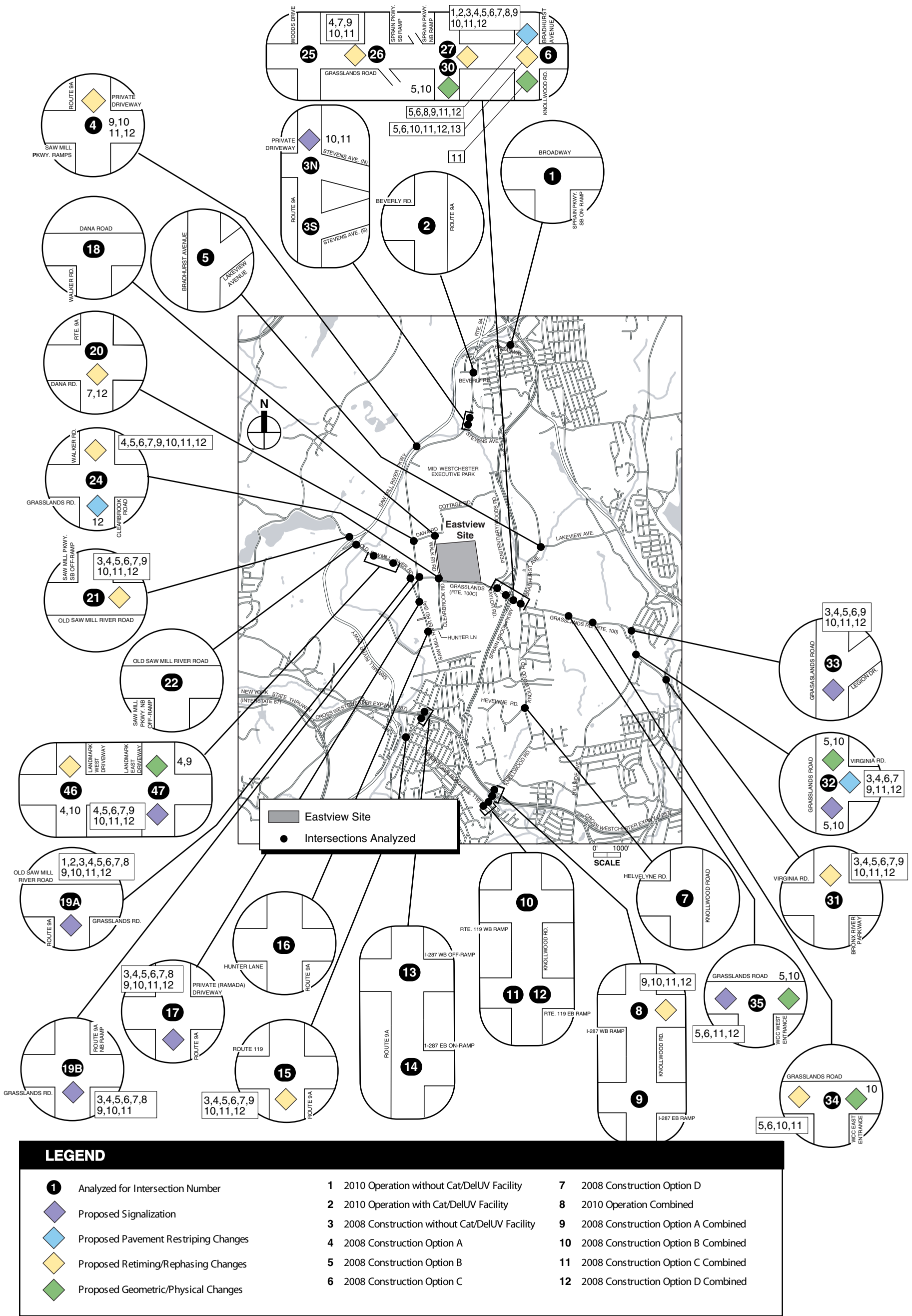


TABLE 9.1-1. WITHOUT CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2010 FUTURE WITHOUT THE PROJECT VS. 2010 BUILD TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES

Intersection	Approach	Lane Group	2010 Future Without the			2010 Build				2010 Mitigation				Mitigation Measures
			v/c	Delay	LOS	v/c	Delay	LOS	Lane	v/c	Delay	LOS		
			Ratio	(sec)		Ratio	(sec)		Group	Ratio	(sec)			
AM Peak Hour														
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	1.00	152.7	F	1.02	159.2	+	F	L	0.37	30.4	C	Propose to be signalized
		R	0.24	18.6	C	0.24	18.8		C	R	0.22	29.0	C	
	Eastbound								T	0.76	13.3	B		
									R	0.21	5.9	A		
	Westbound	L	0.17	12.2	B	0.17	12.2		B	L	0.33	7.0	A	
									T	0.27	6.2	A		
Int.		Unsignalized			Unsignalized					12.6	B			
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.09	14.8	B	0.10	14.9		B	L	0.15	23.0	C	Signal Retiming: Shift 1 second of green time from eastbound and westbound phase to northbound phase
		T	0.51	18.2	B	0.51	18.2		B	T	0.72	29.8	C	
	Westbound	TR	0.48	24.8	C	0.48	24.8		C	TR	0.8	41.7	D	
		LT	1.03	76.4	E	1.06	84.7	+	F	LT	0.78	23.2	C	
	Northbound	R	1.05	84.7	F	1.05	84.7		F	R	0.78	23.5	C	
		Int.			48.2	D		50.3		D		29.4	C	
PM Peak Hour														
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.17	10.8	B	0.17	10.9		B	L	0.36	5.0	A	Propose to be signalized
										TR	0.39	4.6	A	
	Southbound	LT	0.01	9.6	A	0.01	9.6		A	LTR	0.44	4.9	A	
		L	0.01	59.5	F	0.02	60.4		F	L	0	20.9	C	
	Eastbound	T	0.12	102.0	F	0.12	104.6	+	F	T	0.02	20.9	C	
		LT	0.14	69.1	F	0.14	70.2		F	LTR	0.04	21.0	C	
Westbound	TR	0.03	18.7	C	0.03	19.0		C						
	Int.		Unsignalized			Unsignalized					5.0	A		
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	1.31	**	F	1.34	**	+	F	L	0.35	30.1	C	Propose to be signalized
		R	0.30	16.5	C	0.30	16.5		C	R	0.35	30.1	C	
	Eastbound								T	0.59	9.1	A		
									R	0.2	5.9	A		
	Westbound	L	0.19	11.6	B	0.19	11.6		B	L	0.37	7.3	A	
		T							T	0.55	8.4	A		
Int.		Unsignalized			Unsignalized					11.2	B			

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

"**" indicates a calculated delay greater than 240 seconds

9.1.3.1.2. 2008 Potential Project Impacts and Mitigations

The traffic analyses compared the Croton project's 2008 Construction conditions with a 2008 Future Without Project condition (without the Cat/Del UV Facility). Under these conditions in 2008, it was found that traffic from the construction of the proposed Croton project would be anticipated to result in potential significant adverse traffic impacts at three (3) signalized intersections and two (2) unsignalized intersections with a total of 12 potential significant adverse traffic impacts, 5 during the AM peak hour, and 7 during the PM peak hour. These impacts could be fully mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2008 Future Without Project and 2008 Construction conditions (see Table 9.1-2).

The tables showing the results of applying the mitigation measures also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies mostly on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. However, some of the measures that were investigated were more extraordinary, involving additional lane construction or street widening, to give a complete range of potential measures that could eliminate impacts. Once construction of the proposed Cat/Del UV Facility has commenced, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

Saw Mill River Road (Route 9A) and Tarrytown/White Plains Road (Route 119)

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS E with 66.8 seconds of delay to LOS F with a 27.0 second increase in delay. The transfer of 11 seconds of green time from the east-west signal phase to the eastbound, leading signal phase would fully mitigate this location. As a result of this mitigation, the eastbound left-turn movement would improve compared to Future Without Project conditions, to LOS E with 63.7 seconds of delay. All other approaches would continue to operate at LOS D or better.

Saw Mill River Road (Route 9A) and Dana Road

During the PM peak hour, the westbound left movement would deteriorate from LOS C with 29.1 seconds of delay to LOS D with a 16.7 second increase in delay. The transfer of 2 seconds of green time from the north-south exclusive left signal phase to the eastbound/westbound signal phase would fully mitigate this location. As a result of this mitigation, the westbound left-turn movement would remain below mid-LOS D with 37.4 seconds of delay. All other approaches would continue to operate at LOS C or better.

TABLE 9.1-2. WITHOUT CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES

AM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	0.97	66.8	E	1.06	93.8	+	F	L	0.95	63.7	E	Signal Retiming: shift 11 seconds of green time from east-west signal phase to eastbound leading signal phase
		TR	0.38	14.5	B	0.38	14.5		B	TR	0.38	14.5	B	
	Westbound	L	0.17	22.3	C	0.17	22.3		C	L	0.22	30.1	C	
		TR	0.30	23.5	C	0.32	23.7		C	TR	0.41	31.8	C	
	Northbound	L	0.38	34.2	C	0.38	34.3		C	L	0.38	34.3	C	
		TR	0.62	40.3	D	0.70	43.9		D	TR	0.70	43.9	D	
	Southbound	L	0.24	33.9	C	0.26	35.7		D	L	0.26	35.7	D	
		T	0.42	34.9	C	0.42	35.0		D	T	0.42	35.0	D	
	R	0.23	22.1	C	0.23	22.1		C	R	0.19	15.6	B		
Int.			31.8	C		37.7		D			33.0	C		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.09	14.7	B	0.17	15.3		B	L	0.26	23.8	C	Signal Retiming: Reduce cycle length and add 10 seconds of green time to east-west phase
		T	0.50	18.0	B	0.50	18.0		B	T	0.70	29.2	C	
	Westbound	TR	0.47	24.6	C	0.49	24.9		C	TR	0.82	42.4	D	
		LT	1.00	68.7	E	1.41	225.0	+	F	LT	1.04	63.2	E	
	Northbound	R	1.02	74.8	E	1.02	74.8		E	R	0.75	22.2	C	
		Int.			44.0	D		93.2		F			40.8	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.09	10.0	A	0.09	10.0		B	L	0.19	4.1	A	Propose to be signalized
										TR	0.34	4.4	A	
	Southbound	LT	0.01	8.7	A	0.01	9.1		A	LTR	0.37	4.5	A	
		LT	0.10	33.1	D	0.12	41.3	+	E	DefL	0.06	21.2	C	
	Westbound	TR	0.01	10.6	B	0.01	11.1		B	TR	0.03	21.0	C	
		L	0.01	31.9	D	0.02	35.5		E	L	0.01	20.9	C	
	Eastbound	T	0.02	36.9	E	0.02	44.1	+	E	T	0.01	20.9	C	
Int.		Unsignalized			Unsignalized					4.7	A			
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Westbound	L	0.15	11.3	B	0.16	12.2		B	L	0.33	7.0	A	Propose to be signalized
										T	0.25	6.1	A	
	Northbound	L	0.78	85.3	F	0.97	142.0	+	F	L	0.36	30.6	C	
		R	0.20	16.3	C	0.24	19.1		C	R	0.22	28.9	C	
	Eastbound									T	0.78	13.8	B	
										R	0.21	5.9	A	
	Int.		Unsignalized			Unsignalized					12.9	B		

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

TABLE 9.1-2. WITHOUT CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES

PM Peak Hour													
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Saw Mill River Rd. (Rt. 9A) at Dana Rd.	Eastbound	LT	0.28	27.4	C	0.32	27.9	C	LT	0.28	26.0	C	Signal Retiming: shift 2 seconds of green time from north-south exclusive left signal phase to eastbound/westbound signal phase
		R	0.24	26.9	C	0.24	26.9	C	R	0.22	25.3	C	
	Westbound	L	0.44	29.1	C	0.81	45.8	D	L	0.74	37.4	D	
		TR	0.40	28.4	C	0.50	29.5	C	TR	0.46	27.6	C	
	Northbound	L	0.39	32.7	C	0.39	32.7	C	L	0.44	34.7	C	
		TR	0.84	31.9	C	0.84	32.3	C	TR	0.84	32.3	C	
	Southbound	L	0.15	30.7	C	0.15	30.7	C	L	0.17	32.5	C	
		TR	0.74	27.7	C	0.74	27.7	C	TR	0.74	27.7	C	
	Int.			29.8	C		31.6	C			30.6	C	
Saw Mill River Rd. at Saw Mill River Pkwy SB Off Ramp	Eastbound	LT	1.04	70.0	E	1.07	79.8	E	LT	1.03	68.9	E	Signal Retiming: shift 1 second of green time from southbound signal phase to east-west signal phase
	Westbound	TR	0.42	9.2	A	0.50	9.8	A	TR	0.49	9.3	A	
	Southbound	L	0.29	23.1	C	0.29	23.1	C	L	0.3	24.0	C	
		LR	0.21	22.6	C	0.21	22.6	C	LR	0.22	23.4	C	
	Int.			33.9	C		35.7	D			31.8	C	
Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.04	9.2	A	0.08	9.6	A	L	0.05	30.5	C	Retiming and addition of northbound advance signal phase
		TR	0.73	17.2	B	0.73	17.2	B	TR	0.94	44.1	D	
	Westbound	L	1.40	230.4	F	1.40	230.4	F	L	0.67	39.4	D	
		TR	0.70	16.7	B	0.73	17.4	B	TR	0.94	44.8	D	
	Northbound	LT	0.19	19.9	B	0.41	22.7	C	LT	0.55	43.7	D	
		LT	0.23	20.3	C	1.11	105.8	F	LT	0.86	43.8	D	
	Southbound	R	0.01	18.5	B	0.23	20.2	C	R	0.25	23.9	C	
	Int.			42.3	D		53.8	D			42.6	D	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.15	10.3	B	0.17	10.9	B	L	0.36	4.1	A	Propose to be signalized
	Southbound	LT	0.01	9.4	A	0.01	9.5	A	TR	0.38	4.4	A	
		LTR							LTR	0.45	4.5	A	
	Westbound	LT	0.11	56.3	F	0.13	65.9	F	LTR	0.04	21.0	C	
		TR	0.03	17.0	C	0.03	18.6	C					
	Eastbound	L	0.01	48.4	E	0.01	59.5	F	L	0.00	20.9	C	
		T	0.08	79.9	F	0.10	99.5	F	T	0.02	20.9	C	
	Int.		Unsignalized			Unsignalized					5.0	A	
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Westbound	L	0.17	11.2	B	0.18	11.3	B	L	0.34	7.1	A	Propose to be signalized
	Northbound								T	0.55	8.4	A	
		L	0.99	145.4	F	1.22	236.0	F	L	0.34	30.0	C	
	Eastbound	R	0.28	15.7	C	0.28	15.8	C	R	0.34	30.1	C	
									T	0.57	8.7	A	
	Int.								R	0.19	5.8	A	
			Unsignalized			Unsignalized					11.0	B	

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

Grassland Road (Route 100C) and Clearbrook Road/Walker Road

The southbound left/through movement would deteriorate from LOS C with 20.3 seconds of delay to LOS F with 105.8 seconds of delay during the PM peak hour. This impact could be mitigated by activating the existing eastbound/westbound exclusive left turn phase, optimizing the signal timing and addition of a northbound advance signal phase. As a result of this mitigation, the southbound left/through movement would remain below mid-LOS D with 43.8 seconds of delay. Additionally, the westbound left movement would improve to LOS D as compared to LOS F (with delays over 240 seconds) in the Future Without Project conditions. All of the other movements at this location would operate at mid - LOS D or better.

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the AM peak hour, the eastbound through movement would continue to operate at LOS E with a 3.6-second increase in delay. The westbound left/through movement would deteriorate from LOS D with 33.1 seconds of delay to LOS E with 41.3 seconds of delay. The installation of a traffic signal would fully mitigate this location such that the impacted movements would improve to LOS C. All of the other traffic movements at this location would operate at LOS C or better.

During the PM peak hour, the eastbound left-turn would deteriorate from LOS E (48.4 seconds of delay) to LOS F (59.5 seconds of delay); the eastbound through movement would continue to operate at LOS F with a 19.6 second increase in delay, and the westbound left/through movement would continue to operate at LOS F with an 9.6 second increase in delay. As recommended for the AM peak hour, the installation of a traffic signal would fully mitigate this location During the PM peak hour such that all movements would operate at LOS C or better.

Saw Mill River Road (Route 9A) and Grasslands Road (Route 100C)

The northbound left-turn movement would continue to operate at LOS F with an increase in delay of 56.7 and 90.6 seconds During the AM and PM peak hours, respectively. The installation of a traffic signal would fully mitigate this location such that the impacted movements would improve to LOS C. All of the other traffic movements at this location would operate at LOS C or better in both the AM and PM peak hours.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement would deteriorate from LOS E with 68.7 seconds of delay to LOS F with 225.0 seconds of delay. A signal timing adjustment that reduces the signal cycle time from 110 seconds to 100 second and adds 10 seconds of green time from the east-west phase to the northbound phase would fully mitigate this location. As a result of this mitigation, the northbound left-turn and through movement would improve compared to Future Without Project conditions, to LOS E with 63.2 seconds of delay and all of the other movements at this location would operate at mid- LOS D or better.

Old Saw Mill River Road and Saw Mill River Parkway Southbound Off-Ramp

The eastbound left/through movement would continue to operate at LOS E with a 9.8-second increase in delay during the PM peak hour. This impact could be fully mitigated with the transfer of 1 second of green time from the southbound signal phase to the east-west signal phase. As a result of this mitigation, all of the movements at this location would operate at their Future Without Project LOS with only minor changes in vehicle delays.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate construction-related impacts of the proposed project. If the mitigation measures identified were not applied, the potential significant adverse construction traffic impacts identified would remain unmitigated. In the absence of implementing the mitigation measures recommended above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

9.1.3.2. With Cat/Del UV Facility at Eastview Site

9.1.3.2.1. 2010 Potential Project Impacts and Mitigations

The traffic analyses compared the proposed Croton project's 2010 Build conditions with 2010 Future Without Project conditions with the Cat/Del UV project. Under these conditions in 2010, it was found that traffic from the Croton project would be anticipated to result in potential significant adverse impacts at one (1) signalized intersection and one (1) unsignalized intersection with a total of three potential significant adverse traffic impacts, two during the AM peak hour and one during the PM peak hour. These impacts could be fully mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2010 Future Without Project and 2010 Build conditions (see Table 9.1-3).

The tables showing the results of applying the mitigation measures, also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. Once the Croton project is built and operational, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

TABLE 9.1-3. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2010 FUTURE WITHOUT THE PROJECT VS. 2010 BUILD TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES

Intersection	Approach	Lane Group	2010 Future Without the			2010 Build			2010 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
AM Peak Hour														
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	1.01	155.9	F	1.02	159.2		F	L	0.37	30.4	C	Propose to be signalized
		R	0.24	18.7	C	0.24	18.9		C	R	0.22	29.0	C	
	Eastbound								T	0.77	13.4	B		
									R	0.21	5.9	A		
	Westbound	L	0.17	12.2	B	0.17	12.2		B	L	0.33	7.1	A	
										T	0.27	6.2	A	
Int.		Unsignalized			Unsignalized					12.7	B			
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.10	14.9	B	0.11	14.9		B	L	0.11	15.5	B	Signal Retiming: Shift 1 second of green time from eastbound and westbound phase to northbound phase
		T	0.51	18.2	B	0.51	18.2		B	T	0.52	18.9	B	
	Westbound	TR	0.48	24.8	C	0.48	24.8		C	TR	0.49	25.6	C	
		LT	1.05	81.1	F	1.07	89.0	+	F	LT	1.05	80.3	F	
	Northbound	R	1.05	84.7	F	1.05	84.7		F	R	1.03	76.8	E	
Int.				49.4	D		51.4		D			48.0	D	
PM Peak Hour														
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	1.32	**	F	1.35	**	+	F	L	0.35	30.1	C	Propose to be signalized
		R	0.30	16.5	C	0.30	16.6		C	R	0.35	30.1	C	
	Eastbound								T	0.60	9.2	A		
									R	0.20	5.9	A		
	Westbound	L	0.19	11.6	B	0.19	11.6		B	L	0.37	7.3	A	
										T	0.55	8.5	A	
Int.		Unsignalized			Unsignalized					11.2	B			

Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps

During the AM and PM peak hour, the northbound left-turn movement would continue to operate at LOS F, with delays increased to beyond 240 seconds. This impact could be fully mitigated with the installation of a traffic signal at this location. As a result of this mitigation, the northbound left-turn movement would improve compared to Future Without Project conditions, to LOS C, and all of the other movements and approaches would operate at LOS C or better.

Although traffic from the Cat/Del UV Facility would not result in a potential significant adverse impact at this location during the AM peak hour, operations were evaluated with the new traffic signal. The analysis shows that delays would improve substantially with the installation of the traffic signal required as mitigation for the PM peak hour impact, resulting in all movements and approaches operating at LOS C or better, during the AM peak hour.

It should be noted that the traffic analyses conducted for this area indicate that conditions at this location are already operating unacceptably under existing conditions, and are anticipated to deteriorate further in the future, even without the Cat/Del UV Facility's additional traffic. Therefore, the installation of a traffic signal at this intersection may be warranted even without the Cat/Del UV Facility, to improve the operation of this intersection.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement would continue to operate at LOS F, with a 7.9-second increase in delay. A shift of 1 second of green time from the east-west signal phase to the northbound phase would fully mitigate this impact. As a result of this mitigation, the northbound left/through movement would improve compared to Future Without Project conditions, to LOS F (80.3 seconds of delay), and the northbound right-turn movement would improve compared to Future Without Project conditions, from LOS F to LOS E. All other approaches and lane movements would operate at LOS C or better.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate the potential significant adverse operational impacts of the proposed project. If the mitigation identified is not applied, the potential significant adverse operational traffic impacts identified would not be mitigated. In the absence of implementing the mitigation measures proposed above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

9.1.3.2.2. 2008 Potential Project Impacts and Mitigations

As mentioned previously, for the analysis scenario with the Cat/Del UV Facility under construction, four different construction worker parking Options have been considered, resulting

in four distinct 2008 Construction with Croton conditions (Options A, B, C, and D). This is because with the proposed Croton project and the Cat/Del UV Facility under construction at the Eastview Site concurrently, there would not be enough space on-site for all of the workers for both projects to park, as most of the available land area would either be under construction, or in use as construction lay-down or staging areas. These construction worker parking Options have been selected for analysis purposes, as representative of the types of routings that worker vehicles would use for off-site parking. As described in the traffic analyses (Section 4.9, Traffic and Transportation) each of the four construction worker parking Options also included an additional assignment for shuttle buses that would transport the workers between the Eastview Site and the off-site parking areas.

