FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CROTON WATER TREATMENT PLANT

8.1.3. New Croton Aqueduct Shaft No. 14

8.1.3.1. Introduction

New Croton Aqueduct (NCA) Shaft No. 14 is located on American Legion Drive in the Village of Ardsley, Westchester County, New York. The City of New York (City) property includes the Shaft building and a parking lot used by the Village's Public Library. The library is located on a separate tax parcel that appears to have once been part of the parcel owned by the City. NCA Shaft No. 14 is a below grade structure. There is a monitoring station (e.g. recovery facility system) on top of NCA Shaft No. 14. This wooden structure is enclosed by a chain link fence and wooden rail fence surrounded by a grassed area.

Originally designed as a gravity flow tunnel that would collect additional water through ground infiltration, the NCA would require grouting to repair existing cracks (grouting work would be conducted by the NYCDEP under the Future Without the Project as general maintenance and repair) and lining to prevent the contamination of treated water and ensure the ability of delivering a pressurized treated water conveyance (part of the proposed project). The NCA Baseline Rehabilitation work is a separate action that will be conducted regardless of where the Croton water treatment plant is located. The NCA Baseline Rehabilitation would be conducted in two phases; the first phase (which was subject to an independent environmental review that resulted in a Negative Declaration being issued on June 7, 2004) is scheduled to begin in Fall 2004 and continue to Spring 2006 and the second phase (which would be subject to a future environmental review once the scope and need for the work is defined) is anticipated to begin Summer 2006 and continue to Spring 2007. Currently two sections of the NCA are pressurized, between Shaft Nos. 11A and 11C where the NCA drops below Gould's Swamp in the Town of Greenburgh, and south of Gate House No. 1 in the Bronx to its terminus at the 135th Street Pumping Station in Manhattan. Under the proposed project the existing pressurized section would be increased to 143 psig while the remainder of the NCA (gravity flow portion) would be pressurized to 92 psig.

Under the proposed project, in low rock cover and cut-and-cover sections of the NCA a steel lining would be installed and in the high rock cover sections of the NCA reinforced concrete lining would be installed. The steel lined sections would be circular and backfilled with unreinforced concrete 12-inches thick. The concrete lined section would be circular and have reinforced concrete 12-inches thick. Contact grouting would be performed at the steel lining (with concrete reinforcement) and at concrete/brick and mortar lining interfaces, to seal any voids resulting from concrete shrinkage or temperature changes in the steel lining.

A study area of up to one-mile was established from the Shaft Site in conducting the following analyses. The methodology used to prepare these analyses is presented in Section 4, Data Collection and Impact Methodologies.

After construction, there would be no changes to the site or to operations at NCA Shaft No. 14. Therefore, the analyses presented below focus on those parameters influenced by construction.

8.1.3.2. Baseline Conditions

8.1.3.2.1. Existing Conditions

Land Use, Zoning and Public Policy. There would be no change to Land Use, Zoning, or Public Policy as part of this project. Because of this, a detailed analysis of the potential impacts of the project on this parameter was not conducted. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

Visual Character. There would be no change to the visual character of the area as part of this project. Because of this, a detailed analysis of the potential impacts of the project on this parameter was not conducted. Potential visual character impacts during construction are discussed in the Potential Construction Impacts section below.

Community Facilities. No impacts to the area community facilities are anticipated as part of this project. Because of this, a detailed analysis of the potential impacts of the project on this parameter was not conducted. Potential community facilities impacts during construction are discussed in the Potential Construction Impacts section below.

Open Space. No impacts to open space resources are anticipated as part of this project. Therefore, a detailed open space analysis was not conducted for this site.

Neighborhood Character. No impacts to neighborhood character are anticipated as part of this project. Therefore, a detailed open space analysis was not conducted for this site.

Socioeconomic Analysis. No impacts to the study area socioeconomic conditions are anticipated as part of this project. Because of this, a detailed analysis of the potential impacts of the project on this parameter was not conducted. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

Water Rate Structure. For this information, refer to the Water Rate Structure discussion for the Eastview Site Section 5.7, Socioeconomic Analysis.

Growth Inducement. This analysis addresses the proposed NCA work, which would be conducted in conjunction with the proposed Croton Water Treatment Plant project. Therefore, the analysis of any growth inducement effects related to improvements to the NCA is addressed in the Growth Inducement analysis prepared for the Eastview Site (Section 5.8, Growth Inducement).

Traffic and Transportation. The existing operating conditions of the nearby transportation system, including traffic, parking, pedestrian safety and transit are presented. The study areas were established based upon volumes, logical traffic routes, and potentially problematic areas.