It is important to note that these 2008 Construction (Options A through D) conditions reflect the maximum number of worker trips that would be anticipated at the peak of the concurrent construction of the Cat/Del UV Facility and the proposed Croton project. During other times during the 6-year construction period, the numbers of total workers traveling to and from the Eastview Site would be substantially lower than for peak conditions in 2008. During these times with fewer workers, the impacts would be less than those discussed below, and could be likely to occur at locations similar to conditions outlined for Option A, because the workers would be able to park at the Eastview Site, and the routing of those trips would be very similar to the routing examined for Option A.

The four construction worker parking Options that were analyzed are described below:

- *Option A:* All of the construction workers for both the Cat/Del UV Facility and the proposed Croton project would park at the Landmark at Eastview office park (Landmark property), west of the project site, and would be shuttled to the site in buses or vans.
- *Option B:* All of the construction workers for both the Cat/Del UV Facility and the proposed Croton project would park at the Westchester Community College (WCC) Campus, east of the project site, and would be shuttled to the site in buses or vans.
- *Option C:* Parking for all of the construction workers for both the Cat/Del UV Facility and the proposed Croton project would be split evenly between the Landmark property and WCC, and would be shuttled to the site in buses or vans.
- *Option D:* All of the construction workers for the proposed Croton project would park at the Landmark property, west of the project site, and all of the construction workers for the Cat/Del UV Facility would park at the new Home Depot off Dana Road, just northwest of the project site. Rather than simply splitting the workers between the two sites, workers from the Cat/Del UV Facility were assigned to the Home Depot site because the property owner indicated that they anticipated that the parking that would be available would be just enough to accommodate the projected number of UV Facility construction worker vehicles, but would not be sufficient to accommodate the projected number of proposed Croton project worker vehicles. All workers for either project would be shuttled to the site from their respective parking areas in buses or vans.

2008 Construction Option A Conditions

The traffic analyses compared the UV Facility's 2008 Construction (Option A) conditions with a 2008 Future Without Project Option A condition (with the proposed Croton project under construction, and their workers also parking at the Landmark property). Under these conditions in 2008, it was found that traffic from the construction of the proposed Croton project with the Cat/Del UV Facility would be anticipated to result in potential significant adverse impacts at seven (7) signalized intersections and six (6) unsignalized intersections with a total of 26 potential significant adverse traffic impacts, 10 during the AM peak hour, and 16 during the PM peak hour. These impacts could be mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2008 Future Without Project Option A and 2008 Construction Option A conditions (see Table 9.1-4).

The tables showing the results of applying the mitigation measures also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies mostly on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. However, some of the measures that were investigated were more extraordinary, involving additional lane construction or street widening, to give a complete range of potential measures that could eliminate impacts. Once construction of the Croton project has commenced, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

TABLE 9.1-4. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION A

AM Peak Hour															
Intersection	Approach		2008 Future Without the				2008 Construction				2008 Mitigation				Mitigation Measures
		Lane	v/c	Delay		v/c	Delay		Lane	v/c	Delay				
		Group	Ratio	(sec)	LOS	Ratio	(sec)	LOS	Group	Ratio	(sec)	LOS			
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.03	84.7	F	1.12	113.5	+	F	L	1.03	84.9	F	Signal Retiming and change of phase plan: split the timing of southbound lagging phase to eastbound leading phase (3 secs) and northbound/southbound phase (5 secs)	
		TR	0.38	14.5	B	0.38	14.5		B	TR	0.37	12.9	B		
	Westbound	L	0.17	22.3	C	0.17	22.3		C	L	0.17	22.3	C		
		TR	0.31	23.6	C	0.31	23.6		C	TR	0.31	23.6	C		
	Northbound	L	0.39	34.3	C	0.39	34.4		C	L	0.34	30.4	C		
		TR	0.66	42.0	D	0.72	44.9		D	TR	0.62	37.0	D		
	Southbound	L	0.26	35.0	C	0.29	36.6		D	L	0.37	38.2	D		
		T	0.43	35.1	D	0.44	35.3		D	T	0.52	40.0	D		
	Int.	R	0.23	22.1	C	0.24	22.2		C	R	0.24	22.2	C		
					35.7	D		42.3		D			35.8		D
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.14	10.4	B	0.20	11.0		B	L	0.42	5.4	A	Propose to be signalized	
										TR	0.34	4.4	A		
	Southbound	LT	0.01	8.9	A	0.01	9.1		A	LTR	0.39	4.7	A		
		L	0.02	39.6	E	0.03	54.3	+	F	L	0.01	20.9	C		
	Eastbound	T	0.02	46.4	E	0.03	66.0	+	F	T	0.01	20.9	C		
		LT	0.13	42.8	E	0.19	65.7	+	F	Def	0.06	21.2	C		
	Westbound	TR	0.01	10.8	B	0.01	11.2		B	TR	0.03	21.0	C		
				Unsignalized			Unsignalized					4.9	A		
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.60	34.7	C	Propose to be signalized	
		R	0.21	16.9	C	0.22	17.9		C	R	0.22	28.9	C		
	Eastbound									T	0.73	12.2	B		
										R	0.22	6.0	A		
	Westbound	L	0.15	11.5	B	0.16	11.9		B	L	0.31	6.8	A		
										T	0.81	15.3	B		
	Int.			Unsignalized			Unsignalized					15.0	B		
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.36	44.8	E	*	**	+	F	LTR	0.41	44.1	D	Propose to be signalized	
		TR	0.07	14.1	B	0.07	14.7		B						
	Eastbound	L	0.26	11.8	B	0.37	16.1		C	L	0.83	33.7	C		
										T	0.68	12.9	B		
	Westbound									TR	1.01	42.8	D		
				Unsignalized			Unsignalized					32.4	C		
	Int.														
Grassland Rd. (Route 100C) at Sprain Brook Pkwy SB Ramps	Eastbound	TR	0.28	7.5	A	0.29	7.6		A	TR	0.29	8.1	A	Signal Retiming: shift 1 second of green time from eastbound/westbound phase to southbound phase	
	Westbound	T	0.38	8.3	A	0.48	9.0		A	T	0.48	9.6	A		
	Southbound	L	0.55	34.0	C	0.55	34.0		C	L	0.52	32.8	C		
		R	0.52	33.5	D	0.82	48.4	+	D	R	0.79	44.4	D		
	Int.			13.8	B		16.8		B			16.5	B		

TABLE 9.1-4. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION A

AM Peak Hour														
Intersection	Approach		2008 Future Without the				2008 Construction			2008 Mitigation				Mitigation Measures
		Lane	v/c	Delay		v/c	Delay		Lane	v/c	Delay			
		Group	Ratio	(sec)	LOS	Ratio	(sec)	LOS	Group	Ratio	(sec)	LOS		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.11	14.9	B	0.14	15.2		B	L	0.42	31.4	C	New timing plan: reduce cycle length from 110 to 100 seconds, as of eastbound/westbound (34s) and northbound (66s)
		T	0.50	18.0	B	0.51	18.1		B	T	0.89	43.9	D	
	Westbound	TR	0.48	24.8	C	0.51	25.1		C	TR	0.70	33.8	C	
		LT	1.26	160.1	F	*	**	+	F	LT	1.07	67.4	E	
	Northbound	R	1.02	74.8	E	1.02	74.8		E	R	0.66	15.1	B	
	Int.			70.9	E		132.9		F			44.2	D	
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.12	126.9	F	1.13	130.6	+	F	LT	1.08	114.8	F	Signal Retiming: Shift 1 second of green time from northbound and southbound to eastbound and westbound
		R	0.21	19.6	B	0.21	19.6		B	R	0.21	19.0	B	
	Westbound	LTR	0.38	34.4	C	0.40	34.7		C	LTR	0.38	33.7	C	
		L	0.06	46.4	D	0.06	46.4		D	L	0.06	46.4	D	
	Northbound	TR	0.26	20.1	C	0.26	20.1		C	TR	0.27	20.7	C	
		L	1.10	141.5	F	1.10	141.5		F	L	1.10	141.5	F	
Southbound	T	0.70	27.3	C	0.70	27.3		C	T	0.71	28.3	C		
				53.9	D		54.5		D			52.4	D	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.23	8.4	A	0.23	8.4		A	LT	0.23	8.4	A	Restripe westbound approach as 2 lanes
	Westbound	LR	0.55	16.8	C	0.56	17.1		C	L	0.18	26.9	D	
										R	0.38	11.5	B	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	0.42	30.3	D	0.43	31.0		D	L	0.32	21.1	C	Propose to be signalized
		R	0.20	12.2	B	0.21	12.4		B	R	0.45	22.2	C	
	Eastbound	LT	0.07	8.5	A	0.07	8.6		A	LT	0.51	6.4	A	
										T	0.41	5.7	A	
	Westbound									R	0.03	0.0	A	
Int.		Unsignalized				Unsignalized						8.9	A	
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.13	18.3	C	0.21	19.7		C	LTR	0.50	38.8	D	Formailze the shoulder area of the westbound approach and restripe the approach with a 10-foot shared left and through lane and a 9-foot exclusive right-turn lane; provide the intersection with signalized operation
	Southbound	LTR	0.36	106.9	F	*	**	+	F	LTR	0.48	39.7	D	
	Eastbound	LTR	0.02	8.5	A	0.02	9.3		A	LTR	0.95	37.2	D	
	Westbound	LTR	0.23	11.6	B	0.55	16.1		C	LT	0.96	30.8	C	
										R	0.32	2.3	A	
Int.		Unsignalized				Unsignalized						29.4	C	

TABLE 9.1-4. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION A

Intersection	Approach	PM Peak Hour												Mitigation Measures		
		Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation							
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS				
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.01	79.6	E	1.02	83.3	+	F	L	0.98	70.5	E	Signal Retiming: shift 1 second of green time from southbound lagging phase to eastbound leading phase		
		TR	0.46	20.2	C	0.46	20.2		C	TR	0.45	19.5	B			
	Westbound	L	0.42	34.4	C	0.42	34.4		C	L	0.42	34.4	C			
		TR	0.89	49.1	D	0.89	49.7		D	TR	0.89	49.7	D			
	Northbound	L	0.32	25.3	C	0.34	25.8		C	L	0.34	25.9	C			
		TR	0.83	41.6	D	0.83	42.1		D	TR	0.83	42.1	D			
	Southbound	L	0.56	35.7	D	0.58	36.5		D	L	0.60	38.3	D			
		T	0.29	23.2	C	0.34	23.8		C	T	0.35	24.5	C			
Int.	R	0.41	11.1	B	0.43	11.3		B	R	0.43	11.3	B				
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound			35.4	D		35.9		D			34.5	C	Propose to be signalized		
		L	0.16	10.4	B	0.16	10.5		B	L	0.33	4.8	A			
	Southbound	LT	0.01	9.5	A	0.01	9.6		A	LTR	0.41	4.7	A			
	Eastbound	L	0.01	51.2	F	0.01	53.6		F	L	0.00	20.9	C			
		T	0.08	84.9	F	0.09	92.7	+	F	T	0.02	20.9	C			
	Westbound	LT	0.12	60.3	F	0.13	63.9	+	F	LTR	0.04	21.0	C			
		TR	0.03	17.5	C	0.03	18.0		C							
	Int.	Unsignalized			Unsignalized							4.9	A			
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.68	39.4	D	Propose to be signalized		
		R	0.40	23.0	C	0.68	57.2	+	F	R	0.66	38.8	D			
	Eastbound									T	1.03	41.3	D			
										R	0.35	3.3	A			
	Westbound	L	0.24	14.2	B	0.39	23.5		C	L	0.60	9.2	A			
										T	0.45	3.7	A			
	Int.	Unsignalized			Unsignalized							25.9	C			
	Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.08	33.8	D	0.16	58.5	+	F	LTR	0.20	21.8		C	Propose to be signalized
TR			0.22	18.2	C	0.35	29.6		D							
Eastbound		L	0.22	11.0	B	0.29	11.8		B	L	0.72	14.9	B			
										T	0.97	28.9	C			
Westbound										TR	0.78	10.7	B			
												20.5	C			
Int.		Unsignalized			Unsignalized											
Saw Mill River Rd. at Saw Mill River Pkwy SB Off Ramp		Eastbound	LT	1.05	75.6	E	1.09	86.2	+	F	LT	1.05	75.0	E	Signal Retiming: shift 1 second of green time from southbound phase to eastbound/westbound phase	
	TR		0.47	9.6	A	0.54	10.3		B	TR	0.53	9.7	A			
	Southbound	L	0.29	23.1	C	0.29	23.1		C	L	0.30	24.0	C			
		LR	0.21	22.6	C	0.21	22.6		C	LR	0.22	23.4	C			
	Int.			34.9	C		37.1		D			33.1	C			
	Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.04	9.2	A	0.04	9.3		A	L	0.02	5.4	A		Signal Retiming: shift 9 seconds of green time from northbound/southbound phase to eastbound/westbound phase
			TR	0.93	31.6	E	1.23	133.1	+	F	TR	1.03	48.6	D		
		Westbound	L	*	**	F	*	**		F	L	*	**	F		
TR			0.71	17	B	0.73	17.5		B	TR	0.61	9.7	A			
Northbound		LT	0.19	19.9	B	0.19	19.9		B	LT	0.32	27.5	C			
		LT	0.16	19.7	C	0.23	20.3		C	LT	0.33	27.6	C			
Southbound		R	0.08	19	B	0.08	19.0		B	R	0.11	25.7	C			
		Int.			100.8	F		144.3		F			97.5	F		

TABLE 9.1-4. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION A

Intersection	Approach	PM Peak Hour												Mitigation Measures
		Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation					
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.74	26.5	C	1.11	104.4	+	F	L	0.85	42.2	D	Signal Retiming and change of phase plan: switch eastbound leading phase to lagging phase and shift 3 seconds of green time from northbound phase to eastbound/westbound phase
		T	0.33	9.0	A	0.34	9.1		A	T	0.32	7.6	A	
	Westbound	TR	1.07	69.5	E	1.07	71.4		E	TR	1.00	49.4	D	
	Northbound	LT	0.71	29.9	C	0.73	30.8		C	LT	0.84	41.5	D	
		R	0.35	23.1	C	0.35	23.1		C	R	0.41	25.7	C	
Int.				43.5	D		53.2		D			36.4	D	
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.16	142.8	F	1.17	144.9	+	F	LT	1.13	127.3	F	Signal Retiming: Shift 1 second of green time from northbound and southbound to eastbound and westbound
		R	0.39	34.6	C	0.40	34.7		C	R	0.39	33.8	C	
	Westbound	LTR	1.27	189.6	F	1.28	193.5	+	F	LTR	1.17	149.5	F	
	Northbound	L	0.06	10.9	B	0.06	10.9		B	L	0.06	11.4	B	
		TR	0.62	25.3	C	0.62	25.3		C	TR	0.63	26.2	C	
	Southbound	L	0.13	11.7	B	0.13	11.7		B	L	0.13	12.2	B	
		T	0.59	24.7	C	0.59	24.7		C	T	0.60	25.5	C	
Int.				62.7	E		63.5		E			56.0	E	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.37	10.4	B	0.37	10.4		B	LT	0.37	10.4	B	Restripe westbound approach as 2 lanes
	Westbound	LR	1.25	161.1	F	1.26	166.5	+	F	L	0.65	60.1	F	
										R	0.61	19.6	C	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	1.28	217.2	F	1.31	227.1	+	F	L	0.66	27.1	C	Propose to be signalized
		R	0.47	19.7	C	0.47	19.7		C	R	0.73	31.4	C	
	Eastbound	LT	0.24	10.7	B	0.24	10.7		B	LT	0.88	19.8	B	
	Westbound								T	0.51	6.3	A		
		R							R	0.18	0.1	A		
Int.	Unsignalized			Unsignalized								15.5	B	
Old Saw Mill River Road @ Landmark West Driveway	Eastbound	LTR	0.58	6.0	A	0.58	6.1		A	LTR	0.61	7.5	A	Shift 2 seconds of green time from EB/WB phase to NB/SB phase
	Westbound	LTR	0.43	4.9	A	0.43	4.9		A	LTR	0.45	5.9	A	
	Northbound	LTR	0.41	23.6	C	0.92	63.3	+	E	LTR	0.77	35.2	D	
	Southbound	LTR	0.03	21.0	C	0.03	21.0		C	LTR	0.02	19.3	B	
	Int.			6.8	A		13.2		B			10.6	B	
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.49	24.4	C	1.08	103.2	+	F	LTR	0.86	39.4	D	Formalize the shoulder area of the westbound approach and restripe the approach with a 10-foot shared left and through lane and a 9-foot exclusive right-turn lane; provide the intersection with signalized operation
	Southbound	LTR	*	**	F	*	**	+	F	LTR	0.93	43.3	D	
	Westbound	LTR	0.01	8.7	A	0.01	8.8		A	LTR	0.86	27.4	C	
		LTR	0.04	9.2	A	0.06	9.4		A	LT	0.95	43.8	D	
	Int.									R	0.06	11.9	B	
												36.9	D	

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

" * " indicates a v/c ratio greater than 1.50; " ** " indicates a calculated delay greater than 240 seconds.

Saw Mill River Road (Route 9A) and Tarrytown/White Plains Road (Route 119)

The eastbound left-turn movement would continue to operate at LOS F with a 28.8-second increase in delay during the AM peak hour. This impact could be fully mitigated with a revised signal timing and phasing plan. The southbound lagging phase would be reduced by 8 seconds of green time. Three seconds of this time would be transferred to the eastbound leading phase, and five seconds would be transferred to the north-south phase. As a result of this mitigation, the eastbound left-turn would improve compared to Future Without Project conditions, to a LOS F with 84.9 seconds of delay. All of the other movements at this location would operate at their Future Without Project LOS with only minor changes in delay.

During the PM peak hour, the eastbound left-turn movement would deteriorate from LOS E to LOS F with a 3.7-second increase in delay. This impact could be fully mitigated by transferring 1 second of green time from the southbound lagging phase to the eastbound leading phase. As a result of this mitigation, the eastbound left-turn would improve compared to Future Without Project conditions, to LOS E with 70.5 seconds of delay. All of the other movements at this location would operate at their Future Without Project LOS with only minor changes in delay.

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS E with 39.6 seconds of delay to LOS F with 54.3 seconds of delay; the eastbound through movement would deteriorate from LOS E with 46.4 seconds of delay to LOS F with a 19.6-second increase in delay; and the westbound left/through movement would deteriorate from LOS E to LOS F with an increase in delay of 22.9-seconds. This location could be fully mitigated with the installation of a traffic signal, which would result in a LOS C or better for all of the vehicle movements.

During the PM peak hour, the eastbound through movement and the westbound left/through movement would continue to operate at LOS F with a 7.8- and 3.6-second increase in delay, respectively. As with the AM peak hour, this location would be fully mitigated with the installation of a traffic signal. This mitigation would result in a LOS C or better for all of the vehicle movements at this location.

Old Saw Mill River and Saw Mill River Road (Route 9A) SB Ramps

During the AM and PM peak hour, the northbound left-turn movement would continue to operate at LOS F, with delays increased to well beyond 240 seconds. During the PM peak hour, the northbound left-turn movement would also continue to operate at LOS F, with delays increased to well beyond 240 seconds, and the northbound right-turn movement in the PM peak hour would deteriorate from LOS C to LOS F with a 34.2-second increase in delay. The installation of a traffic signal at this location could fully mitigate both the AM and PM peak hour impacts such that all of the movements would operate at LOS D or better.

Grasslands Road (Route 100C) and Saw Mill River Road (Route 9A) Northbound Ramp

The northbound left/through movement would continue to operate at LOS F, with delays increased to well beyond 240 seconds during the AM peak hour and would deteriorate from LOS D to LOS F with a 24.7-second increase in delay during the PM peak hour. This location could be fully mitigated with the installation of a traffic signal such that all of the movements would operate at LOS D or better during AM and PM peak hours.

Old Saw Mill River Road and Saw Mill River Parkway Southbound Off-Ramp

The eastbound left/through movement at this location would deteriorate from LOS E to LOS F with a 10.6-second increase in delay during the PM peak hour. This impact would be fully mitigated with the transfer of 1 second of green time from the southbound signal phase to the east-west phase. As a result of this mitigation, the eastbound left/through movement would improve compared to Future Without Project conditions, to a LOS E with 75.0 seconds of delay, and all of the other movements at this location would operate at LOS C or better.

Grassland Road (Route 100C) and Clearbrook Road/Walker Road

The eastbound through/right movement would deteriorate from LOS E with 31.6 seconds of delay to LOS F with 133.1 seconds of delay during the PM peak hour. This impact could be mitigated by transferring 9 seconds of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, the eastbound through/right movement would improve compared to Future Without Project conditions, to LOS D with 48.6 seconds of delay. Although the westbound left-turn movement would continue to operate at LOS F (with delays over 240 seconds), this signal timing adjustment would improve its delay as compared to Future Without Project conditions; all of the other movements at this location would operate at LOS C or better.

Grasslands Road (Route 100C) and Sprain Brook Parkway Southbound Ramp

The southbound right-turn movement would continue to operate at LOS D with a 14.9-second increase in delay during the AM peak hour. This impact could be mitigated by transferring one second of green time from the east-west signal phase to the southbound signal phase, which would improve the southbound right-turn movement to LOS D with 44.4 seconds of delay. This mitigation would not affect the LOS of the other movements at this location.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement would continue to operate at LOS F, with delays increased to well beyond 240 seconds. This location would be mitigated by reducing cycle length from 110 to 100 seconds with eastbound/westbound (34 seconds) and northbound (66 seconds). As a result of this mitigation, the northbound left/through movement would improve compared to Future Without Project conditions, to LOS E with 67.4 seconds of delay. All of the other movements at this location would operate at LOS D or better.

The eastbound left-turn movement would deteriorate from LOS C with 26.5 seconds of delay to LOS F with 104.4 seconds of delay during the PM peak hour. This impact could be fully mitigated with a revised signal phasing and timing plan. The eastbound leading phase would be made a lagging phase, and 3 seconds of green time would be shifted from the northbound phase to the east-west phase. As a result of this mitigation, all of the intersection movements would operate at LOS D or better.

Virginia Road and Bronx River Parkway

The eastbound left/through movement would continue to operate at LOS F with a 3.7-second and 2.1-second increase in delay during the AM and PM peak hours, respectively. During the PM peak hour, the westbound approach would also continue to operate at LOS F with a 3.9 second increase in delay. During both peak hours, this location could be fully mitigated with the transfer of 1 second of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, all of the vehicle movements would operate at their Future Without Project LOS with only minor changes in delay.

Grasslands Road (Route 100) and Virginia Road

During the PM peak hour, the westbound approach would continue to operate at LOS F with a 5.4-second increase in delay. This impact could be mitigated by restriping the westbound approach to accommodate an additional travel lane. As a result of this mitigation, the westbound left-turn movement would improve compared to Future Without Project conditions, to LOS F with 60.1 seconds of delay and the westbound right-turn movement would improve compared to Future Without Project conditions, to LOS C with 19.6 seconds of delay.

Although no impacts were identified at this location during the AM peak hour, an analysis was conducted to determine the impact of this improvement to operations at this location during the AM peak hour. All of the vehicle movements at this location would operate at LOS D or better.

Grasslands Road (Route 100) and Legion Drive

The southbound left-turn movement would deteriorate from LOS F with 217.2 seconds of delay to LOS F with 227.1 seconds of delay during the PM peak hour. This location could be fully mitigated with the installation of a traffic signal. As a result of this mitigation, all of the vehicle movements would operate at LOS C or better during the PM peak hour.

Although no impacts were identified at this location during the AM peak hour, an analysis was conducted to test the impact of a traffic signal to vehicle operations. A signal at this location would improve operations for some movements but would increase delays for others. However, all of the vehicle movements would operate at LOS C or better during the AM peak hour.

Old Saw Mill River Road and the Landmark at Eastview West Driveway

The northbound approach would deteriorate from LOS C with 23.6 seconds of delay, to LOS F with 63.3 seconds of delay during the PM peak hour. This impact could be fully mitigated by

shifting 2 seconds of green time from the east-west phase to the north-south phase. As a result of this mitigation, the northbound approach would operate below mid-LOS D, with 35.2 seconds of delay, and all of the other vehicle movements would operate at LOS B or better during the PM peak hour compared to Future Without Project conditions.

Old Saw Mill River Road and the Landmark at Eastview East Driveway

During the AM and PM peak hours, the southbound approach would continue operating at LOS F, with delays increased to well beyond 240 seconds. During the PM peak hour, the northbound approach would deteriorate from LOS C with 24.4 seconds of delay, to LOS F with 103.2 seconds of delay. These impacts could be fully mitigated with a combination of measures, including shoulder work and lane restripings, in concert with the installation of a new traffic signal, as outlined in Table 9.1-4. As a result of this mitigation, all approaches would operate below mid-LOS D or better, compared to Future Without Project conditions, with maximum delays at any given approach of 39.7 seconds during the AM peak hour, and 43.8 seconds during the PM peak hour.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate construction-related impacts of the proposed project. If the mitigation measures identified were not applied, the potential significant adverse construction traffic impacts identified would remain unmitigated. In the absence of implementing the mitigation measures recommended above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

2008 Construction Option B Conditions

The traffic analyses compared the CAT/DEL UV Facility's 2008 Construction (Option B) conditions with a 2008 Future Without Project Option B condition (with the proposed Croton project under construction, and their workers also parking at the WCC Campus). Under these conditions in 2008, it was found that traffic from the construction of the proposed Croton project with the Cat/Del UV Facility would be anticipated to result in potential significant adverse traffic impacts at eight (8) signalized and seven (7) unsignalized intersections with a total of 33 potential significant adverse traffic impacts, 16 during the AM peak hour, and 17 during the PM peak hour. These impacts could be fully mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2008 Future Without Project Option B and 2008 Construction Option B conditions (see Table 9.1-5).

The tables showing the results of applying the mitigation measures, also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies mostly on a combination of new traffic

signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. However, some of the measures that were investigated were more extraordinary, involving additional lane construction or street widening, to give a complete range of potential measures that could eliminate impacts. Once construction of the Cat/Del UV Facility has commenced, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

Grasslands Road (Route 100C) and Bradhurst Avenue (Route 100)

During the AM peak hour, the eastbound left-turn movement would deteriorate from LOS D with 42.7 seconds of delay to LOS E with 64.3 seconds of delay, and the eastbound through movement would deteriorate from LOS F with delays increased to well beyond 240 seconds. The westbound through/right movement would deteriorate from LOS F with delays increased to well beyond 240 seconds during the PM peak hour. A combination of measures is required to fully mitigate both the AM and PM peak hour impacts at this location. The westbound approach would be restriped to accommodate two travel lanes (shared left-turn and through and shared through and right-turn). During the AM peak hour, a new signal timing and phasing plan would also be implemented as shown in Table 9.1-5.

During the AM peak hour, these mitigation measures would result in a decrease in delay on the eastbound left-turn movement of 25.4 seconds and the eastbound through movement of over 200 seconds as compared to Future Without Project conditions, and all of the other movements would operate at LOS C or better. During the PM peak hour, the addition of a westbound lane would significantly improve operations for the westbound through/right movement. Although delay for the westbound left-turn movement would increase, the overall delay for the westbound approach would improve from LOS F with delays over 240 seconds to a mitigated LOS F with delays of 218.0 seconds. All of the other movements at this location would operate at or near their Future Without Project LOS without adverse increases in delay.

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

AM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the v/c Ratio	Delay (sec)	LOS	2008 Construction v/c Ratio	Delay (sec)	LOS	2008 Mitigation v/c Ratio	Delay (sec)	LOS	Mitigation Measures		
Grasslands Road (E-W) @ Bradhurst Avenue	Eastbound	L	0.78	42.7	D	0.90	64.3	+	E	L	0.54	17.3	B	Restripe the westbound approach with a shared left and through lane and a shared through and right lane. Provide a new signal plan as follows
		T	1.48	**	F	*	**	+	F	T	*	**	F	
	Westbound	R	0.36	16.4	B	0.36	16.5		B	R	0.37	14.6	B	
		L	0.68	56.6	E	0.68	56.6		E	LTR	0.42	15.0	B	
	Northbound	TR	0.47	26.5	C	0.55	27.9		C					EB/WE G/A/R = 52/5/2 NB/SB G/A/R = 22/5/2
		L	0.24	23.5	C	0.25	23.6		C	L	0.39	29.2	C	
	Southbound	TR	0.35	26.0	C	0.36	26.2		C	TR	0.64	39.0	D	NB-L/S G/A/R = 7/3/2
		L	0.51	40.3	D	0.52	40.8		D	L	0.42	30.6	C	C = 100 seconds
	Intersection	TR	0.68	49.7	D	0.68	49.7		D	TR	0.65	39.7	D	
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.03	84.7	F	1.12	113.5	+	F	L	0.99	66.0	E	Provide a new signal plan as follows
		TR	0.38	14.5	B	0.38	14.5		B	TR	0.35	10.4	B	
	Westbound	L	0.17	22.3	C	0.17	22.3		C	L	0.16	19.1	B	
		TR	0.31	23.6	C	0.31	23.6		C	TR	0.30	20.2	C	
	Northbound	L	0.39	34.3	C	0.39	34.4		C	L	0.39	31.1	C	EB/SB: G/A/R = 15/3/2
		TR	0.66	42.0	D	0.72	44.9		D	TR	0.70	40.0	D	EB/WE G/A/R = 48/3/2
	Southbound	L	0.26	35.0	C	0.29	36.6		D	L	0.43	39.5	D	NB G/A/R = 6/3/0
		T	0.43	35.1	D	0.44	35.3		D	T	0.62	43.3	D	NB/SB G/A/R = 23/3/2
	Intersection	R	0.23	22.1	C	0.24	22.2		C	R	0.26	22.9	C	C = 110 seconds
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.09	10.1	B	0.10	10.3		B	L	0.20	4.1	A	Propose to be signalized
										TR	0.38	4.6	A	
	Southbound	LT	0.01	9.0	A	0.02	9.4		A	LTR	0.40	4.7	A	
		L	0.02	35.5	E	0.02	41.0	+	E	L	0.01	20.9	C	
	Eastbound	T	0.02	42.9	E	0.03	52.4	+	F	T	0.01	20.9	C	
		LT	0.12	39.2	E	0.15	50.5	+	F	Def	0.06	21.2	C	
	Westbound	TR	0.01	11.0	B	0.01	11.6		B	TR	0.03	21.0	C	
	Intersection		Unsignalized			Unsignalized						4.8	A	
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	0.90	118.9	F	1.10	195.5	+	F	L	0.36	30.3	C	Propose to be signalized
		R	0.22	17.7	C	0.26	20.4		C	R	0.22	28.9	C	
	Eastbound									T	0.82	15.9	B	
										R	0.21	5.9	A	
	Westbound	L	0.16	11.9	B	0.19	12.8		B	L	0.38	7.5	A	
										T	0.25	6.1	A	
	Intersection													
			Unsignalized			Unsignalized						14.1	B	
	Intersection													

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

AM Peak Hour													
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.06	27.4	D	0.07	30.5	D	LTR	0.42	21.5	C	Propose to be signalized
		TR	0.26	17.1	C	0.63	32.1	D					
	Eastbound	L	0.21	10.1	B	0.21	10.2	B	L	0.53	7.5	A	
									T	0.82	13.5	B	
	Westbound								TR	0.58	7.1	A	
	Intersection		Unsignalized			Unsignalized					11.8	B	
Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.01	2.6	A	0.01	2.6	A	L	0.01	2.9	A	Shift 1 second of green time from EB/WB phase to NB/SB phase
		TR	0.47	4.2	A	0.61	5.5	A	TR	0.62	6.0	A	
	Westbound	L	0.46	4.7	A	0.68	11.1	B	L	0.71	13.6	B	
		TR	0.41	4.0	A	0.44	4.1	A	TR	0.45	4.5	A	
	Northbound	LT	0.22	33.8	C	0.30	34.8	C	LT	0.25	33.3	C	
		LT	0.40	35.9	D	0.68	48.5	D	LT	0.62	42.2	D	
	Southbound	R	0.00	32.2	C	0.00	32.2	C	R	0.00	31.4	C	
	Intersection			6.0	A		8.4	A			8.7	A	
Grassland Road (Rt.100C) @ Sprain Brook Pkwy SB Ramp	Eastbound	TR	0.34	7.9	A	0.44	8.7	A	TR	0.46	9.7	A	Shift 2 seconds of green time from EB/WB phase to SB phase
	Westbound	T	0.33	7.9	A	0.35	8.0	A	T	0.36	9.0	A	
	Southbound	L	0.68	38.1	D	0.88	53.9	D	L	0.81	44.4	D	
		R	0.32	31.0	C	0.32	31.0	C	R	0.30	29.3	C	
	Intersection			14.0	B		17.1	B			16.2	B	
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.09	15.0	B	0.10	15.4	B	L	0.08	20.3	C	Formalize the shoulder area of the EB approach to provide an additional moving lane for through traffic; and an exclusive WB right-turn lane, respectively; restripe each of both receiving sides with 3 lanes; provide a new signal plan as follows: WB/NB G/A/R = 8/4/0 EB/WB G/A/R = 19/4/0 EB: G/A/R = 8/4/1 NB: G/A/R = 36/4/2 C = 90 seconds
		T	0.67	21.0	C	0.92	33.4	C	T	0.96	42.4	D	
	Westbound	TR	0.51	25.1	C	0.56	26.0	C	T	0.56	24.5	C	
									R	0.18	20.8	C	
	Northbound	LT	1.00	68.7	E	1.00	68.7	E	LT	0.98	55.8	E	
		R	1.22	145.2	F	*	**	F	R	1.07	70.5	E	
	Intersection			59.3	E		93.1	F			47.5	D	

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

AM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.14	134.3	F	1.17	145.7	+	F	LT	1.12	128.1	F	Shift 1 second of green time from NB/SB phase to EB/WB phase; shift another 4 seconds of green time from NB/SB phase to NB-L/SB-L phase
		R	0.22	19.7	B	0.22	19.8		B	R	0.20	16.8	B	
	Westbound	LTR	0.41	34.8	C	0.43	35.0		D	LTR	0.4	34.0	C	
		L	0.30	48.6	D	0.70	59.8	+	E	L	0.55	48.9	D	
	Northbound	TR	0.26	20.1	C	0.26	20.1		C	TR	0.29	23.3	C	
		L	1.10	141.5	F	1.10	141.5		F	L	0.87	72.2	E	
	Southbound	T	0.70	27.3	C	0.70	27.3		C	T	0.77	32.7	C	
Intersection				54.9	D		57.0		E			49.3	D	
Grasslands Road (Route 100C) @ Virginia Road	Northbound									TR	0.25	17.4	B	Provide a barrier for the WB-R traffic to create a free flow; and provide a signal plan as follows WB: G/A/R = 23/4/1 NB/SB G/A/R = 30/4/0 SB: G/A/R = 13/4/1 C = 80 seconds
	Southbound	LT	0.23	8.4	A	0.24	8.4		A	LT	0.69	14.1	B	
	Westbound	LR	0.65	19.1	C	0.81	27.3		D	L	0.08	20.9	C	
	Intersection	Unsignalized			Unsignalized							15.1	B	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	0.48	36.2	E	0.58	50.3	+	F	L	0.32	21.1	C	Propose to be signalized
		R	0.22	13.2	B	0.26	15.3		C	R	0.44	22.1	C	
	Eastbound	LT	0.08	8.8	A	0.08	9.3		A	LT	0.54	6.8	A	
										T	0.6	7.5	A	
	Westbound									R	0.03	0.0	A	
Intersection		Unsignalized			Unsignalized						9.4	A		
Grasslands Road @ WCC West Gate	Northbound	L	0.10	33.3	D	0.24	84.1	+	F	L	0.14	36.0	D	Provide barriers for the EB-R and NB-R movements to create free flows; formalize the shoulder area of the WB approach and restripe the approach with an exclusive left-turn lane and a through lane; and provide a signal plan as follows EB/WE G/A/R = 79/4/1 NB: G/A/R = 5/4/1 C = 94 seconds
		R	0.02	19.2	C	0.04	36.0	+	E					
	Eastbound									T	1.04	43.9	D	
		LT	0.01	11.8	B	0.01	16.3		C	L	0.01	1.4	A	
	Westbound									T	0.28	1.9	A	
	Intersection	Unsignalized			Unsignalized							34.9	C	
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.08	18.7	C	0.09	21.0		C	LTR	0.07	22.0	C	Propose to be signalized (No impact)
	Southbound	LTR	0.01	10.3	B	0.01	10.3		B	LTR	0.02	21.7	C	
	Eastbound	LTR	0.01	8.1	A	0.01	8.1		A	LTR	0.86	16.2	B	
	Westbound	LTR	0.02	10.5	B	0.02	11.0		B	LTR	0.3	5.7	A	
	Intersection	Unsignalized			Unsignalized							13.7	B	

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
asslands Road (E-W) @ Bradhurst Aven	Eastbound	L	1.08	153.0	F	*	**		F	L	1.70	392.2	F	Restripe the westbound approach with a shared left and through lane and a shared through and right lane
		T	0.63	23.4	C	0.69	25.2		C	T	0.69	25.2	C	
		R	0.28	12.2	B	0.29	12.2		B	R	0.29	12.2	B	
	Westbound	L	0.26	18.4	B	0.32	19.4		B	LTR	1.41	218.0	F	
		TR	1.38	205.3	F	*	**	+	F					
	Northbound	L	0.88	61.6	E	0.90	64.9		E	L	0.90	64.9	E	
		TR	0.20	16.3	B	0.20	16.3		B	TR	0.20	16.3	B	
	Southbound	L	0.30	25.1	C	0.30	25.1		C	L	0.30	25.1	C	
		TR	1.12	109.2	F	1.12	109.2		F	TR	1.12	109.2	F	
	Intersection				108.8	F		**		F			138.6	
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.01	79.6	E	1.02	83.3	+	F	L	1.00	76.3	E	Change the cycle length from 107 to 105 seconds by decreasing the green time for SB phase by 2 seconds
		TR	0.46	20.2	C	0.46	20.2		C	TR	0.45	19.2	B	
	Westbound	L	0.42	34.4	C	0.42	34.4		C	L	0.41	33.2	C	
		TR	0.89	49.1	D	0.89	49.7		D	TR	0.87	46.7	D	
	Northbound	L	0.32	25.3	C	0.34	25.8		C	L	0.33	23.3	C	
		TR	0.83	41.6	D	0.83	42.1		D	TR	0.82	39.5	D	
	Southbound	L	0.56	35.7	D	0.57	36.4		D	L	0.61	37.6	D	
		T	0.29	23.2	C	0.34	23.7		C	T	0.35	24.2	C	
		R	0.41	11.1	B	0.43	11.3		B	R	0.43	11.5	B	
	Intersection				35.4	D		35.9		D			34.0	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.16	10.5	B	0.16	10.5		B	L	0.32	4.7	A	Propose to be signalized
		TR								TR	0.40	4.6	A	
	Southbound	LT	0.01	9.5	A	0.01	9.6		A	LTR	0.41	4.7	A	
		L	0.01	52.4	F	0.01	53.0		F	L	0.00	20.9	C	
	Eastbound	T	0.09	88.6	F	0.09	90.6	+	F	T	0.02	20.9	C	
		LT	0.12	61.1	F	0.13	63.9	+	F	LTR	0.04	21.0	C	
	Westbound	TR	0.03	17.7	C	0.03	18.0		C					
	Intersection		Unsignalized			Unsignalized						4.9	A	
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.57	27.8	C	Propose to be signalized
		R	0.28	15.8	C	0.28	15.8		C	R	0.57	28.2	C	
	Eastbound									T	0.54	4.9	A	
										R	0.18	3.2	A	
	Westbound	L	0.28	12.1	B	0.43	14.0		B	L	0.76	13.9	B	
										T	0.57	5.1	A	
	Intersection		Unsignalized			Unsignalized						8.8	A	

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N S)	Northbound	LT	0.06	28.7	D	0.08	37.4	+	E	LTR	0.26	23.7	C	Propose to be signalized
		TR	0.17	14.3	B	0.19	14.5		B					
	Eastbound	L	0.20	11.5	B	0.24	13.5		B	L	0.62	10.0	A	
										T	0.50	4.5	A	
	Westbound									TR	1.02	40.3	D	
	Intersection		Unsignalized			Unsignalized					26.6	C		
Saw Mill River Rd. at Saw Mill River Pkwy SB Off Ramp	Eastbound	LT	1.05	75.0	E	1.08	83.6	+	F	LT	1.05	72.2	E	Shift 1 second of green time from SB phase to EB/WB phase
	Westbound	TR	0.46	9.5	A	0.52	10.1		B	TR	0.51	9.5	A	
	Southbound	L	0.29	23.1	C	0.29	23.1		C	L	0.30	24.0	C	
		LR	0.21	22.6	C	0.21	22.6		C	LR	0.22	23.4	C	
	Intersection			34.8	C		36.6		D			32.5	C	
Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.07	9.7	A	0.07	9.7		A	L	0.07	7.5	A	Shift 5 seconds of green time from NB/SB phase to EB/WB phase
		TR	0.73	17.4	B	0.74	17.8		B	TR	0.67	12.8	B	
	Westbound	L	1.45	**	F	*	**	+	F	L	1.02	82.1	F	
		TR	0.86	24.4	C	1.1	79.6	+	E	TR	0.99	41.9	D	
	Northbound	LT	0.20	20.0	B	0.20	20.0		C	LT	0.27	24.2	C	
		LT	0.27	20.7	C	0.34	21.4		C	LT	0.40	25.5	C	
	Southbound	R	0.01	18.5	B	0.01	18.5		B	R	0.01	21.9	C	
Intersection			45.8	D		71.9		E			34.1	C		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.50	15.4	B	0.50	15.4		B	L	0.62	43.5	D	Formalize the shoulder area of the EB approach to provide an additional moving lane for through traffic; and an exclusive WB right-turn lane, respectively; restripe each of both receiving sides with 3 lanes; provide a new signal plan as follows: WB: G/A/R = 16/4/0 EB/WEG/A/R = 32/4/0 EB: G/A/R = 8/4/1 NB: G/A/R = 26/4/1 C = 100 seconds
		T	0.34	9.1	A	0.36	9.2		A	T	0.33	18.5	B	
	Westbound	TR	1.39	203.2	F	*	**	+	F	T	0.99	42.6	D	
										R	0.43	15.2	B	
	Northbound	LT	0.52	24.9	C	0.69	29.4		C	LT	0.77	41.8	D	
		R	0.36	23.2	C	0.38	23.3		C	R	0.42	31.4	C	
	Intersection			123.8	F		206.8		F			34.4	C	
Virginia Road @ Bronx River Pkwy	Eastbound	LT	1.28	187.3	F	1.47	**	+	F	LT	1.32	202.2	F	Shift 3 seconds of green time from NB/SB phase to EB/WB phase
		R	0.50	36.3	D	0.67	41.5		D	R	0.62	37.3	D	
	Westbound	LTR	1.44	**	F	*	**	+	F	LTR	1.31	204.0	F	
	Northbound	L	0.06	10.9	B	0.07	11.0		B	L	0.07	12.4	B	
		TR	0.62	25.3	C	0.62	25.3		C	TR	0.65	28.0	C	
	Southbound	L	0.13	11.7	B	0.13	11.7		B	L	0.14	13.2	B	
		T	0.59	24.7	C	0.59	24.7		C	T	0.62	27.2	C	
Intersection			78.8	E		113.1		F			77.8	E		

TABLE 9.1-5. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION B

PROPOSED MITIGATION MEASURES - OPTION B															
PM Peak Hour															
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures		
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS			
Grasslands Road (Route 100C) @ Virginia Road	Northbound									TR	0.81	37.6	D	Provide a barrier for the WB-R traffic to create a free flow; and provide a signal plan as follows	
	Southbound	LT	0.44	11.1	B	0.57	12.8		B	LT	0.96	30.0	C		
	Westbound	LR	1.47	**	F	*	**	+	F	L	0.46	41.8	D		
	Intersection		Unsignalized			Unsignalized						33.4	C		
														WB: G/A/R = 13/4/1	
													NB/SB G/A/R = 35/4/0		
													SB: G/A/R = 38/4/1		
														C = 100 seconds	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	1.41	**	F	*	**	+	F	L	0.71	36.1	D	Propose to be signalized	
		R	0.47	19.9	C	0.47	20.1		C	R	0.78	42.9	D		
	Eastbound	LT	0.24	10.7	B	0.24	10.8		B	LT	0.98	36.6	D		
	Westbound									T	0.48	6.0	A		
										R	0.18	0.1	A		
Intersection		Unsignalized			Unsignalized					25.0	C				
Grassland Road (Rt.100C) @ WCC East Gate	Eastbound	T	0.72	16.6	B	0.72	16.6		B	T	0.93	41.3	D	Shift 9 seconds of green time from EB/WB phase to NB phase	
	Westbound	L	0.22	11.2	B	0.24	11.3		B	L	0.32	20.9	C		
		T	0.58	7.9	A	0.58	7.9		A	T	0.71	15.5	B		
	Northbound	L	*	**	F	*	**	+	F	L	*	**	F		
	Intersection			90.9	F		**		F			196.4	F		
Grasslands Road @ WCC West Gate	Northbound	L	0.45	104.1	F	1.04	**	+	F	L	0.31	44.7	D	Provide barriers for the EB-R and NB-R movements to create free flows; formalize the shoulder area of the WB approach and restripe the approach with an exclusive left-turn lane and a through lane; and provide a signal plan as follows	
		R	0.52	19.7	C	0.56	22.1		C						
	Eastbound									T	0.42	2.1	A		
		LT	0.12	9.3	A	0.13	9.5		A	L	0.2	1.6	A		
	Westbound									T	1.05	43.8	D		
			Unsignalized			Unsignalized						30.4	C		
															EB/WEG/A/R = 65/4/1
															NB: G/A/R = 5/4/1
												C = 80 seconds			
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.12	33.3	D	0.14	39.2	+	E	LTR	0.05	21.9	C	Propose to be signalized	
	Southbound	LTR	0.08	18.8	C	0.09	21.4		C	LTR	0.07	22.0	C		
	Eastbound	LTR	0.01	8.9	A	0.01	9.2		A	LTR	0.57	7.7	A		
	Westbound	LTR	0.01	9.2	A	0.01	9.2		A	LTR	0.55	7.4	A		
	Intersection		Unsignalized			Unsignalized					7.9	A			

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

"*" indicates a v/c ratio greater than 1.50; "***" indicates a calculated delay greater than 240 seconds.

Saw Mill River Road (Route 9A) and Tarrytown/White Plains Road (Route 119)

During the AM peak hour, the eastbound left-turn movement would continue to operate at LOS F with a 28.8-second increase in delay and would deteriorate from LOS E with 79.6 seconds of delay to LOS F with 83.3 seconds of delay during the PM peak hour. During the AM peak hour, this impact could be fully mitigated with the transfer of 7 seconds of green time from the east-west signal phase to the east-southbound right-turn phase. During the PM peak hour, this impact would be mitigated by reducing the southbound signal phase by 2 seconds to result in a total cycle length of 105 seconds.

During the AM peak hour, the mitigation measures would reduce the delay on the eastbound left-turn movement to LOS B with 14.3 seconds of delay. All of the other movements would operate at or near the Future Without Project LOS with no adverse changes in their average vehicle delays. During the PM peak hour, the proposed mitigation measure would reduce the delay of the eastbound left-turn movement by 3.3 seconds as compared to Future Without Project conditions, and all of the other movements at this location would operate at or better than their Future Without Project LOS with only minor changes in their average vehicle delays.

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the AM peak hour, the eastbound through and westbound left/through movements would deteriorate from LOS E to LOS F with 9.5- and 11.3-second increases in delay, respectively. The eastbound left-turn movement would continue to operate at LOS E with a 5.5-second increase in delay. This impact would be fully mitigated with the installation of a traffic signal at this location. As a result of this mitigation, all of the vehicle movements at this intersection would operate at LOS C or better compared to Future Without Project conditions, with a maximum delay of 21.2 seconds per vehicle.

During the PM peak hour, the eastbound through and westbound left/through movements would continue to operate at LOS F with 2.0- and 2.8-second increases in delay, respectively. Similar to the AM peak hour, a traffic signal would fully mitigate these anticipated impacts, resulting in a LOS C or better for all of the traffic movements at this location, compared to Future Without Project conditions, with a maximum average vehicle delay of 21.0 seconds.

Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps

The northbound left-turn movement would continue to operate at LOS F with a 76.6-second increase in delay, during the AM peak hour. During the PM peak hour, the northbound left-turn movement would continue to operate at LOS F with delays increased to well beyond 240 seconds. The installation of a traffic signal at this location would fully mitigate these impacts. With this mitigation, all of the traffic movements at this location would operate at LOS C or better with a maximum delay of 30.3 and 28.2 seconds per vehicle during the AM and PM peak hours, respectively.

Grasslands Road (Route 100C) and Saw Mill River Road (Route 9A) Northbound Ramp

During the AM peak hour, the northbound through/right movement would deteriorate from LOS C with 17.1 seconds of delay to LOS D with 32.1 seconds of delay. During the PM peak hour, the northbound left/through movement would deteriorate from LOS D with 28.7 seconds of delay to LOS E with 37.4 seconds of delay. These impacts would be fully mitigated with the installation of a traffic signal. As a result of this mitigation, all of the vehicle movements at this location would operate at LOS D or better compared to Future Without Project conditions, with a maximum average vehicle delay of 21.5 and 40.3 seconds during the AM and PM peak hours, respectively.

Old Saw Mill River Road and Saw Mill River Parkway Southbound Off-Ramp

During the PM peak hour, the eastbound left/through movement would deteriorate from LOS E to LOS F with an 8.6-second increase in delay. This impact would be mitigated by transferring 1 second of green time from the southbound signal phase to the east-west phase. This measure would improve the operation of the eastbound left/through movement to LOS E with 72.2 seconds of delay, compared to Future Without Project conditions. All of the other vehicle movements would operate at their Future Without Project LOS or better with minimal changes in their average delays.

Grasslands Road (Route 100C) and Clearbrook Road/Walker Road

The southbound left/through movement would continue to operate at LOS D during the AM peak hour, but the average vehicle delay would increase by 12.6 seconds. By transferring 1 second of green time from the east-west signal phase to the southbound signal phase, the average vehicle delay for the southbound left/through movement would improve to 42.2 seconds. This mitigation would not adversely impact the LOS or the average delay for the other vehicle movements at this location.

During the PM peak hour, the westbound left-turn movement would continue to operate at LOS F with delays increased beyond 240 seconds. The westbound through/right movement would deteriorate from LOS C with 24.4 seconds of delay to LOS E with 79.6 seconds of delay. These impacts would be mitigated by transferring 5 seconds of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, the westbound left-turn movement would improve compared to Future Without Project conditions, to LOS F with 82.1 seconds of delay and the westbound through/right movement would improve to LOS D with 41.9 seconds of delay. The remaining vehicle movements at this location would operate at or near their Future Without Project LOS without adverse changes in their average vehicle delay.

Grasslands Road (Route 100C) and Sprain Brook Parkway Southbound Ramp

During the AM peak hour, the southbound left-turn movement would deteriorate from LOS D with 38.1 seconds of delay to LOS D with 53.9 seconds of delay. This impact would be mitigated by shifting 2 seconds of green time from the east-west signal phase to the southbound phase. As a result of this mitigation, the southbound left-turn movement would improve compared to

Future Without Project conditions, to LOS D with 44.4 seconds of delay and the remaining vehicle movements would continue to operate at their Future Without Project LOS.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound right-turn movement would increase from a LOS E with 145.2 seconds of delay to LOS F with a delay beyond 240 seconds. The westbound approach would increase from a LOS E with 67.9 seconds of delay to LOS F with delays increased to beyond 240 seconds during the PM peak hour. The mitigation would formalize the shoulder areas of the eastbound and westbound approaches to provide an additional moving lane for EB through traffic, and an exclusive westbound right-turn lane, respectively. A new traffic signal plan would also be provided. These would fully mitigate these impacts such that the impacted movements would operate at delays below Future Without Project conditions, and all of the remaining vehicle movements would operate below mid-LOS D or better, with a maximum delay of 42.4 seconds during the AM and PM peak hours.

Virginia Road and Bronx River Parkway

During the AM peak hour, the eastbound left/through movement would continue to operate at LOS F with 11.4 seconds increase in delay. The northbound left-turn movement would deteriorate from LOS D to LOS E with 11.2 seconds increase in delay. These impacts would be mitigated with a 5-second reduction in the north-south signal phase and a subsequent 1-second increase in the east-west phase and 4 second increase in the north-south permitted left-turn phase. As a result of this mitigation, the eastbound left/through movement would improve compared to Future Without Project conditions, to LOS F with 128.1 seconds of delay and the northbound left-turn movement would improve compared to Future Without Project conditions, to LOS D with 48.9 seconds of delay. There would also be an improvement in LOS for the westbound approach and the southbound left-turn movement as compared to Future Without Project conditions. The remaining movements at this location would continue to operate at their Future Without Project LOS without adverse changes in average vehicle delay.

During the PM peak hour, the eastbound left/through movement and the westbound approach would continue to operate at LOS F, both with delays increased beyond 240 seconds. These impacts would be fully mitigated by transferring 3 seconds of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, the eastbound left/through movement would improve compared to Future Without Project conditions, to LOS F with 202.2 seconds of delay and the westbound approach would operate at LOS F with 204.0 seconds of delay. The remaining vehicle movements at this location would operate at their Future Without Project LOS with minimal changes in average vehicle delay.

Grasslands Road (Route 100) and Virginia Road

During the PM peak hour, the westbound approach would continue to operate at LOS F, with delays increased to well beyond 240 seconds during the PM peak hour. This location would be fully mitigated with the creation of a channelized right-turn lane on the westbound approach and with the installation of a traffic signal (see Table 9.1-5). With these mitigation measures, all of

the vehicle movements at this location would operate at LOS D or better with a maximum average vehicle delay of 41.8 seconds.

Although mitigation was not required at this intersection during the AM peak period, these measures would improve the operation of the westbound approach as compared to Future Without Project conditions (to LOS C), and the northbound and southbound approaches would operate at LOS B.

Grasslands Road (Route 100) and Legion Drive

During the AM peak hour, the southbound left-turn movement would deteriorate from LOS E with 36.2 seconds of delay to LOS F with 50.3 seconds of delay. During the PM peak hour, this movement would continue to operate at LOS F with delays increased to well beyond 240 seconds. These impacts would be fully mitigated with the installation of a traffic signal at this location. As result of this mitigation, all of the vehicle movements would operate at LOS C or better compared to Future Without Project conditions, during the AM peak hour with a maximum delay of 22.1 seconds, and below mid LOS D or better compared to Future Without Project conditions, during the PM peak hour with a maximum delay of 42.9 seconds.

Grasslands Road (Route 100) and WCC East Gate

The northbound left-turn movement would continue to operate at LOS F with delays increased to well beyond 240 seconds during the PM peak hour. This impact would be fully mitigated by transferring 9 seconds of green time from the east-west signal phase to the northbound phase. As a result of this mitigation, the average vehicle delay for the northbound left-turn movement would decrease below the delay predicted for Future Without Project conditions. The other vehicle movements at this location would experience a change in LOS as compared to Future Without Project conditions; however, none of the increases in delay would be above mid-LOS D, or result in adverse impacts.

Grasslands Road (Route 100) and WCC West Gate

During the AM peak hour, the northbound left-turn movement would deteriorate from LOS D to LOS F with a 50.8-second increase in delay, and the northbound right-turn movement would deteriorate from LOS C to LOS E with a 16.8-second increase in delay. During the PM peak hour, the northbound left-turn movement would continue to operate at LOS F with delays increased to well beyond 240 seconds. A new traffic signal at this location would fully mitigate these impacts such that all vehicle movements would operate at LOS D or better with a maximum delay of 44.7 seconds during peak hours.

Old Saw Mill River Road and the Landmark at Eastview East Driveway

During the PM peak hour, northbound approach would deteriorate from LOS D with 33.3 seconds of delay, to LOS E with 39.2 seconds of delay. This impact could be fully mitigated with the installation of a new traffic signal. While this intersection was not predicted to experience any impacts during the AM peak hour, the effect of installing a traffic signal at this location was

evaluated. As a result of this mitigation, all approaches would operate at LOS C, or better compared to Future Without Project conditions, with maximum delays at any given approach of 22.0 seconds during both the AM and PM peak hours.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate construction-related impacts of the proposed project. If the mitigation identified is not applied, the potential significant adverse construction traffic impacts identified would not be mitigated. In the absence of implementing the mitigation measures recommended above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

2008 Construction Option C Conditions

The traffic analyses compared the CAT/DEL UV Facility's 2008 Construction (Option C) conditions with a 2008 Future Without Project Option C condition (with the proposed Croton project under construction, and their workers also parking at both the Landmark property and the WCC Campus). Under these conditions in 2008, it was found that traffic from the construction of the proposed Croton project with the Cat/Del UV Facility would be anticipated to result in potential significant adverse traffic impacts at seven (7) signalized intersections and seven (7) unsignalized intersections with a total of 29 potential significant adverse traffic impacts, 14 during the AM peak hour, and 15 during the PM peak hour. These impacts could be fully mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2008 Future Without Project Option C and 2008 Construction Option C conditions (see Table 9.1-6).

The tables showing the results of applying the mitigation measures also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies mostly on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. However, some of the measures that were investigated were more extraordinary, involving additional lane construction or street widening, to give a complete range of potential measures that could eliminate impacts. Once construction of the proposed Croton project has commenced, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

Grasslands Road (Route 100C) and Bradhurst Avenue (Route 100)

The eastbound through movement would deteriorate from LOS F with 160.2 seconds of delay to LOS F with delays increased to well beyond 240 seconds during the AM peak hour, and the westbound through/right movement would deteriorate from LOS F with 121.7 seconds of delay to LOS F with delays increased beyond 240 seconds during the PM peak hour. A combination of measures is required to fully mitigate both the AM and PM peak hour impacts at this location. The westbound approach would be restriped to accommodate two travel lanes (shared left-turn and through and shared through and right-turn). During the AM peak hour, a new signal timing and phasing plan would also be implemented as shown in Table 9.1-6.

During the AM peak hour, these mitigation measures would result in a decrease in delay on the eastbound through movement of 2.9 seconds as compared to Future Without Project conditions, and all of the other movements would operate at LOS C or better. During the PM peak hour, the addition of a westbound lane would significantly improve operations for the westbound through and right-turn movement as well as the eastbound left-turn movement. Although delay for the westbound left-turn movement would increase, the overall delay for the westbound approach would improve beyond the Future Without the Project LOS F with 156.0 seconds of delay, to a mitigated LOS F with 81.3 seconds of delay. All of the other movements at this location would operate at their Future Without Project LOS without adverse increases in delay.

TABLE 9.1-6. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION C

AM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Grasslands Road (E-W) @ Bradhurst Avenue	Eastbound	L	0.75	39.9	D	0.82	48.0	+	D	L	0.39	12.0	B	Restripe the westbound approach with a shared left and through lane and a shared through and right lane. Provide a new signal plan as follows
		T	1.25	160.2	F	*	**	+	F	T	1.09	72.2	E	
		R	0.36	16.4	B	0.36	16.5		B	R	0.32	9.1	A	
	Westbound	L	0.68	56.6	E	0.68	56.6		E	LTR	0.45	16.5	B	
		TR	0.45	26.2	C	0.50	26.9		C				C	
	Northbound	L	0.24	23.5	C	0.26	23.8		C	L	0.50	31.6	D	EB/WB: G/A/R = 42/5/2
		TR	0.34	26.0	C	0.35	26.1		C	TR	0.69	39.1	C	EB: G/A/R = 5/3/1
	Southbound	L	0.51	40.2	D	0.51	40.5		D	L	0.52	32.8	D	NB/SB: G/A/R = 18/3/2
		TR	0.68	49.7	D	0.68	49.7		D	TR	0.71	41.1	D	NB-L/SB: G/A/R = 5/3/1
	Intersection			78.1	E		147.5		F			43.8	D	C = 90 seconds
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.03	84.7	F	1.12	113.5	+	F	L	1.03	84.9	F	Provide the intersection with a new signal plan as follows
		TR	0.38	14.5	B	0.38	14.5		B	TR	0.37	12.9	B	
	Westbound	L	0.17	22.3	C	0.17	22.3		C	L	0.17	22.3	C	EB/SB: G/A/R = 16/3/2
		TR	0.31	23.6	C	0.31	23.6		C	TR	0.31	23.6	C	EB/WB: G/A/R = 50/3/2
	Northbound	L	0.39	34.3	C	0.39	34.4		C	L	0.34	30.4	C	NB: G/A/R = 6/3/0
		TR	0.66	42.0	D	0.72	44.9		D	TR	0.62	37.0	D	NB/SB: G/A/R = 30/3/2
	Southbound	L	0.26	35.0	C	0.29	36.6		D	L	0.37	38.2	D	C = 120 seconds
		T	0.43	35.1	D	0.44	35.3		D	T	0.52	40.0	D	
		R	0.23	22.1	C	0.24	22.2		C	R	0.24	22.2	C	
	Intersection			35.7	D		42.3		D			35.8	D	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.12	10.3	B	0.15	10.6		B	L	0.31	4.7	A	Propose to be signalized
		TR								TR	0.36	4.5	A	
	Southbound	LT	0.01	8.9	A	0.02	9.3		A	LTR	0.4	4.7	A	
		L	0.02	37.4	E	0.02	47.4	+	E	L	0.01	20.9	C	
	Eastbound	T	0.02	44.6	E	0.03	58.7	+	F	T	0.01	20.9	C	
		LT	0.12	41.3	E	0.17	57.7	+	F	Def	0.06	21.2	C	
	Westbound	TR	0.01	10.9	B	0.01	11.4		B	TR	0.03	21.0	C	
Intersection		Unsignalized			Unsignalized					4.8	A			
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	1.17	**	F	*	**	+	F	L	0.49	31.7	C	Propose to be signalized
		R	0.22	17.4	C	0.24	19.1		C	R	0.22	28.9	C	
	Eastbound									T	0.78	13.8	B	
										R	0.21	5.9	A	
	Westbound	L	0.15	11.7	B	0.17	12.3		B	L	0.34	7.1	A	
										T	0.53	8.2	A	
	Intersection		Unsignalized			Unsignalized					12.9	B		
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N S)	Northbound	LT	0.19	33.5	D	0.51	64.4	+	F	LTR	0.33	20.9	C	Propose to be signalized
		TR	0.16	15.4	C	0.34	19.6		C					
	Eastbound	L	0.23	10.9	B	0.28	12.4		B	L	0.8	25.7	C	
										T	0.76	11.1	B	
	Westbound									TR	0.85	15.3	B	

TABLE 9.1-6. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION C

AM Peak Hour													
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
	Intersection		Unsignalized			Unsignalized					15.1	B	
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.10	15.1	B	0.12	15.3	B	L	0.14	16.9	B	Change the cycle length from 100 to 110 seconds by increasing the green time for EB/WB phase by 10 seconds
		T	0.58	19.4	B	0.72	22.2	C	T	0.79	25.7	C	
	Westbound	TR	0.52	25.3	C	0.53	25.6	C	TR	0.63	28.7	C	
		LT	1.13	109.1	F	1.32	187.6	F	LT	1.2	131.4	F	
	Northbound	R	1.12	105.8	F	1.27	165.4	F	R	1.15	112.8	F	
				60.4	E		93.0	F			70.2	E	
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.14	136.9	F	1.17	148.9	F	LT	1.13	130.8	F	Shift 1 second of green time from NB/SB phase to EB/WB phase
		R	0.21	19.7	B	0.22	19.7	B	R	0.21	19.1	B	
	Westbound	LTR	0.26	32.8	C	0.44	35.2	D	LTR	0.41	34.1	C	
		L	0.36	49.2	D	0.36	49.2	D	L	0.36	49.2	D	
	Northbound	TR	0.26	20.1	C	0.26	20.1	C	TR	0.27	20.7	C	
		L	1.10	141.5	F	1.10	141.5	F	L	1.1	141.5	F	
	Southbound	T	0.70	27.3	C	0.70	27.3	C	T	0.71	28.3	C	
				55.7	E		57.0	E			54.7	D	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.23	8.4	A	0.24	8.4	A	LT	0.24	8.4	A	Restripe the westbound approach as 2 lanes
		LR	0.60	17.8	C	0.69	20.6	C	L	0.19	27.5	D	
	Westbound								R	0.50	13.0	B	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	0.45	33.2	D	0.50	39.1	E	L	0.32	21.1	C	Propose to be signalized (No impact)
		R	0.21	12.7	B	0.23	13.7	B	R	0.44	22.1	C	
	Eastbound	LT	0.07	8.7	A	0.08	8.9	A	LT	0.53	6.6	A	
									T	0.51	6.4	A	
	Westbound								R	0.03	0.0	A	
	Intersection		Unsignalized			Unsignalized					9.0	A	
Grasslands Road @ WCC West Gate	Northbound	L	0.08	25.9	D	0.12	38.9	E	L	0.08	24.7	C	Propose to be signalized
		R	0.02	16.1	C	0.02	21.2	C					
	Eastbound								T	0.80	8.8	A	
		LT	0.00	10.8	B	0.01	12.4	B	LT	0.29	2.8	A	
	Intersection		Unsignalized			Unsignalized					7.4	A	
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.10	17.9	C	0.14	18.5	C	LTR	0.18	26.7	C	Propose to be signalized
		LTR	0.10	40.3	E	0.55	174.1	F	LTR	0.12	26.4	C	
	Eastbound	LTR	0.02	8.3	A	0.02	8.6	A	LTR	0.67	6.6	A	
		LTR	0.12	10.8	B	0.28	12.1	B	LTR	0.85	15.4	B	
	Intersection		Unsignalized			Unsignalized					11.0	B	

TABLE 9.1-6. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION C

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Grasslands Road (E-W) @ Bradhurst Avenue	Eastbound	L	*	**	F	*	**		F	L	*	**	F	Restripe the westbound approach with a shared left and through lane and a shared through and right lane
		T	0.61	22.9	C	0.65	23.9		C	T	0.65	23.9	C	
		R	0.28	12.2	B	0.29	12.3		B	R	0.29	12.3	B	
	Westbound	L	0.24	18.2	B	0.28	18.7		B	LTR	1.09	81.3	F	
		TR	1.18	121.7	F	1.48	**	+	F					
		L	0.88	61.6	E	0.90	64.9		E	L	0.90	64.9	E	
	Northbound	TR	0.20	16.3	B	0.20	16.3		B	TR	0.20	16.3	B	
		L	0.30	25.1	C	0.30	25.1		C	L	0.30	25.1	C	
	Southbound	TR	1.12	109.2	F	1.12	109.2		F	TR	1.12	109.2	F	
Intersection			89.7	F		137.0		F			76.0	E		
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.01	79.6	E	1.02	83.2	+	F	L	1.00	76.3	E	Change the cycle length from 107 to 105 seconds by decreasing the green time for SB phase by 2 seconds
		TR	0.46	20.2	C	0.46	20.2		C	TR	0.45	19.2	B	
	Westbound	L	0.42	34.4	C	0.42	34.4		C	L	0.41	33.2	C	
		TR	0.88	48.8	D	0.89	49.3		D	TR	0.87	46.5	D	
	Northbound	L	0.32	25.3	C	0.34	25.8		C	L	0.33	23.3	C	
		TR	0.83	41.6	D	0.83	42.1		D	TR	0.82	39.5	D	
	Southbound	L	0.56	35.7	D	0.57	36.4		D	L	0.61	37.6	D	
		T	0.29	23.2	C	0.34	23.8		C	T	0.35	24.2	C	
	Intersection	R	0.41	11.1	B	0.43	11.3		B	R	0.43	11.5	B	
			35.4	D		35.8		D			33.9	C		
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.16	10.4	B	0.16	10.5		B	L	0.32	4.7	A	Propose to be signalized
										TR	0.39	4.6	A	
	Southbound	LT	0.01	9.5	A	0.01	9.6		A	LTR	0.41	4.7	A	
		L	0.01	51.2	F	0.01	53.0		F	L	0.00	20.9	C	
	Eastbound	T	0.08	84.9	F	0.09	90.6	+	F	T	0.02	20.9	C	
		LT	0.12	30.3	F	0.13	63.9	+	F	LTR	0.04	21.0	C	
	Westbound	TR	0.03	17.5	C	0.03	18.0		C					
Intersection		Unsignalized			Unsignalized					4.9	A			
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.57	27.9	C	Propose to be signalized
		R	0.33	18.7	C	0.44	26.2		D	R	0.57	28.2	C	
	Eastbound									T	0.82	10.7	B	
										R	0.28	3.5	A	
	Westbound	L	0.26	13.1	B	0.45	18.7		C	L	0.79	20.8	C	
										T	0.52	4.7	A	
Intersection		Unsignalized			Unsignalized					10.9	B			
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.07	30.9	D	0.11	45.0	+	E	LTR	0.20	21.8	C	Propose to be signalized
		TR	0.20	16.1	C	0.25	19.9		C					
	Eastbound	L	0.21	11.2	B	0.27	12.7		B	L	0.72	16.7	B	
										T	0.75	9.2	A	
	Westbound									TR	0.93	21.5	C	
Intersection		Unsignalized			Unsignalized					16.1	B			

TABLE 9.1-6. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION C

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Saw Mill River Rd. at Saw Mill River Pkwy SB Off Ramp	Eastbound	LT	1.05	75.5	E	1.08	86.1	+	F	LT	1.05	74.3	E	Shift 1 second of green time from SB phase to EB/WB phase
	Westbound	TR	0.47	9.6	A	0.53	10.2		B	TR	0.52	9.6	A	
	Southbound	L	0.29	23.1	C	0.29	23.1		C	L	0.30	24.0	C	
	Intersection	LR	0.21	22.6	C	0.21	22.6		C	LR	0.22	23.4	C	
				35	C		37.2		D			33.1	C	
Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.05	9.4	A	0.07	9.7		A	L	0.04	5.6	A	Signal Retiming: shift 9 seconds of green time from northbound/southbound phase to eastbound/westbound phase
		TR	0.83	21.9	D	0.99	43.7		D	TR	0.83	15.9	B	
	Westbound	L	*	**	F	*	**		F	L	*	**	F	
		TR	0.79	19.8	C	0.92	30.5		C	TR	0.77	13.5	B	
	Northbound	LT	0.19	20.0	B	0.20	20.0		B	LT	0.35	27.9	C	
	Southbound	LT	0.25	20.5	C	0.29	20.9		C	LT	0.41	28.4	C	
Intersection	R	0.02	18.6	B	0.04	18.7		B	R	0.06	25.3	C		
				98.3	F		101.5		F			82.1	F	
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.62	18.5	B	0.80	32.8		C	L	0.8	33.8	C	Shift 3 seconds of green time from NB phase to EB/WB phase
		T	0.34	9.1	A	0.35	9.2		A	T	0.33	7.6	A	
	Westbound	TR	1.19	116.9	F	1.38	199.0	+	F	TR	1.25	142.0	F	
	Northbound	LT	0.70	29.6	C	0.71	30.0		C	LT	0.82	39.5	D	
Intersection	R	0.36	23.1	C	0.37	23.2		C	R	0.42	25.9	C		
				69	E		116.2		F			86.5	F	
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.22	163.9	F	1.32	205.4	+	F	LT	1.23	166.6	F	Shift 2 seconds of green time from NB/SB phase to EB/WB phase
		R	0.45	35.4	D	0.53	36.9		D	R	0.5	34.8	C	
	Westbound	LTR	1.36	227.1	F	*	**	+	F	LTR	1.27	186.7	F	
	Northbound	L	0.06	10.9	B	0.06	11.0		B	L	0.07	11.9	B	
		TR	0.62	25.3	C	0.62	25.3		C	TR	0.64	27.1	C	
	Southbound	L	0.13	11.7	B	0.13	11.7		B	L	0.14	12.7	B	
Intersection	T	0.59	24.7	C	0.59	24.7		C	T	0.61	26.4	C		
				70.8	E		87.5		F			68.3	E	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.41	10.7	B	0.47	11.4		B	LT	0.47	11.4	B	Restripe the westbound approach as 2 lanes
	Westbound	LR	1.35	204.1	F	*	**	+	F	L	0.95	142.7	F	
	Intersection									R	0.62	20.0	C	
			Unsignalized			Unsignalized			Unsignalized					
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	1.35	**	F	1.46	**	+	F	L	0.66	27.1	C	Propose to be signalized
		R	0.47	19.8	C	0.47	19.9		C	R	0.73	31.4	C	
	Eastbound	LT	0.24	10.7	B	0.24	10.8		B	LT	0.97	34.8	C	
	Westbound									T	0.51	6.4	A	
Intersection									R	0.18	0.1	A		
			Unsignalized			Unsignalized			Unsignalized					
												21.6	C	

TABLE 9.1-6. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION C

PROPOSED MITIGATION MEASURES - OPTIONS														
PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Grassland Road (Route 100C) @ WCC East Gate	Eastbound	T	0.72	16.8	B	0.73	17.0		B	T	0.79	25.1	C	Provide new signal plan as follows:
	Westbound	L	0.22	11.2	B	0.23	11.3		B	L	0.5	18.0	B	
			T	0.58	7.9	A	0.58	7.9		A	T	0.79	24.6	C
	Northbound	L	1.09	104.1	F	*	**	+	F	L	0.91	40.8	D	NB: G/A/R = 36/5/1
	Intersection				31.4	C		132.3		F			29.4	C
Grasslands Road (Route 100C) @ WCC West Gate	Northbound	L	0.35	87.2	F	0.54	136.4	+	F	L	0.22	35.6	D	Propose to be signalized
		R	0.51	19.7	C	0.53	20.5		C					
	Eastbound								T	0.42	2.6	A		
	Westbound	LT	0.12	9.2	A	0.13	9.3		A	LT	1.00	33.6	C	
	Intersection		Unsignalized			Unsignalized					23.8	C		
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.30	20.7	C	0.59	28.0		D	LTR	0.43	21.0	C	Propose to be signalized
	Southbound	LTR	0.92	137.1	F	*	**	+	F	LTR	0.73	30.9	C	
	Eastbound	LTR	0.01	8.7	A	0.01	8.7		A	LTR	0.64	11.2	B	
	Westbound	LTR	0.02	9.2	A	0.03	9.3		A	LTR	0.54	9.8	A	
	Intersection		Unsignalized			Unsignalized					14.3	B		

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

" * " indicates a v/c ratio greater than 1.50; " ** " indicates a calculated delay greater than 240 seconds.

Saw Mill River Road (Route 9A) and Tarrytown/White Plains Road (Route 119)

During the AM peak hour, the eastbound left-turn movement would continue to operate at LOS F with a 28.8-second increase in delay and would deteriorate from LOS E with 79.6 seconds of delay to LOS F with 83.2 seconds of delay during the PM peak hour. During the AM peak hour, this impact could be fully mitigated with a new signal phasing and timing plan, which is shown in Table 9.1-6. During the PM peak hour, the impact would be mitigated by reducing the southbound signal phase by 2 seconds to result in a total cycle length of 105 seconds.

During the AM peak hour, the mitigation measures would maintain the delay on the eastbound left-turn movement at 84.9 seconds as compared to Future Without Project conditions, and all of the other movements would operate at the Future Without Project LOS with no adverse changes in their average vehicle delays. During the PM peak hour, the proposed mitigation measure would reduce the delay of the eastbound left-turn movement by 3.3 seconds as compared to Future Without Project conditions, and all of the other movements at this location would operate at or better than their Future Without Project LOS with only minor changes in their average vehicle delays.

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the AM peak hour, the eastbound through and westbound left/through movements would deteriorate from LOS E to LOS F with a 14.1- and 16.4-second increase in delay, respectively. The eastbound left-turn movement would continue to operate at LOS E with a 10.0-second increase in delay. This impact would be fully mitigated with the installation of a traffic signal at this location. As a result of this mitigation, all of the vehicle movements at this intersection would operate at LOS C or better compared to Future Without Project conditions, with a maximum delay of 21.0 seconds per vehicle.

During the PM peak hour, the eastbound through and westbound left/through movements would continue to operate at LOS F with a 5.7- and 33.6-second increase in delay, respectively. Similar to the AM peak hour, a traffic signal would fully mitigate these anticipated impacts, resulting in a LOS C or better for all of the traffic movements at this location with a maximum average vehicle delay of 21.0 seconds.

Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps

In both the AM and PM peak hours, the northbound left-turn movement would continue to operate at LOS F, both with delays increased to well beyond 240 seconds. The installation of a traffic signal at this location would fully mitigate these impacts. With this mitigation, all of the traffic movements at this location would operate at LOS C or better with a maximum delay of 31.7 and 28.2 seconds per vehicle during the AM and PM peak hours, respectively

Grasslands Road (Route 100C) and Saw Mill River Road (Route 9A) Northbound Ramp

The northbound left/through movement would be adversely impact by the project's construction in both the AM and PM peak hours. During the AM, this movement would deteriorate from LOS

D with 33.5 seconds of delay to LOS F with 64.4 seconds of delay. During the PM, this movement would deteriorate from LOS D with 30.9 seconds of delay to LOS E with 45.0 seconds of delay. The installation of a traffic signal at this location would fully mitigate these impacts such that all of the vehicle movements would operate at LOS C or better during peak hours.

Old Saw Mill River Road and Saw Mill River Parkway Southbound Off-Ramp

The eastbound approach would deteriorate from LOS E to LOS F with a 10.6-second increase in delay during the PM peak hour. This impact could be fully mitigated by transferring 1 second of green time from the southbound signal phase to the east-west phase. As a result of this mitigation, the eastbound approach would operate better than under Future Without Project conditions, at LOS E with 74.3 seconds of delay. The other vehicle movements at this location would continue to operate at their Future Without Project LOS without substantial changes in their average vehicle delay.

Grassland Road (Route 100C) and Clearbrook Road/Walker Road

The overall intersection would experience an increase in delay from 98.3 seconds (LOS F) to 101.5 seconds (LOS F) in the PM peak hour. This impact could be mitigated by transferring 9 seconds of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, the overall intersection would improve compared to Future Without Project conditions, to LOS F with 97.5 seconds of delay.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement and the northbound right-turn movement would continue to operate at LOS F with a 78.5- and 59.6-second increase in delay, respectively. This impact would be mitigated by extending the signal cycle length from 100 to 110 seconds, which would allow for a 10-second increase in the east-west phase. As a result of this mitigation, the northbound left/through and northbound right-turn movements would still operate at LOS F but with shorter delays than projected for Future Without Project conditions. Although there would be minor increases in delay for other movements at these locations, there would be no change in LOS as compared to Future Without Project conditions.

During the PM peak hour, the westbound approach would continue to operate at LOS F with a 82.1-second increase in delay. This impact would be fully mitigated by transferring 3 seconds of green time from the northbound signal phase to the east-west phase. Although the westbound approach would not experience an improvement in LOS, there would be a reduction in delay as compared to Future Without Project conditions. The northbound left/through movement would experience a deterioration in its LOS, however, the change in delay would not be adverse. All of the other movements at this location would operate at their Future Without Project LOS with minimal changes in average vehicle delays.

Virginia Road and Bronx River Parkway

The eastbound left/through movement would continue to operate at LOS F in both the AM and PM peak hours with a 12.0- and 41.5-second increase in delay, respectively. An additional impact would occur during the PM peak hour for the westbound approach, which would operate at LOS F with delays increased to well beyond 240 seconds. These impacts could be fully mitigated with signal timing adjustments. During the AM peak hour, a shift of 1 second of green time from the north-south phase to the east-west phase would be required, and in a 2 second shift would be needed during the PM. With this mitigation measure, the impacted movements would improve to better than Future Without Project conditions. All of the other vehicle movements would operate at or better than their Future Without Project LOS with only minor changes in average vehicle delay.

Grasslands Road (Route 100) and Virginia Road

The westbound approach would operate at LOS F with delays increased to beyond 240 seconds. This impact would be fully mitigated by restriping the westbound approach to accommodate two travel lanes, which would improve operations to better than Future Without Project conditions.

Although an impact was not identified at this location during the AM peak hour, an analysis was conducted to determine the affect of an additional westbound lane. With this new signal, all vehicle movements would operate below mid-LOS D, without adverse increases in delay as compared to Future Without Project conditions.

Grasslands Road (Route 100) and Legion Drive

The southbound left-turn movement would continue to operate at LOS F with delays increased to well beyond 240 seconds during the PM peak hour. This impact would be fully mitigated with the installation of a traffic signal at this location, which would result in LOS C or better for all of the vehicle movements and a maximum delay of 34.8 seconds per vehicle. A traffic signal would also improve the operation of this intersection during the AM peak hour. During this period, all of the vehicle movements at this location would operate at LOS C or better with a maximum vehicle delay of 22.1 seconds.

Grasslands Road (Route 100) and WCC East Gate

The northbound left-turn movement would deteriorate from LOS F with 104.1 seconds of delay to LOS F with delays increased to well beyond 240 seconds. This impact would be mitigated by providing a new signal plan with a 90second cycle (EB/WB – 45s and NB – 45s). As a result of this mitigation, the northbound left-turn movement would improve compared to Future Without Project conditions, to a LOS D with 40.8 seconds of delay. The proposed transfer of signal time would result in increased delays for the eastbound and westbound approaches as compared to Future Without Project conditions. However, these increases would not result in adverse impacts.

Grasslands Road (Route 100) and WCC West Gate

The northbound left-turn movement would deteriorate from LOS D (25.9 seconds of delay) to LOS E (38.9 seconds of delay) during the AM peak hour. During the PM peak hour, this movement would remain at LOS F, with the average vehicle delay increased by 49.2 seconds. These impacts would be mitigated with the installation of a traffic signal at this location. As a result of this mitigation, all of the vehicle movements would operate at LOS D or better compared to Future Without Project conditions, with a maximum peak hour delay of 35.6 seconds per vehicle.

Old Saw Mill River Road and the Landmark at Eastview East Driveway

During the AM peak hour, southbound approach would deteriorate from LOS E with 40.3 seconds of delay, to LOS F with 174.1 seconds of delay. During the PM peak hour, southbound approach would remain at LOS F, delays increased well beyond 240 seconds. These impacts could be fully mitigated with the installation of a new traffic signal. As a result of this mitigation, all approaches would operate at LOS C or better compared to Future Without Project conditions, with maximum delays at any given approach of 30.9 seconds during both the AM and PM peak hours.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate construction-related impacts of the proposed project. If the mitigation measures identified were not applied, the potential significant adverse construction traffic impacts identified would remain unmitigated. In the absence of implementing the mitigation measures recommended above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

2008 Construction Option D Conditions

The traffic analyses compared the CAT/DEL UV Facility's 2008 Construction (Option D) conditions (the CAT/DEL UV Facility workers parking at the Home Depot site) with a 2008 Future Without Project Option D condition (with the proposed Croton project under construction, and their workers parking at the Landmark property). Under these conditions in 2008, it was found that traffic from the construction of the proposed Croton project and Cat/Del UV Facility would be anticipated to result in potential significant adverse traffic impacts at seven (7) signalized intersections and six (6) unsignalized intersections with 27 potential significant adverse traffic impacts, 10 during the AM peak hour, and 17 during the PM peak hour. These impacts could be mitigated as described below; the resulting delays and LOS for these intersections, with the proposed mitigation applied, are compared to 2008 Future Without Project Option D and 2008 Construction Option D conditions (see Table 9.1-7).

TABLE 9.1-7. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION D

AM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.03	84.7	F	1.12	113.5	+	F	L	1.03	84.9	F	Signal Retiming and change of phase plan: split the timing of southbound lagging phase to eastbound leading phase (3 secs) and northbound/southbound phase (5 secs)
		TR	0.38	14.5	B	0.38	14.5		B	TR	0.37	12.9	B	
	Westbound	L	0.17	22.3	C	0.17	22.3		C	L	0.17	22.3	C	
		TR	0.31	23.6	C	0.31	23.6		C	TR	0.31	23.6	C	
	Northbound	L	0.39	34.3	C	0.39	34.4		C	L	0.34	30.4	C	
		TR	0.66	42.0	D	0.72	44.9		D	TR	0.62	37.0	D	
	Southbound	L	0.26	35.0	C	0.29	36.6		D	L	0.37	38.2	D	
		T	0.43	35.1	D	0.44	35.3		D	T	0.52	40.0	D	
	R	0.23	22.1	C	0.24	22.2		C	R	0.24	22.2	C		
Int.				35.7	D		42.3		D			35.8	D	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.14	10.4	B	0.16	10.7		B	L	0.34	4.8	A	Propose to be signalized
										TR	0.35	4.5	A	
	Southbound	LT	0.01	8.9	A	0.02	9.3		A	LTR	0.40	4.7	A	
		L	0.02	39.6	E	0.02	48.4	+	E	L	0.01	20.9	C	
	Eastbound	T	0.02	46.4	E	0.03	60.4	+	F	T	0.01	20.9	C	
		LT	0.13	42.8	E	0.17	59.3	+	F	Def	0.06	21.2	C	
	Westbound	TR	0.01	10.8	B	0.01	11.3		B	TR	0.03	21.0	C	
Int.	Unsignalized			Unsignalized							4.8	A		
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.51	32.0	C	Propose to be signalized
		R	0.21	16.9	C	0.24	19.0		C	R	0.22	28.9	C	
	Eastbound									T	0.77	13.7	B	
										R	0.21	5.9	A	
	Westbound	L	0.15	11.5	B	0.16	12.2		B	L	0.33	7.0	A	
										T	0.59	9.0	A	
Int.	Unsignalized			Unsignalized							13.0	B		
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.36	44.8	E	0.99	202.6	+	F	LTR	0.23	30.2	C	Propose to be signalized
		TR	0.07	14.1	B	0.07	14.3		B					
	Eastbound	L	0.26	11.8	B	0.43	14.8		B	L	0.73	26.7	C	
										T	0.59	6.0	A	
	Westbound									TR	0.97	36.1	D	
Int.	Unsignalized			Unsignalized							24.2	C		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy SB Ramps	Eastbound	TR	0.28	7.5	A	0.29	7.6		A	TR	0.29	8.1	A	Signal Retiming: shift 1 second of green time from eastbound/westbound phase to southbound phase
	Westbound	T	0.38	8.3	A	0.48	9.0		A	T	0.48	9.6	A	
	Southbound	L	0.55	34.0	C	0.55	34.0		C	L	0.52	32.8	C	
		R	0.52	33.5	C	0.82	48.4	+	D	R	0.79	44.4	D	
	Int.			13.8	B		16.8		B			16.5	B	

TABLE 9.1-7. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION D

AM Peak Hour													
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.11	14.9	B	0.14	15.2	B	L	0.18	20.1	C	Signal Retiming: shift 8 seconds of green time from eastbound/westbound phase to northbound phase
		T	0.50	18.0	B	0.51	18.1	B	T	0.59	24.2	C	
	Westbound	TR	0.48	24.8	C	0.51	25.1	C	TR	0.62	32.3	C	
		LT	1.26	160.1	F	*	**	+	LT	1.38	208.9	F	
	Northbound	R	1.02	74.8	E	1.02	74.8	E	R	0.86	36.5	D	
		Int.		70.9	E		132.9	F			89.6	F	
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.12	126.9	F	1.13	130.6	+	LT	1.08	114.8	F	Signal Retiming: Shift 1 second of green time from northbound and southbound to eastbound and westbound
		R	0.21	19.6	B	0.21	19.6	B	R	0.21	19.0	B	
	Westbound	LTR	0.38	34.4	C	0.40	34.7	C	LTR	0.38	33.7	C	
		L	0.06	46.4	D	0.06	46.4	D	L	0.06	46.4	D	
	Northbound	TR	0.26	20.1	C	0.26	20.1	C	TR	0.27	20.7	C	
		L	1.10	141.5	F	1.10	141.5	F	L	1.10	141.5	F	
	Southbound	T	0.70	27.3	C	0.70	27.3	C	T	0.71	28.3	C	
		Int.		53.9	D		54.5	D			52.4	D	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.23	8.4	A	0.23	8.4	A	LT	0.23	8.4	A	Restripe westbound approach as 2 lanes
		LR	0.55	16.8	C	0.56	17.1	C	L	0.18	26.9	D	
	Westbound								R	0.38	11.5	B	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	0.42	30.3	C	0.43	31.0	D	L	0.32	21.1	C	Propose to be signalized
		R	0.20	12.2	B	0.21	12.4	B	R	0.45	22.2	C	
	Eastbound	LT	0.07	8.5	A	0.07	8.6	A	LT	0.51	6.4	A	
									T	0.41	5.7	A	
	Westbound								R	0.03	0.0	A	
		Int.	Unsignalized		Unsignalized						8.9	A	
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.13	18.3	C	0.18	20.5	C	LTR	0.23	32.1	C	Propose to be signalized
		LTR	0.96	106.9	F	1.18	**	+	LTR	0.15	31.6	C	
	Eastbound	LTR	0.02	8.5	A	0.02	8.8	A	LTR	0.69	6.4	A	
		LTR	0.23	11.6	B	0.36	13.5	B	LTR	1.00	42.6	D	
	Int.	Unsignalized		Unsignalized							22.6	C	

TABLE 9.1-7. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION D

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction				2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)		LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Saw Mill River Rd. (Rt. 9A) at Tarrytown White Plains Rd. (Rt. 119)	Eastbound	L	1.01	79.6	E	1.02	83.3	+	F	L	0.98	70.5	E	Signal Retiming: shift 1 second of green time from southbound lagging phase to eastbound leading phase
		TR	0.46	20.2	C	0.46	20.2		C	TR	0.45	19.5	B	
	Westbound	L	0.42	34.4	C	0.42	34.4		C	L	0.42	34.4	C	
		TR	0.89	49.1	D	0.89	49.7		D	TR	0.89	49.7	D	
	Northbound	L	0.32	25.3	C	0.34	25.8		C	L	0.34	25.9	C	
		TR	0.83	41.6	D	0.83	42.1		D	TR	0.83	42.1	D	
	Southbound	L	0.56	35.7	D	0.58	36.5		D	L	0.60	38.3	D	
		T	0.29	23.2	C	0.34	23.8		C	T	0.35	24.5	C	
	Int.	R	0.41	11.1	B	0.43	11.3		B	R	0.43	11.3	B	
				35.4	D		35.9		D			34.5	C	
Saw Mill River Road (Rt 9A) and Ramada Inn/Broadway Plaza	Northbound	L	0.16	10.4	B	0.17	10.9		B	L	0.36	5.0	A	Propose to be signalized
										TR	0.39	4.6	A	
	Southbound	LT	0.01	9.5	A	0.01	9.6		A	LTR	0.44	4.9	A	
		L	0.01	51.2	F	0.02	60.4	+	F	L	0.00	20.9	C	
	Eastbound	T	0.08	84.9	F	0.10	102.1	+	F	T	0.02	20.9	C	
		LT	0.12	60.3	F	0.14	69.1	+	F	LTR	0.04	21.0	C	
	Int.	TR	0.03	17.5	C	0.03	19.0		C					
			Unsignalized			Unsignalized						5.0	A	
Old Saw Mill River Road and Saw Mill River Road (Rt. 9A) SB Ramps	Northbound	L	*	**	F	*	**	+	F	L	0.58	28.3	C	Propose to be signalized
		R	0.40	23.0	C	0.48	30.1		D	R	0.57	28.2	C	
	Eastbound									T	0.87	14.2	B	
										R	0.30	3.6	A	
	Westbound	L	0.24	14.2	B	0.28	16.6		C	L	0.50	5.8	A	
										T	0.45	4.2	A	
	Int.		Unsignalized			Unsignalized						11.4	B	
			Unsignalized			Unsignalized								
Grasslands Road (Route 100C) (E-W) and Saw Mill River Road NB Ramps (N-S)	Northbound	LT	0.08	33.8	D	0.10	40.3	+	E	LTR	0.19	21.7	C	Propose to be signalized
		TR	0.22	18.2	C	0.26	21.2		C					
	Eastbound	L	0.22	11.0	B	0.25	11.3		B	L	0.61	9.2	A	
										T	0.79	10.7	B	
	Westbound									TR	0.76	9.8	A	
	Int.		Unsignalized			Unsignalized						10.7	B	
			Unsignalized			Unsignalized								

TABLE 9.1-7. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION D

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction			2008 Mitigation				Mitigation Measures	
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS		
Saw Mill River Rd. (Rt. 9A) at Dana Rd.	Eastbound	LT	0.29	27.5	C	0.99	81.2	+	F	LT	0.78	44.8	D	New signal timing plan:
		R	0.24	26.9	C	0.61	32.2		C	R	0.36	23.2	C	G/Y/R
	Westbound	L	0.50	29.8	C	1.50	**	+	F	L	0.52	41.1	D	EB 16/4/1
		TR	0.41	28.5	C	0.48	29.3		C	TR	0.47	38.5	D	EB/WB 20/3/2
	Northbound	L	0.39	32.7	C	0.41	32.9		C	L	0.45	36.7	D	WB 6/3/2
		TR	0.88	34.7	D	0.91	37.4		D	TR	0.90	43.7	D	NB/SB 47/4/1
	Southbound	L	0.16	30.8	C	0.18	31.0		C	L	0.26	39.9	D	NB-L/SB-L/EB-R 6/4/1
		TR	0.74	27.7	C	0.74	27.8		C	TR	0.73	33.6	C	Cycle length = 120 secs
Int.			31	C		53.0		D			38.5	D		
Saw Mill River Rd. at Saw Mill River Pkwy SB Off Ramp	Eastbound	LT	1.05	75.6	E	1.09	86.2	+	F	LT	1.05	75.0	E	Signal Retiming: shift 1 second of green time from southbound phase to eastbound/westbound phase
	Westbound	TR	0.47	9.6	A	0.54	10.3		B	TR	0.53	9.7	A	
	Southbound	L	0.29	23.1	C	0.29	23.1		C	L	0.30	24.0	C	
		LR	0.21	22.6	C	0.21	22.6		C	LR	0.22	23.4	C	
Int.			34.9	C		37.1		D			33.1	C		
Grassland Rd. (Route 100 C) and Clearbrook Rd/Walker Road	Eastbound	L	0.04	9.2	A	0.04	9.3		A	L	0.04	8.8	A	Signal Retiming: shift 1 second of green time from northbound/southbound phase to eastbound/westbound phase
		TR	0.93	31.6	C	1.03	55.4		E	TR	1.01	48.8	D	
	Westbound	L	*	**	F	*	**		F	L	*	**	F	
		TR	0.71	17.0	B	0.73	17.7		B	TR	0.72	16.6	B	
	Northbound	LT	0.19	19.9	B	0.30	21.1		C	LT	0.33	22.1	C	
		LT	0.16	19.7	B	0.78	34.5		C	LT	0.81	37.6	D	
	Southbound	R	0.08	19.0	B	0.05	18.8		B	R	0.05	19.5	B	
Intersection			100.8	F		108.6		F			99.5	F		
Grassland Rd. (Route 100C) at Sprain Brook Pkwy NB Ramps	Eastbound	L	0.74	26.5	C	1.11	104.4	+	F	L	0.85	42.2	D	Signal Retiming and change of phase plan: switch eastbound leading phase to lagging phase and shift 3 seconds of green time from northbound phase to eastbound/westbound phase
		T	0.33	9.0	A	0.34	9.1		A	T	0.32	7.6	A	
	Westbound	TR	1.07	69.5	E	1.07	71.4		E	TR	1.00	49.4	D	
	Northbound	LT	0.71	29.9	C	0.73	30.8		C	LT	0.84	41.5	D	
		R	0.35	23.1	C	0.35	23.1		C	R	0.41	25.7	C	
Int.			43.5	D		53.2		D			36.4	D		
Virginia Road @ Bronx River Pkwy Westbound	Eastbound	LT	1.16	142.8	F	1.17	144.9	+	F	LT	1.13	127.3	F	Signal Retiming: Shift 1 second of green time from northbound and southbound to eastbound and westbound
		R	0.39	34.6	C	0.40	34.7		C	R	0.39	33.8	C	
	Westbound	LTR	1.27	189.6	F	1.28	193.5	+	F	LTR	1.17	149.5	F	
		L	0.06	10.9	B	0.06	10.9		B	L	0.06	11.4	B	
	Northbound	TR	0.62	25.3	C	0.62	25.3		C	TR	0.63	26.2	C	
		L	0.13	11.7	B	0.13	11.7		B	L	0.13	12.2	B	
	Southbound	T	0.59	24.7	C	0.59	24.7		C	T	0.60	25.5	C	
Int.			62.7	E		63.5		E			56.0	E		

TABLE 9.1-7. WITH CAT/DEL UV FACILITY PROJECT AT THE EASTVIEW SITE - 2008 FUTURE WITHOUT THE PROJECT VS. 2008 CONSTRUCTION TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES - OPTION D

PM Peak Hour														
Intersection	Approach	Lane Group	2008 Future Without the			2008 Construction				2008 Mitigation				Mitigation Measures
			v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)		LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Grasslands Road (Route 100C) @ Virginia Road	Southbound	LT	0.37	10.4	B	0.37	10.4		B	LT	0.37	10.4	B	Restripe westbound approach as 2 lanes
	Westbound	LR	1.25	161.1	F	1.26	166.5	+	F	L	0.65	60.1	F	
										R	0.61	19.6	C	
Grasslands Road (Route 100C) @ Legion Drive	Southbound	L	1.28	217.2	F	1.31	227.1	+	F	L	0.66	27.1	C	Propose to be signalized
		R	0.47	19.7	C	0.47	19.7		C	R	0.73	31.4	C	
	Eastbound	LT	0.24	10.7	B	0.24	10.7		B	LT	0.88	19.8	B	
										T	0.51	6.3	A	
	Westbound									R	0.18	0.1	A	
												15.5	B	
	Int.	Unsignalized				Unsignalized								
Old Saw Mill River Road @ Landmark East Driveway	Northbound	LTR	0.49	24.4	C	0.71	35.9	+	E	LTR	0.40	18.8	B	Propose to be signalized
	Southbound	LTR	*	**	F	*	**	+	F	LTR	0.69	26.3	C	
	Eastbound	LTR	0.01	8.7	A	0.01	9.0		A	LTR	0.73	18.5	B	
	Westbound	LTR	0.03	9.2	A	0.04	9.3		A	LTR	0.70	17.6	B	
	Int.	Unsignalized				Unsignalized						19.2	B	

Notes:

L = Left Turn, T = Through, R = Right Turn, Def = Defacto Left Turn; LOS = Level of Service. "+" indicates significant impacts.

" * " indicates a v/c ratio greater than 1.50; " ** " indicates a calculated delay greater than 240 seconds.

The tables showing the results of applying the mitigation measures also indicate the specific measures recommended for each location. For many of the locations, more than one measure was identified that could be implemented that would reduce delays back to or below Future Without Project conditions. The assessment presented here relies mostly on a combination of new traffic signals, lane stripping changes, and traffic signal retiming or phasing changes as the recommended measures. However, some of the measures that were investigated were more extraordinary, involving additional lane construction or street widening, to give a complete range of potential measures that could eliminate impacts. Once construction of the Croton project has commenced, the various agencies responsible for maintaining traffic flow and roadways in the study area would conduct field inspections of the operations of the various intersections to determine if the proposed mitigation measures are actually warranted (particularly because traffic from anticipated No Build projects or background growth may be less than analyzed in this report).

Saw Mill River Road (Route 9A) and Tarrytown/White Plains Road (Route 119)

The eastbound left-turn movement would continue to operate at LOS F with a 28.8-second increase in delay during the AM peak hour. This impact could be fully mitigated with a revised signal timing and phasing plan. The southbound lagging phase would be reduced by 8 seconds of green time. Three seconds of this time would be transferred to the eastbound leading phase, and five seconds would be transferred to the north-south phase. As a result of this mitigation, the eastbound left-turn would improve compared to Future Without Project conditions, to a LOS F with 84.9 seconds of delay. All of the other movements at this location would operate at their Future Without Project LOS with only minor changes in delay.

During the PM peak hour, the eastbound left-turn movement would deteriorate from LOS E to LOS F with a 3.7-second increase in delay. This impact could be fully mitigated by transferring 1 second of green time from the southbound lagging phase to the eastbound leading phase. As a result of this mitigation, the eastbound left-turn would improve compared to Future Without Project conditions, to LOS E with 70.5 seconds of delay. All of the other movements at this location would operate at their Future Without Project LOS with only minor changes in delay.

Saw Mill River Road (Route 9A) and Ramada Inn/Broadway Plaza

During the AM peak hour, the eastbound left-turn and through movements would deteriorate from LOS E with 39.6 and 46.4 seconds of delay to LOS F with 48.4 and 60.4 seconds of delay respectively; and the westbound left/through movement would deteriorate from LOS E to LOS F with an increase in delay of 16.5-seconds. This location could be fully mitigated with the installation of a traffic signal, which would result in a LOS C or better for all of the vehicle movements.

During the PM peak hour, the eastbound left-turn, eastbound through, and the westbound left/through movements would all continue to operate at LOS F, with 9.2-, 17.2-, and 8.8-second increases in delay, respectively. As with the AM peak hour, this location would be fully mitigated with the installation of a traffic signal. This mitigation would result in a LOS C or better for all of the vehicle movements at this location.

Old Saw Mill River Road and Saw Mill River Road (Route 9A) SB Ramps

During the AM and PM peak hours, the northbound left-turn movement would continue to operate at LOS F, both with delays increased to well beyond 240 seconds. The installation of a traffic signal at this location could fully mitigate both the AM and PM peak hour impacts such that all of the movements would operate at LOS D or better.

Grasslands Road (Route 100C) and Saw Mill River Road (Route 9A) Northbound Ramp

The northbound left/through movement would deteriorate from LOS E with 44.8 seconds of delay to LOS F, with delays of 202.6 seconds during the AM peak hour. While this intersection was not predicted to experience any impacts during the PM peak hour, the effect of installing a traffic signal at this location was evaluated. This location could be fully mitigated with the installation of a traffic signal. As a result of this mitigation compared to Future Without Project conditions, all of the movements would operate below mid-LOS D, or better during AM peak hour, and at LOS C or better during the PM peak hours.

Saw Mill River Road (Route 9A) and Dana Road

During the PM peak hour, the eastbound left/through movement would deteriorate from LOS C with 27.5 seconds of delay to LOS F with 81.2 seconds of delay, and the westbound left-turn movement would deteriorate from LOS C to LOS F with delays increased to well beyond 240 seconds. This location could be fully mitigated with the implementation of a new signal phasing plan, as outlined in Table 9.1-7. This new phasing plan would result in all movements operating below mid-LOS D during the PM peak hour.

Old Saw Mill River Road and Saw Mill River Parkway Southbound Off-Ramp

The eastbound left/through movement at this location would deteriorate from LOS E to LOS F with a 10.6-second increase in delay during the PM peak hour. This impact would be fully mitigated with the transfer of 1 second of green time from the southbound signal phase to the east-west phase. As a result of this mitigation, the eastbound left/through movement would improve compared to Future Without Project conditions, to a LOS E with 75.0 seconds of delay, and all of the other movements at this location would operate at LOS C or better.

Grassland Road (Route 100C) and Clearbrook Road/Walker Road

The eastbound through/right movement would deteriorate from LOS E with 31.6 seconds of delay to LOS E with 55.4 seconds of delay during the PM peak hour. This impact could be mitigated by transferring 9 seconds of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, the eastbound through/right movement would improve compared to Future Without Project conditions, to LOS D with 48.6 seconds of delay. Although the westbound left-turn movement would continue to operate at LOS F (with delays over 240 seconds), this signal timing adjustment would improve its delay as compared to Future Without Project conditions; all of the other movements at this location would operate at LOS C or better.

Grasslands Road (Route 100C) and Sprain Brook Parkway Southbound Ramp

The southbound right-turn movement would deteriorate from LOS C to LOS D with a 14.9-second increase in delay during the AM peak hour. This impact could be mitigated by transferring one second of green time from the east-west signal phase to the southbound signal phase, which would improve the southbound right-turn movement to LOS D 44.4 seconds of delay. This mitigation would not affect the LOS of the other movements at this location.

Grasslands Road (Route 100C) and Sprain Brook Parkway Northbound Ramp

During the AM peak hour, the northbound left/through movement would continue to operate at LOS F, with delays increased to well beyond 240 seconds. This location would be mitigated by transferring 8 seconds of green time from the east-west signal phase to the northbound signal phase. As a result of this mitigation, the northbound left/through movement would improve compared to Future Without Project conditions, to LOS F with 208.9 seconds of delay. All of the other movements at this location would operate below mid-LOS D or better.

The eastbound left-turn movement would deteriorate from LOS C with 26.5 seconds of delay to LOS F with 104.4 seconds of delay during the PM peak hour. This impact could be fully mitigated with a revised signal phasing and timing plan. The eastbound leading phase would be made a lagging phase, and 3 seconds of green time would be shifted from the northbound phase to the east-west phase. As a result of this mitigation, all of the intersection movements would operate at mid-LOS D or better compared to Future Without Project conditions.

Virginia Road and Bronx River Parkway

The eastbound left/through movement would continue to operate at LOS F with 3.7-second and 2.1-second increases in delay during the AM and PM peak hours, respectively. During the PM peak hour, the westbound approach would also continue to operate at LOS F with a 3.9 second increase in delay. During both peak hours, this location could be fully mitigated with the transfer of 1 second of green time from the north-south signal phase to the east-west phase. As a result of this mitigation, all of the vehicle movements would operate at their Future Without Project LOS with only minor changes in delay.

Grasslands Road (Route 100) and Virginia Road

During the PM peak hour, the westbound approach would continue to operate at LOS F with a 5.4-second increase in delay. This impact could be mitigated by restriping the westbound approach to accommodate an additional travel lane. As a result of this mitigation, the westbound left-turn movement would improve compared to Future Without Project conditions, to LOS F with 60.1 seconds of delay and the westbound right-turn movement would improve compared to Future Without Project conditions, to LOS C with 19.6 seconds of delay.

An analysis was conducted to determine the impact of this improvement to operations at this location during the AM peak hour. All of the vehicle movements at this location would operate below mid-LOS D or better.

Grasslands Road (Route 100) and Legion Drive

The southbound left-turn movement would deteriorate from LOS F with 217.2 seconds of delay to LOS F with 227.1 seconds of delay during the PM peak hour. This location could be fully mitigated with the installation of a traffic signal. As a result of this mitigation compared to Future Without Project conditions, all of the vehicle movements would operate at LOS C or better during the PM peak hour.

Although no impacts were identified at this location during the AM peak hour, an analysis was conducted to test the impact of a traffic signal to vehicle operations. A signal at this location would improve operations for some movements but would increase delays for others. However, all of the vehicle movements would operate at LOS C or better during the AM peak hour.

Old Saw Mill River Road and the Landmark at Eastview East Driveway

During the AM and PM peak hours, the southbound approach would continue operating at LOS F, with delays increased well beyond 240 seconds. These impacts could be fully mitigated with the installation of a new traffic signal. As a result of this mitigation compared to Future Without Project conditions, all approaches would operate below mid-LOS D during the AM peak hour, with maximum delays at any given approach of 42.6 seconds, and all approaches would operate at LOS C or better with maximum delays of 26.3 seconds during the PM peak hour.

For locations where the installation of a new traffic signal has been recommended as a mitigation measure, formal Signal Warrant Studies would be performed, if requested by the agency(s) with jurisdiction over the particular intersection roadways involved.

All of the mitigation measures suggested above would serve to eliminate construction-related impacts of the proposed project. If the mitigation measures identified were not applied, the potential significant adverse construction traffic impacts identified would remain unmitigated. In the absence of implementing the mitigation measures recommended above, NYCDEP would consider other traffic management techniques (e.g., the use of traffic control officers, traffic cones, variable message signs, etc.) if approved by the governing roadway entity, to offset these potential significant adverse impacts, and ensure the smooth and safe operation of traffic.

9.1.4. Noise Attenuation

The need for noise attenuation for the proposed plant at the Eastview Site was reviewed under Section 5.10.3, Eastview Site, Noise, Potential Impacts. The potential noise attenuation measures for the water treatment plant site are described below.

9.1.4.1. Without Cat/Del UV Facility at Eastview Site

The potential for adverse noise impacts would be limited to the construction period for the proposed Croton project. The impacts would occur for both scenarios analyzed (Without the Cat/Del UV Facility; and With the Cat/Del UV Facility) sporadically during the early stages of construction associated with clearing, excavation, and foundation work. As discussed in Section 5.10, Noise, predicted construction-related noise levels indicate that adverse impacts could occur

outside the medical research laboratory. The inside of the laboratory, however, would not experience this impact due to the attenuating effect of the windows. Temporary impacts were predicted at the county penitentiary, Hammond House (a private residence that is located to the south of proposed Croton project), and at the juvenile detention center. These impacts are considered temporary due to their short duration, and therefore do not constitute a significant impact. Potential adverse noise impacts at the medical research laboratory are largely due to the rock excavation and removal. In addition, predicted noise levels during construction would exceed the Town of Mount Pleasant code regarding construction limits.

No significant mobile or stationary noise impacts were anticipated as a result of future normal operations of the proposed plant for both scenarios.

9.1.4.1.1. Mobile Source Noise

No significant noise impacts are anticipated from mobile sources as a result of operation or construction at the water treatment plant site. The results of the potential proposed plant operations and construction impacts analysis are presented in Section 5.10. Mitigation measures were not required along noise sensitive route segments.

9.1.4.1.2. Stationary Source Noise

The predicted project-related increases in noise levels resulting from the construction activity at the Eastview Site would be temporary. Few sensitive receptors would be potentially affected and increased noise levels would fall to Future Without the Project levels readily as one moves away from the project site. The noise levels experienced at the laboratory would be effectively attenuated once inside the building. Background noise levels and future predicted increases with the proposed project noise levels are relatively low and generally considered to be acceptable or marginally acceptable. Also, the increased noise levels attributable to the proposed project would not be produced during nighttime hours when the noise affect would be most disturbing and potentially problematic enough to affect sleep patterns. Therefore, it is not intended at this time to implement noise attenuation measures at this site. Adverse noise impacts during construction would remain unattenuated,

Should it become necessary to attenuate noise measures, the following presents potential attenuation measures that could be implemented to attenuate stationary noise impacts at sensitive receptors. Table 9.1-8 presents information regarding the sensitive receptors. Figure 9.1-2 shows the location of the receptors in relation to the proposed construction site.

Construction activities were predicted to increase noise to levels that would exceed the CEQR 3-5 dBA threshold used to define significance at each of the analyzed sensitive receptors (EV-S1, EV-S2, EV-S3 and EV-S4). Such increases were anticipated only during weekday construction hours (7:00 AM – 6:00 PM). An analysis was performed to determine what equipment used at which time was responsible for producing the greatest incremental change in noise levels. The maximum noise levels from construction activities would occur during the early phases of the construction period (from September 2005 until August 2006). This period corresponds with excavation activities at the site. Equipment most responsible for the increased noise levels

would be the rock drills and the large volume of excavators and trucks that would be on site during that period.

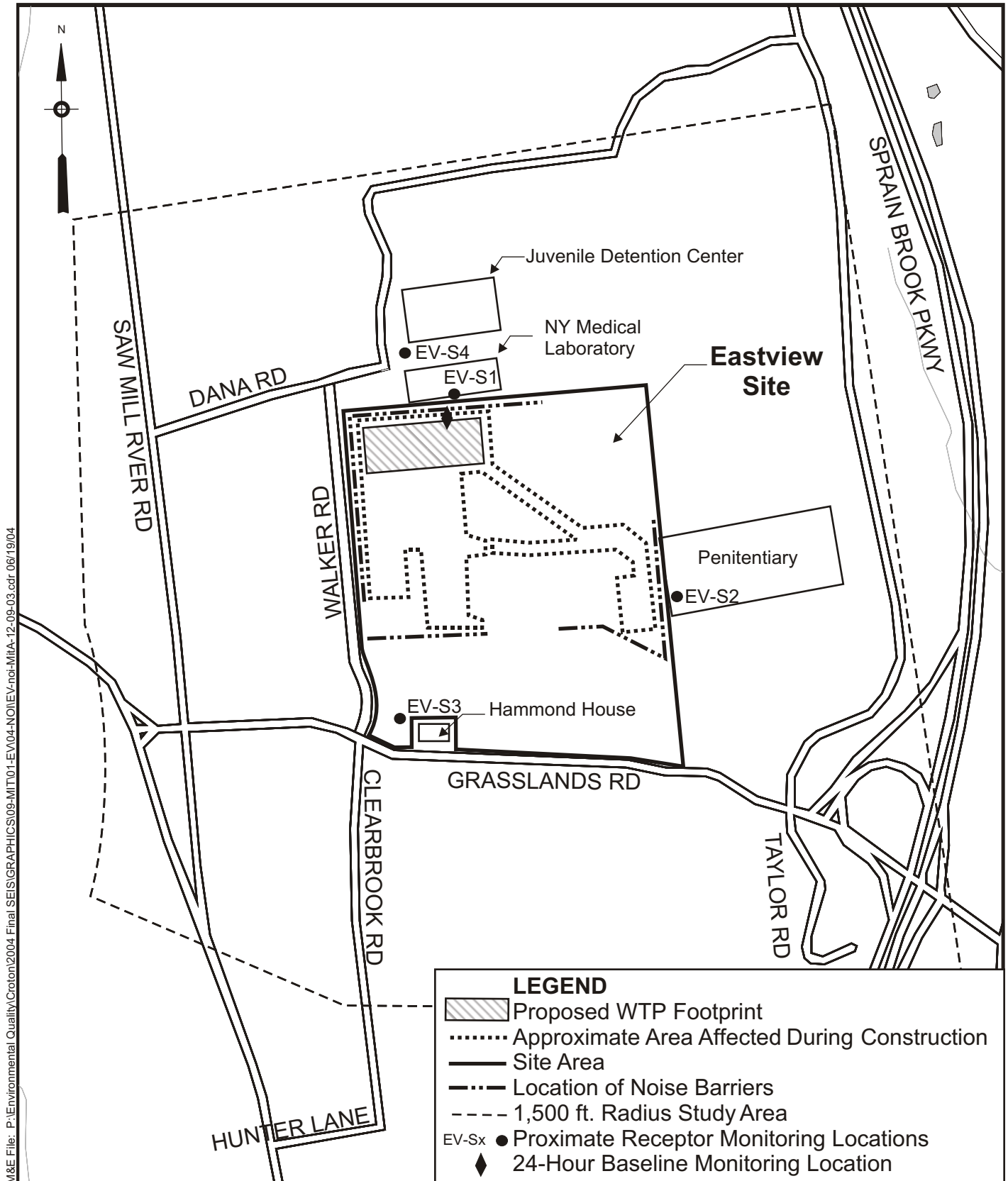
TABLE 9.1-8. DESCRIPTION OF STATIONARY SOURCE SENSITIVE RECEPTORS NEAR THE EASTVIEW SITE

Receptor Name	Description of Receptor
EV-S1	Westchester medical laboratory
EV-S2	County penitentiary
EV-S3	Private residence on Grasslands Road
EV-S4	Juvenile detention center

Noise attenuation systems that would help attenuate the increased noise levels at sensitive receptors neighboring the site were identified. One possible noise attenuation system is the placement of noise barriers facing the receptors at fixed locations along the northern, eastern, and southern boundaries of the construction site. Noise barriers placed in a fixed location could provide satisfactory attenuation without restricting the movement of on-site workers and equipment during construction.

If implemented, the barriers would extend along the lengths of the northern, eastern, and southern boundaries (see Figure 9.1-2). The barriers would act as an acoustical curtain enclosure, effectively shielding each receptor from noise generated by construction equipment. A barrier approximately 20 feet in height would minimize the noise reaching sensitive receptors due to absorption and diffraction (i.e. bending of the sound waves over the top of the barrier). This type of noise barrier could be capable of approximately 13 dBA of sound transmission loss. The exact amount of sound transmission loss from a barrier is a function of its height, thickness, material of construction, and precise location with respect to the noise source and noise sensitive receptor.

The greatest predicted incremental change in noise levels would be 19.8 dBA above the CEQR threshold at Receptor EV-S1. The other receptors (EV-S2, EV-S3, and EV-S4) each would experience noise level increases ranging from 2.1 dBA to 16.6 dBA above the CEQR threshold. The noise barrier would be capable of attenuating approximately 13 dBA of noise, if implemented. With the noise barrier in place, the total noise level during construction at EV-S1 (which is the receptor predicted to experience the 19.8 dBA increase) would be approximately 64.5 dBA. This level represents an 11.7 dBA increase over the lowest Future Without the Project level at this receptor (52.8 dBA) and a 6.8 dBA increase over the CEQR threshold level (57.7 dBA). As discussed below, additional attenuation, such as barriers and mufflers applied to individual pieces of equipment, would be capable of reducing construction-related noise an additional 6.8 dBA to within the 5 dBA threshold used to judge adverse noise increases in CEQR.



Eastview Site
Stationary Noise Source
Potential Noise Barrier Configuration

If necessary, a number of options are available to further attenuate noise at receptor EV-S1. A noise barrier constructed of a highly sound absorbent material, such as concrete, masonry, or rock, could be used along the west boundary of the construction site. These materials give a transmission loss of upwards to 25 dBA, which would be enough to attenuate construction noise to an acceptable level¹. This option has the advantage of not restricting access and movement of construction workers and equipment around the site. Measures to further ensure compliance with the CEQR threshold and the Town of Mount Pleasant Code under this scenario could include the fitting of air compressors and cranes with silencers; or the use of walled enclosures around noisy construction activities.

Table 9.1-9 shows the anticipated noise levels at sensitive receptors with and without attenuation measures. With the noise barriers in place, construction-related noise would be attenuated, and the noise levels at the receptors would be the same as that anticipated for the Future Without the Project for 2005.

9.1.4.2. With Cat/Del UV Facility at Eastview Site

9.1.4.2.1. Mobile Source Noise

No significant noise impacts are anticipated from mobile sources as a result of operation or construction of the Croton project with the Cat/Del UV Facility at the Eastview Site. The results of the potential proposed plant operations and construction impacts analysis are presented in Section 5.10. Mitigation measures were not required along noise sensitive route segments.

9.1.4.2.2. Stationary Source Noise

Construction activities at the Eastview Site would result in noise levels exceeding acceptable limits. However, the incremental change (of the predicted total construction noise over the Future Without the Project noise levels) for the proposed Croton project alone at the Eastview Site is greater than the scenario that does include the Cat/Del UV Facility. The attenuation measures presented above for the scenario Without the Cat/Del UV Facility, therefore, would be sufficient to attenuate elevated noise levels associated with the scenario with the Cat/Del UV Facility, if necessary.

¹ US Department of Housing and Urban Development, The Noise Guidebook, June 2002.

TABLE 9.1-9. NOISE LEVELS AT SENSITIVE RECEPTORS BEFORE AND AFTER ATTENUATION MEASURES AT EASTVIEW SITE (DBA, LEQ)

Proximate Receptor	Monitoring Period	Future Without the Project Noise Level (2005)	Total Noise During Construction Without Mitigation (2005)	Incremental Change Without Mitigation	Incremental Change Above CEQR Without Attenuation	Attenuation Due to Noise Barrier	Total Noise Levels During Construction With Attenuation (2005)	Incremental Change Above CEQR Threshold with Attenuation
EV-S1	2-3 PM (Quietest)	52.8	77.5	24.7	19.8	13	64.5	6.8
	1-2 PM (Noisiest)	57.5	77.5	20.0	15.1	13	64.5	2.1
EV-S2	2-3 PM (Quietest)	56.3	77.8	21.5	16.6	13	64.8	3.6
	1-2 PM (Noisiest)	56.6	77.8	21.2	16.3	13	64.8	3.3
EV-S3	2-3 PM (Quietest)	54.6	62.9	8.3	3.4	13	54.6	0
	1-2 PM (Noisiest)	56.2	63.2	7.0	2.1	13	56.2	0
EV-S4	2-3 PM (Quietest)	56.7	68.2	11.5	6.6	13	56.7	0
	1-2 PM (Noisiest)	58.7	68.4	9.7	4.8	13	58.7	0

9.1.5. Air Quality Mitigation

An assessment of the proposed traffic signal at the intersection of Route 9A and Route 100C as part of the proposed traffic mitigation was performed. The results of this analysis indicated that there would be no significant adverse air quality impacts with the proposed Croton project and the proposed traffic mitigation.

9.1.6. Natural and Water Resources Mitigation

This section presents the proposed mitigation for the natural resources impacts associated with the proposed Croton project with and without the Cat/Del UV Facility located at the Eastview Site, as it is assumed that the Cat/Del UV Facility would be located on the Eastview Site. This section is organized by presenting the CEQR mitigation requirements and NYCDEP's mitigation objectives followed by a summary of the natural resources impacts for both project scenarios and the proposed mitigation is presented for the following categories: reforestation, habitat replacement, and wetland enhancement/creation. The proposed mitigation is presented and discussed in terms of meeting NYCDEP's mitigation objectives. For the Eastview Site, the amount of on-site mitigation and habitat replacement is limited by the future projects planned for the site, including the Cat/Del UV Facility. It is assumed in this section that the Cat/Del UV Facility would be located on the Eastview Site, and therefore, it would not be possible to mitigate tree and habitat loss on site. Wetland mitigation for both site development scenarios would occur on-site with a combination of wetland creation and enhancement which would provide enhanced habitat, vegetative diversity and restore the water quality improvement and stormwater attenuation functionality of the impacted wetlands.

9.1.6.1. Mitigation Requirements

The City of New York's City Environmental Quality Review (CEQR) requirements stipulate that if a significant impact on natural resources is identified, then mitigation measures should be identified. Mitigation measures fall under five general categories: avoidance, minimization, restoration, reduction, and compensation. Compensation should be used as a last resort to compensate for the unavoidable impacts remaining after the first four types of mitigation are investigated to the extent practicable.

Avoidance and minimization mitigation techniques are usually employed very early in the design phase of a project. Restoration involves rectifying the impact by repairing, rehabilitating, or restoring the affected environment. Reduction techniques involve reducing or eliminating the impact over time by preserving and maintaining the ecological integrity of the site and its surrounding areas to the extent practicable. Compensation refers to replacing or substituting for the affected resource. There are three types of compensatory mitigation: creation, restoration, and acquisition.

Compensatory mitigation can be either in-kind or out-of-kind. In-kind compensation refers to the creation, restoration, or acquisition of the same habitat type as the disturbed habitat type. Out-of-kind compensation refers to the creation, restoration, or acquisition of a habitat type that is different from the disturbed habitat type. In-kind compensation is preferred because it results in a more direct replacement of the lost resource. Out-of-kind compensation may be selected on an individual case-by-case basis if in-kind compensation is not feasible. A combination of in-kind and out-of-kind techniques may be appropriate. It is also preferred that mitigation activities take place as close as possible to the projected impacts.

In general, the Town of Mount Pleasant and the U.S. Army Corps of Engineers require the same mitigation measures as CEQR. In addition, the Town of Mount Pleasant also has a tree preservation ordinance with formulas to determine the number of trees required to be replanted based on the loss of trees from the proposed project.

It is anticipated that the amount of area that would be impacted from the construction and operation of the proposed Croton project would significantly alter the natural resources habitat on the north parcel of the Eastview Site. The site would be converted from an unmanaged parcel to buildings, structures, and underground infrastructure that would alter the ecosystem. While these significant adverse impacts on natural resources would probably displace wildlife from the site, at a minimum for the construction period, they are not anticipated to have serious consequences for natural resources in a regional context. The additional loss of habitat resulting from the proposed Croton project and Cat/Del UV Facility occurring simultaneously would further displace wildlife from the site and decrease the leaf litter, available water, and cover available for wildlife shelter in the north portion of the site. However, resident and migratory wildlife would be able to utilize the undisturbed portions of the Eastview site. The specific impacts to natural resources at the Eastview site are discussed below.

As per CEQR guidelines, avoidance and minimization of impacts to natural resources were employed early on in the design phase of the proposed projects. As such, the mature upland and wetland forests that occur in the northeast portion of the north parcel were left undisturbed by the proposed project. Restoration and compensation of the significant impacts to natural resources would be accomplished to the maximum extent practicable.

It is the objective of the NYCDEP to provide, at a minimum, an equivalent or better replacement habitat for habitat lost at the Eastview Site as a result of the proposed Croton project. Valuable forest habitat lost due to construction would be replaced in kind through reforestation efforts. Reforestation would occur off-site if the Cat/Del UV Facility were built at the Eastview Site. The reforestation plan for impacts associated with the proposed Croton project would include a variety of species native to the area and of a caliper size that would be the most viable for reforestation. An ecologically appropriate mixture of trees would be chosen that would replicate and improve the type of forest habitat lost. The growth and development of the reforested area(s) would increase habitat complexity by selecting from an appropriate mix of indigenous plant material and designing the mitigation site to be restored to encourage a diverse habitat for wildlife. Such a mitigation plan would provide an overall benefit to local and regional wildlife populations by supplying foraging and cover opportunities. Habitat replacement plans also call

for the replacing of existing low quality habitat with higher quality habitat that would improve the local ecology and wildlife habitat.

Mitigation of wetland impacts would be accomplished at a minimum 2:1 replacement ratio for the proposed Croton project. The goal of the wetland mitigation program is to replace the lost functionality of the wetlands impacted. The wetlands on the Eastview Site provide stormwater attenuation, water quality improvement, and wildlife habitat. It is anticipated that the required wetland mitigation could be achieved with on-site mitigation opportunities. This would enable the restoration of impacted wetlands and their functionality within the same water body and watershed, which is critical to minimizing wetland related impacts associated with the proposed Croton project.

9.1.6.1.1. Wetland Mitigation

Potentially significant impacts from the construction and operation of the proposed plant at the Eastview Site include the filling of 0.07 acres of shrub wetland in the northwestern area of the site. An additional 0.06 acres would be disturbed across a stream corridor during construction of a finished water pipeline. An on-site wetland mitigation area at a replacement ratio of 2:1 was designed to provide the greatest possible return of lost wetland functions. The creation of a 0.26-acre wetland with a 50-foot buffer (Table 9.1-10, Figures 9.1-3 and 9.1-4) will be developed to compensate for the loss of the wetlands on-site associated with the construction of the proposed Croton project.

Table 9.1-10 presents the created wetland planting plan. The upland shrub buffer is shown as successional shrubland on Figure 9.1-4 and wraps around the southern, western, and northern boundary of the mitigation area. This area would be planted with Meadow-sweet (*Spiraea latifolia*) on the mid to upper elevations of the sloped buffer and integrated with more Northern arrowwood (*Viburnum dentatum*) toward the lower elevations before reaching the wetland basin.

The shrub wetland would lie at elevations approximately 311 and 312 feet MSL and would be planted with Red-osier dogwood (*Cornus sericea*) and Pussy willow (*Salix discolor*) in mixed clumps of 3 or 4 shrubs each. All intervals listed in Table 9.1-10 are approximate.

The floodplain forest wetland would lie at elevations of 311 to 313.5 feet MSL and would contain approximately 16 hummocks. The height of each hummock at the crown will be approximately 2 feet tall. One larger tree (dbh 2-3") would be planted near the crown of each hummock, with two other larger trees left over as extras to be added to each of the two largest hummocks. Smaller 1" dbh trees would be interspersed between the larger trees and would be planted both on the hummocks as well as scattered in the hollows between the hummocks. The various sizes and species in the floodplain forest wetland area were developed to help promote species diversity and canopy structure early-on in the successional process.

The drainage swale was designed for water to flow over the saddle that separates the wetland basin from the swale when the water reaches more than 1 foot in depth (reaching elevation 312

MSL). Slopes of the swale would be planted with shrubs, while a conservation/erosion control seed mix would be used in the main channel of the swale. (See NYCDEP/DWQC Guidelines in Appendix F for a suitable seed mix.) During most times of the year, the swale would likely be somewhat moist, but not always flowing, unless the wetland basin floods above elevation 312 MSL.

The proposed wetland mitigation is designed to control stormwater, which would have a secondary benefit of recharging groundwater and preventing adverse impacts to fish, benthic macroinvertebrates, and the adjacent vegetative communities surrounding the Mine Brook. This created wetland area would augment the stormwater detention area that would be created to the south of the wetland mitigation area.

Functions and values of each of the three planting zones for a possible on-site wetland mitigation plan are discussed below. Many ecologically appropriate species would be incorporated in the final plan; several of these plant species are highlighted below. It is anticipated that the completed mitigation wetland would be of higher ecological value than the isolated wetland it would replace.

A detailed groundwater and stormwater model of the area influenced by the proposed excavation and subsequent operation of the proposed water treatment plant was developed and is described in Section 5.15, Water Resources. This plan addresses the potential impact of the proposed Croton project combined with the baseline projects planned for the site (NYCDEP Police Precinct and the KCT). The following sections describe mitigation activities that are suitable for the proposed Croton project at the Eastview Site.

TABLE 9.1-10. PLANTING PLAN FOR THE CREATED WETLAND AT THE EASTVIEW SITE

Planting Zone	Area (sq. ft.)	Species	Scientific Name	Indicator status	Approx. Spacing	Approx. Size	Approx. Number
Shrub Wetland¹	6,308	Red-osier Dogwood	<i>Cornus sericea</i>	FACW+	5' O.C.	3-4' tall	125
		Pussy Willow	<i>Salix discolor</i>	FACW	5' O.C.	3-4' tall	150
Floodplain Forest Wetland	5,155	Green Ash	<i>Fraxinus pennsylvanica</i>	FACW	6' O.C.	1" dbh	30
		Green Ash	<i>Fraxinus pennsylvanica</i>	FACW	12' O.C.	2-3" dbh	7
		American Elm	<i>Ulmus americana</i>	FACW-	6' O.C.	1" dbh	20
		Red Maple	<i>Acer rubrum</i>	FAC	6' O.C.	1" dbh	30
		Red Maple	<i>Acer rubrum</i>	FAC	12' O.C.	2-3" dbh	6
		Black Gum	<i>Nyssa sylvatica</i>	FAC	12' O.C.	2-3" dbh	5
Successional Shrubland Buffer²	19,055	Northern Arrowwood	<i>Viburnum dentatum</i>	FACW-	4' O.C.	3-4' tall	500
		Meadow-Sweet	<i>Spiraea latifolia</i>	FAC+	4' O.C.	2-3' tall	700

¹ Shrub wetland would be planted with a wetland seed mix containing species with a wetland indicator status of FAC or wetter, excluding invasive species such as cattail and purple loosestrife. See NYCDEP/DWQC Guidelines in Appendix F for a suitable wetland seed mix.

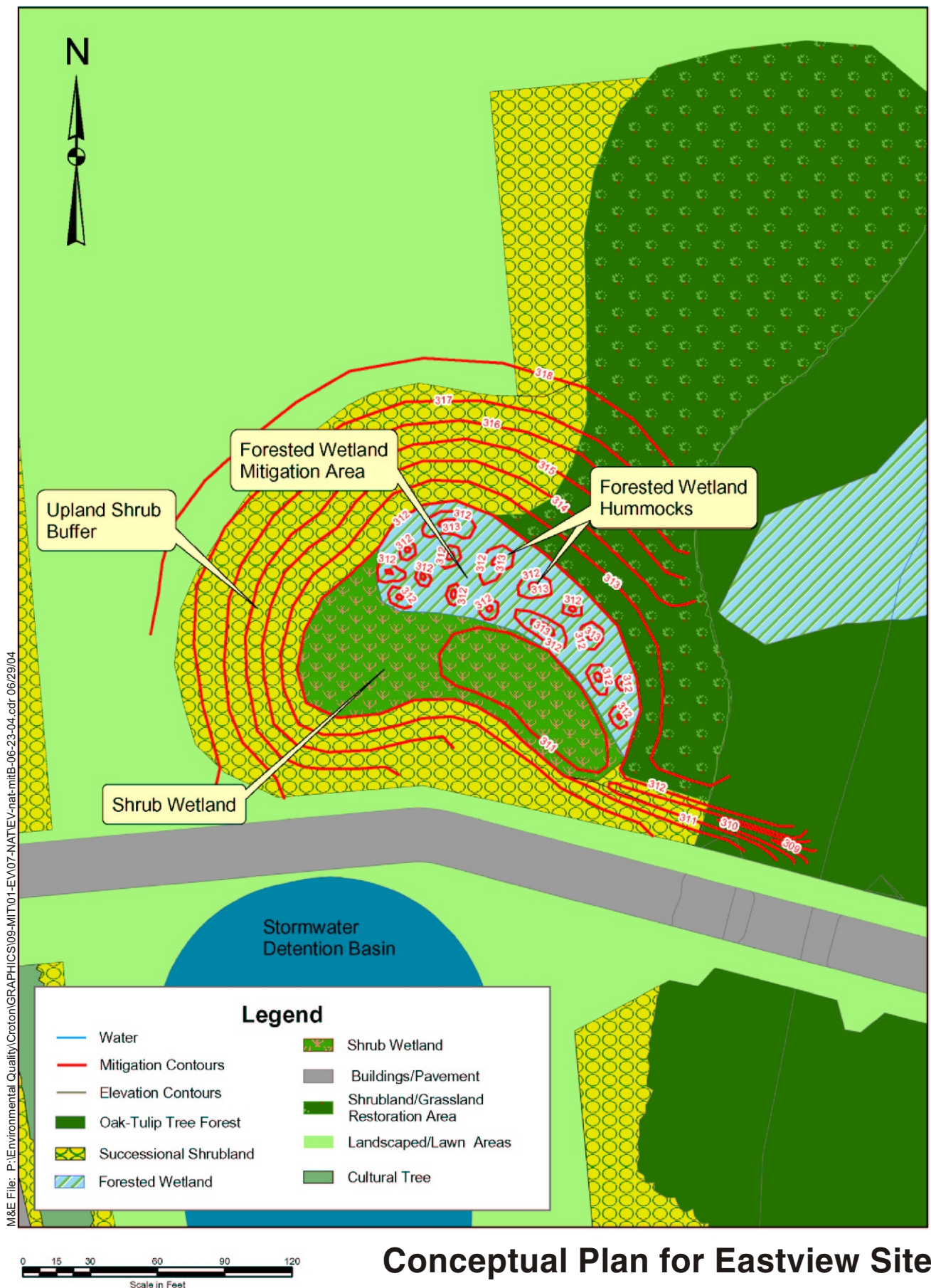
² Successional shrubland buffer would be planted with a wildflower or conservation/wildlife seed mix, excluding invasive species such as cattail and purple loosestrife. See NYCDEP/DWQC Guidelines in Appendix F for a suitable upland seed mix.



Conceptual Plan for Eastview Site Wetland Mitigation and Reforestation Areas - Overview

Croton Water Treatment Plant

Figure 9.1-3



**Conceptual Plan for Eastview Site
Future Mitigation Area - Detail**

Shrub Wetland. Approximately 0.14 acres of new shrub wetland would be created. This zone (wetland basin) is designed to meet the Federal wetland criteria for vegetation, hydrology, and hydric soil.² The shrub wetland zone would provide an area for sediment and nutrient retention, as well as possible contaminant retention (should contaminants from upstream sources exist in water entering the wetland basin) before water travels through the vegetated overflow swale and ultimately to Mine Brook.

This zone would also provide wildlife habitat. Dogwoods such as red-osier are woody plants highly regarded for value to wildlife since they provide valuable nesting and breeding habitat. Mammals such as whitetail deer browse the twigs and buds, while skunk, raccoon, grey squirrels, chipmunks, and mice eat the fruit. Numerous bird species (including thrushes, cardinals, finches, blue jays, and cedar waxwings) also eat the fruit and find cover and nesting sites in dogwood. A variety of amphibians may take refuge in dense stands and gray treefrogs may climb into the shrubs to feed on insects. A variety of insects and spiders can be found using the shrub, particularly during its flowering period.³

Pussywillow would also be planted within the scrub-shrub wetland zone and provides very similar habitat functions and values as red-osier dogwood. Rabbits also feed on pussy willow twigs, particularly in winter when other sources of food are scarce. The yellow warbler is known to use the seed fibers in nest construction, and ruffed grouse eats the seeds. A variety of insects such as willow beetles, honeybees, bumblebees, hoverflies, aphids, and ants can be found on various parts of the shrub.⁴

Floodplain Forest Wetland. The floodplain zone would be designed as part of the mitigation plan to provide a vegetated connection from the shrub wetland basin and surrounding successional shrubland buffer to the reforestation area. The purpose of providing this connection is to facilitate animal usage of the wetland and provide protection for animals traveling between the wetland basin and the mature upland canopy. Approximately 0.12 acres of floodplain forest wetland would be created as part of the proposed mitigation program.

An important wildlife value of red maple is that chipmunk and red and gray squirrels eat the seeds. Maple seeds are an important food source for chickadees, finches, goldfinches, grosbeaks, and nuthatches. Mammals such as rabbits, porcupine, and raccoon eat the seeds, flowers, bark, and twigs of red and silver maple.⁵ Mature red maples and green ash can reach heights of 60 to 80 feet.⁶ These trees offer habitat for numerous birds as well as possible perching opportunities (once trees are mature) for red-tail hawk that have been observed at the Eastview Site.

² U.S. Army Corps of Engineers (ACOE). 1987. Army Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Environmental Laboratory – USACOE Waterways Experiment Station. January 1997.

³ Redington, C.B. 1994. Redington Field Guides to Biological Interactions – Plants in Wetlands. Kendall/Hunt Publishing Company. Dubuque. 394 pp.

⁴ Redington. 1994.

⁵ Martin, C.M., H.S. Zim, and A.L. Nelson. 1951. American Wildlife & Plants – A Guide to Wildlife Food Habits. Dover Publications, Inc. New York. 500 pp.

⁶ Harlow, W.M., E.S. Harrar, J.W. Hardin, and F.M. White. Textbook of Dendrology. 1996. McGraw-Hill, Inc. New York. 534 pp.

Successional Shrubland Buffer. This zone is designed to function as an upland buffer between the wetland basin and open upland to the west, and the reforestation area to the east. The successional shrubland buffer would provide a travel corridor for wildlife species to facilitate movement between the forested area to the east and the wetland mitigation area to the west. Approximately 0.44 acres of successional shrubland buffer would be created as part of the proposed wetland mitigation program.

The successional shrubland buffer would provide food and cover for wildlife. Arrowwood provides protective cover for breeding, nesting and overwintering sites. Fruits may be eaten by chipmunks, mice, skunks, and grey squirrels, while whitetail deer browse the buds and twigs. Several bird species nest in arrowwood and include the willow flycatcher, white-eyed vireo, and catbird while cardinals, robins, and wild turkeys eat the fruits. Tree frogs climb the branches to hunt for food and use the twigs as calling perches. Various beetles, flies, ants, wasps, and moths are known to pollinate arrowwood flowers.⁷

Meadow-sweet is a very common perennial shrub that can be found in both shade and full sun. Although a relatively short shrub (grows to approximately three feet tall), meadow-sweet can grow in dense, vigorous stands, providing cover for animals moving between upland and the wetland basin at the site. Whitetail deer are known to browse on meadow-sweet in both summer and winter, and field sparrows are known to occasionally nest in dense stands. Garter snakes, northern brown, black racer, and occasionally Eastern milk snakes forage in meadows around this shrub. A wide variety of butterflies, moths, ants, and other insects are known to use the many flowers of the meadow-sweet.⁸

In addition to providing wildlife habitat, the successional shrubland buffer would also serve as a means of separating the wetland basin from the activities of the proposed plant and nearby access roads. The successional shrubland buffer would also attenuate the velocity of surface water overland flow before it reaches the wetland basin.

9.1.6.1.2. Tree Removal and Protection

Prior to any construction activities (such as clearing, grading, or excavation) tree protection fencing would be installed. Fencing that is a minimum of six feet tall would be installed no closer than the dripline of the trees that would be protected. (The dripline is the farthest point that the tree canopy extends from the trunk of the tree.) Signs would be attached to the fence stating that inside the fencing is a tree protection zone, which is not to be disturbed unless prior approval has been obtained from the Town of Mount Pleasant's arborist or NYCDEP for the project. No application of chemicals, trenching, grading, root pruning, or other activity would occur within the tree protection zone unless directed by an arborist present on-site and approved by the Town of Mount Pleasant. The fencing would not be removed until all construction activities are completed. The fence line would be further protected with silt fences

⁷ Redington. 1994.

⁸ Redington. 1994.

and hay bales outside the fence to prevent damage from erosion or the transport of construction debris.

There are 494 trees greater than four inches dbh and 254 greater than six inches dbh that lie within the construction area and would be permanently removed (See Tree Protection, Preservation, and Reforestation Plan, Appendix F for a complete tree inventory and implementation strategy). Trees adjacent to the construction impact area, although not proposed for removal, may be adversely affected and their survival is uncertain. There are 214 trees greater than four inches dbh and 124 trees greater than six inches dbh outside of the construction area that would be potentially threatened by the project. All of the remaining trees on-site would be protected, and would be identified and fenced off from construction activity.

9.1.6.1.3. Reforestation

The reforestation plan for impacts associated with the site development associated with the proposed Croton project would include a variety of species native to the area and of a caliper size that would be the most viable for reforestation. An ecologically appropriate mixture of trees would be chosen that would replicate replicate and improve the type of forest habitat lost (Table 9.1-11). The proposed reforestation plan would be designed to produce a forest type with a vertically stratified vegetative composition with well-defined herbaceous, shrub/understory and canopy layers. Dominant canopy trees could include northern red oak, tulip tree, American beech, American elm, black birch, red maple, black oak, and white oak. In addition to these tree species, an ecologically appropriate mix of understory, shrub, and herbaceous species would be planted as well. Such species as flowering dogwood, witch hazel, sassafras, maple leaf viburnum, northern blackberry and blue berry could be part of the subcanopy stratum. Typical groundcover could include white wood aster, New York fern, Virginia creeper, jack-in-the-pulpit, Solomon's Seal and false Solomon's Seal. The growth and development of the reforested area would increase habitat complexity, by selecting from an appropriate mix of indigenous plant material and designing the site to be restored to encourage a diverse habitat for wildlife. Such a mitigation plan would provide an overall benefit to local and regional wildlife populations by supplying increased foraging and cover opportunities.

TABLE 9.1-11. VEGETATION TYPICAL OF A DIVERSE, VERTICALLY STRATIFIED FORESTED COMMUNITY

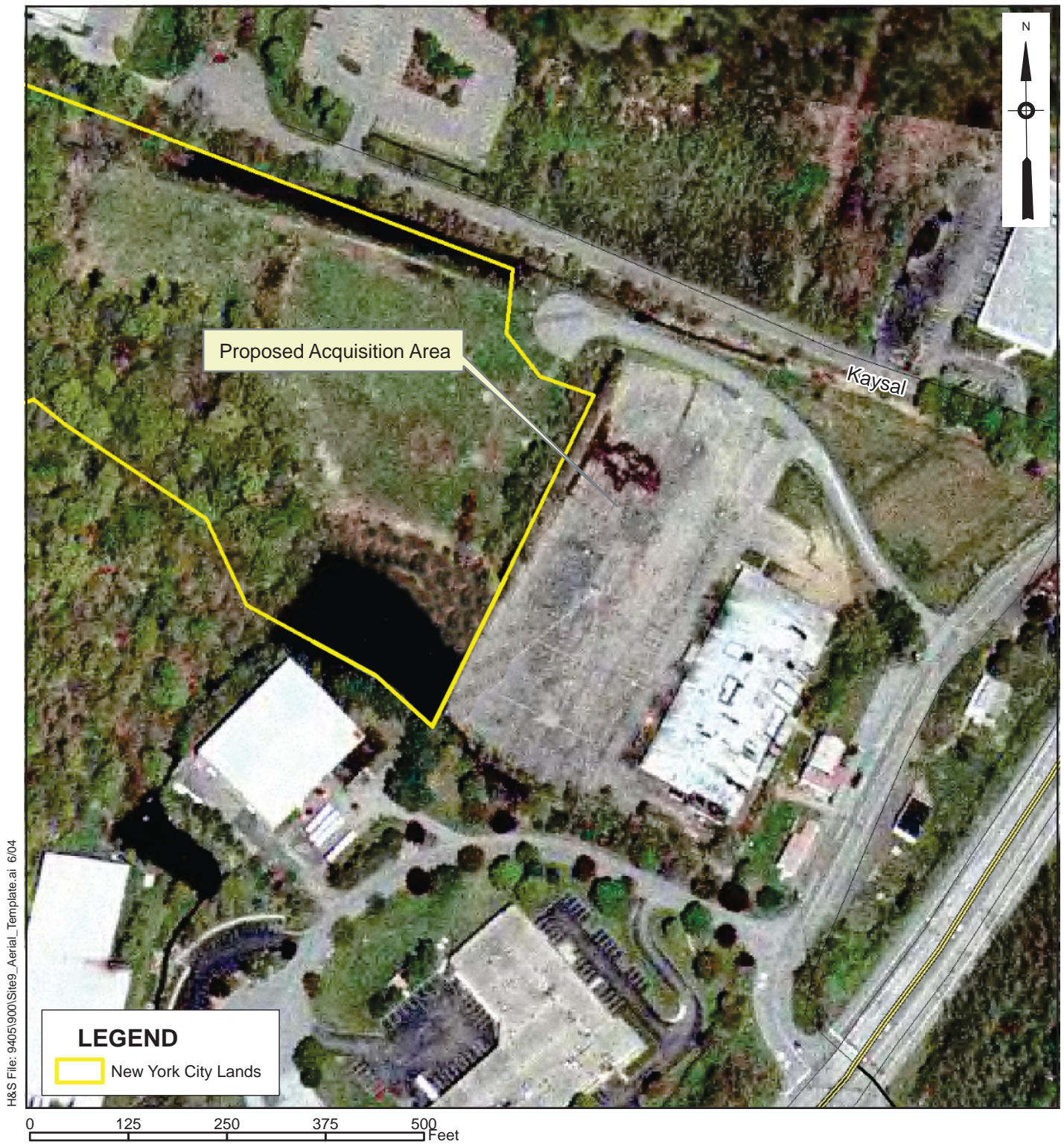
		Common Name	Scientific Name
Canopy	Trees	Red Oak	<i>Quercus rubra</i>
		Tulip Tree	<i>Liriodendron tulipifera</i>
		American Beech	<i>Fagus grandifolia</i>
		Black Birch	<i>Betula lenta</i>
		Red Maple	<i>Acer rubrum</i>
		Black Oak	<i>Quercus velutina</i>
		American Elm	<i>Ulmus americana</i>
		White Oak	<i>Quercus alba</i>

TABLE 9.1-11. VEGETATION TYPICAL OF A DIVERSE, VERTICALLY STRATIFIED FORESTED COMMUNITY

		Common Name	Scientific Name
Subcanopy		Flowering Dogwood	<i>Cornus florida</i>
		Sassafras	<i>Sassafras albidum</i>
Under story	Shrubs	Witch-hazel	<i>Hamamelis virginiana</i>
		Maple-Leaf Viburnum	<i>Viburnum acerifolium</i>
		Northern Blackberry	<i>Rubus allegheniensis</i>
		Blueberries	<i>Vaccinium sp.</i>
		White Wood Aster	<i>Aster divaricatus</i>
	Herbaceous	New York Fern	<i>Thelypteris noveboracensis</i>
		Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
		Wild Geranium	<i>Geranium maculatum</i>
		Solomon's Seal	<i>Polygonatum biflorum</i>
		False Solomon's Seal	<i>Smilacina racemosa</i>
		Virginia Creeper	<i>Parthenocissus quinquefolia</i>
	Vines		

As stated above, due to the construction of the Cat/Del UV Facility on the Eastview Site, on-site tree reforestation is not possible for the losses associated with the proposed Croton project. An off-site reforestation area has been identified which would provide suitable area for mitigation of the significant impacts that have been predicted to occur on the project site. The identified off-site reforestation location is described below.

- Private property adjacent to NYCDEP property within the Town of North Castle.**
 This site is located adjacent to NYCDEP property located off Route 22 in the Town of North Castle (Figure 9.1-5). NYCDEP proposes to acquire approximately 8.0 acres of privately-owned land to establish a forested habitat. Because of the proximity of this site to a larger contiguous forest and an existing stream, the restoration of the site with additional forest would provide a greater overall ecological value, promoting vegetative and wildlife diversity. This proposed mitigation provides a comprehensive restoration of several sub-ecosystems, and fully meets the NYCDEP's mitigation objective. The opportunity to design a restoration plan that would be sizable and viable to achieve the habitat value that is predicted to be lost at the project site makes this site ideal. This site provides an opportunity to fully mitigate for the anticipated natural tree and habitat losses at the project site.



Off-Site Reforestation Mitigation Area

Croton Water Treatment Plant

Figure 9.1-5

9.1.6.1.4. Sediment and Erosion Control

The potential for soil erosion during construction is increased when the soil is cleared of its vegetation, excavated, and stockpiled, thereby exposing the loose soil to the direct impacts of rainwater and wind. To prevent, to the extent possible, the short- and long-term potentially significant erosion impacts on the watershed creeks and wetlands, a detailed erosion-control plan would cover all construction activities. In addition, Stormwater Pollution Prevention Plan was created for this Croton project and is included in Appendix G.

For example, work activities and clearing limits would be included in the construction specifications; no vegetation outside these limits would be disturbed. Also, no stockpiling of excavated material would be allowed in a manner that would cause erosion. “Stop work” orders would be issued to the contractor if erosion-control measures were not properly installed and maintained, after the contractor has been given a reasonable amount of time to correct the problem. To properly maintain erosion control measures, an allotment item would be set up in the contract, providing a fund of money to be spent for maintenance as needed by the contractor at the direction of the resident engineer.

At the end of each day, each work segment would be cleaned and swept. This further reduces the amount of soil that could potentially affect watercourses and wetlands. Another proposed technique is the control of sediments through the use of temporary sediment traps⁹ and/or temporary sediment basins¹⁰. These measures can be supplemented with sediment filters in a downstream location.

The sediment traps, basins, and/or filters would stay in place until the construction activity is complete and the ground surface stabilized. During their period of use, sediment traps require frequent maintenance; typically, when they are 50 percent or more full of silt, they must be cleaned. Silt intercepted by basins and filters must also be removed, especially after storms. Another important erosion-control measure is temporary seeding or the establishment of a temporary vegetative cover on disturbed areas by seeding with appropriate, rapidly growing annual plants. This measure provides protection to bare soils exposed during construction until permanent vegetation or other erosion-control measures can be established.

In sum, measures that are proposed to be part of the construction documents for erosion and sedimentation control would include:

- Installation of construction-limiting fence;
- Use of portable sediment tanks during dewatering;

⁹ A temporary sediment trap is a temporary ponding area formed by constructing an earthen embankment with a stone outlet. The purpose is to detain sediment-laden runoff from small disturbed areas, generally less than three acres, long enough to allow the majority of the sediment to settle out.

¹⁰ A temporary sediment basin is a temporary barrier or dam with a controlled storm water release structure formed by constructing an embankment of compacted soil across a drainageway. The purpose is to detain sediment-laden runoff from disturbed areas larger than those upstream of traps, generally three acres or greater.

- Constructing temporary sediment traps and/or basins at the locations of proposed forebays and micropools to capture sediment from runoff and from water produced by dewatering operations with sediment filters at the exit channel to further treat sediment-laden water;
- Using block and gravel curb inlet sediment filters and gravel and wire mesh drop inlet sediment filters to protect existing storm water inlets;
- Constructing a temporary sump pit;
- Controlling sediment from areas traversed by trucks and other heavy equipment by constructing temporary construction accessways covered with properly sized stone over filtering material; and
- Prior to the start of construction activities, such as sewer installation, inspecting all erosion control measures, and continually monitoring them, especially after each storm event.

9.1.7. Groundwater Resources

9.1.7.1. *Without Cat/Del UV Facility at Eastview Site*

Mine Brook is the surface drainage for the Eastview Site, flowing north to south through woods to the east of the proposed water treatment plant site. There are two stream crossings proposed as part of the project, as discussed above in the discussion on wetlands.

The section of Mine Brook immediately east of the proposed main treatment building excavation area and along the cut and cover treated water tunnel would potentially experience some streamflow reduction as water that would otherwise have been part of the base flow in Mine Brook would be dewatered and discharged downstream of the detention basin. The low groundwater flows to the proposed Croton project excavation (approximately 7-15 gallons per minute) would be returned to Mine Brook via infiltration from the stormwater detention basin. There could be a stream reach of up to 800 feet that could be at least temporarily dewatered by the construction of the proposed Croton project. Water from the stormwater detention basin would ensure the pre-construction flow in Mine Brook would be maintained south of the basin; therefore no significant impact is anticipated south of the basin. The upstream reach is supplied primarily by storm drains that discharge into the Mine Brook channel from the Grasslands Reservation to the north. Without these flows, the stream would naturally dry out in sections during dry weather, as it does under current conditions. Therefore no significant impact is anticipated as a result of the potential short-term reduction of base flow in Mine Brook during excavation.

9.1.7.2. *With Cat/Del UV Facility at Eastview Site*

This scenario assumes that the proposed Croton project impacts would be incrementally added to the Cat/Del UV Facility impacts. Since the proposed Croton project would have very minor impacts during operations, the incremental impact of the proposed Croton project would not require mitigation for the operational conditions beyond that planned for the scenario described above. However, there are no significant adverse groundwater impacts anticipated in

association with the Cat/Del UV Facility; therefore, no mitigation measures are planned for the Eastview Site under this scenario.