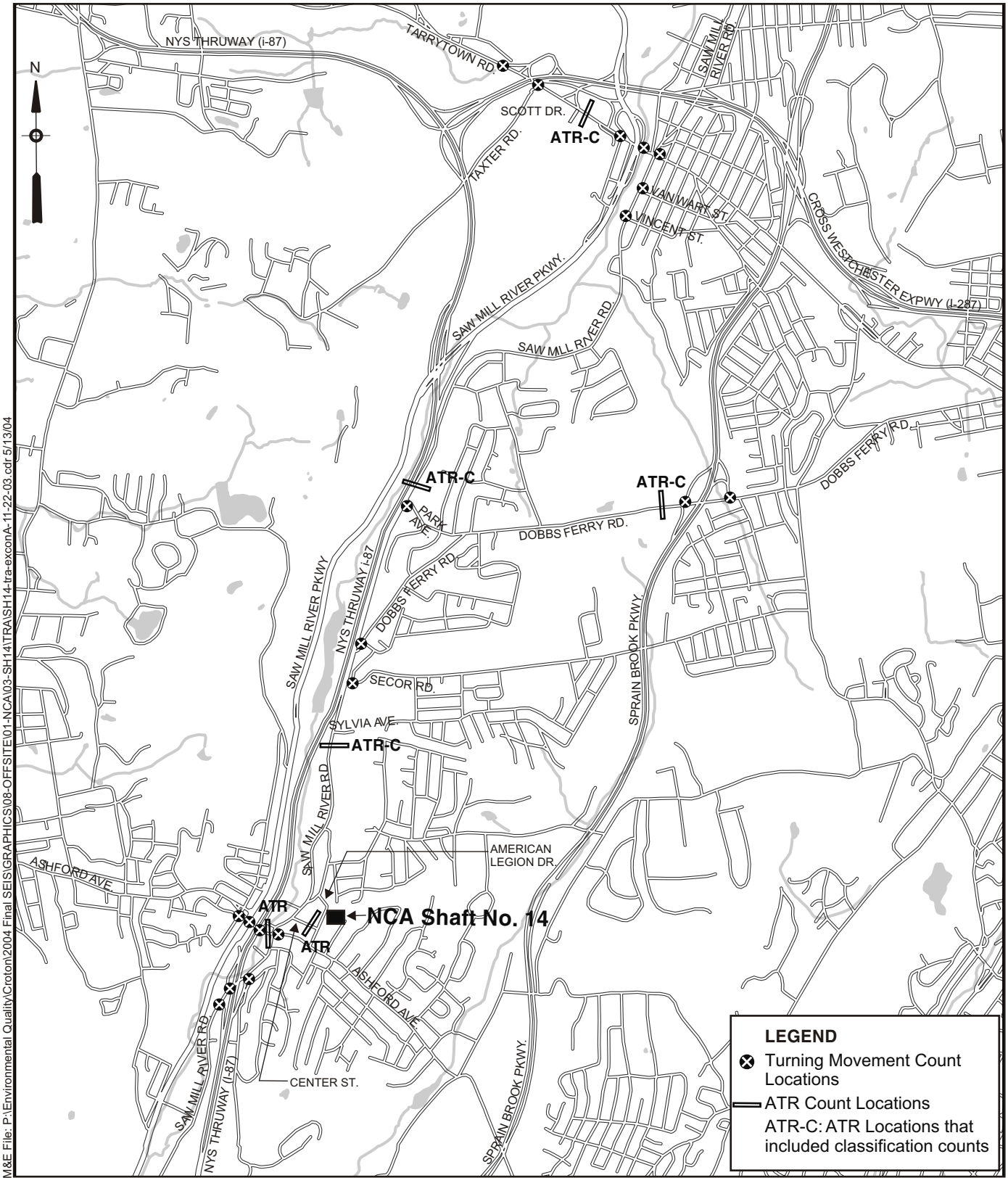
Traffic Study Area. This study area has been selected to encompass those roadways most likely to be used by the majority of vehicular traffic traveling to and from the Shaft Site. The

study area for NCA Shaft No. 14 is primarily bounded by Tarrytown White Plains Road to the north, Ashford Avenue/Ardsley Road to the south, Sprain Brook Parkway to the east, and Saw Mill River Parkway to the west. Major arterial roadways adjacent to the study area are the New York State Thruway, Sprain Brook Parkway, and Saw Mill River Parkway. The traffic study area for NCA Shaft No. 14 is presented in Figure 8.1.3-1.

Traffic Conditions and Analysis. Traffic counts were collected during June 2002 and September/October 2002. The counts documented traffic conditions on key study area roadways and intersections. The data collection included manual turning movement counts, automatic traffic recorders (ATR), vehicle classification counts, and travel speed runs along principal corridors. Below is a list of intersections where turning movement counts were performed:

- Tarrytown White Plains Road/Route 119 and New York State Thruway (I-87) Eastbound Off Ramp
- Saw Mill River Parkway Northbound Ramps at Tarrytown White Plains Road (Route 119)
- Saw Mill River Parkway Southbound Ramps at Tarrytown White Plains Road (Route 119)
- Saw Mill River Road (Route 9A) at Van Wart Street
- Saw Mill River Road (Route 9A) at Vincent Street
- Saw Mill River Road (Route 9A) at Park Avenue/Dobbs Ferry
- Saw Mill River Road (Route 9A) at Dobbs Ferry Road
- Saw Mill River Road (Route 9A) at Secor Road
- Saw Mill River Road (Route 9A) at Ashford Avenue
- Saw Mill River Road (Route 9A) at New York State Thruway (I-87) Northbound Off Ramp
- Saw Mill River Road (Route 9A) at New York State Thruway (I-87) Southbound On Ramp
- Ashford Avenue at Saw Mill River Parkway Northbound Ramps
- Ashford Avenue at Saw Mill River Parkway Southbound Ramps/Southfield Avenue
- Ashford Avenue at Saw Mill River Parkway Southbound Off Ramp
- Dobbs Ferry Road and Sprain Brook Parkway Southbound Ramps
- Dobbs Ferry Road and Sprain Brook Parkway Northbound Ramps

The turning movement counts (TMC) at the above listed intersections were conducted on mid-weekdays (Tuesday to Thursday) from 7 AM to 10 AM and from 2 PM to 6 PM to capture the morning and afternoon peak hours.



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Not to Scale

Traffic Count Study Locations for NCA Shaft No. 14

Croton Water Treatment Plant

Figure 8.1.3-1

The automated traffic recorder (ATR) counts were performed for a 24-hour period for seven days at the following locations:

- Saw Mill River Road – North of Ashford Avenue
- Saw Mill River Road – South of Sylvia Avenue
- Saw Mill River Road – North of Park Avenue
- Dobbs Ferry Road – West of Sprain Brook Parkway
- Tarrytown Road/Main Street – East of Scott Drive

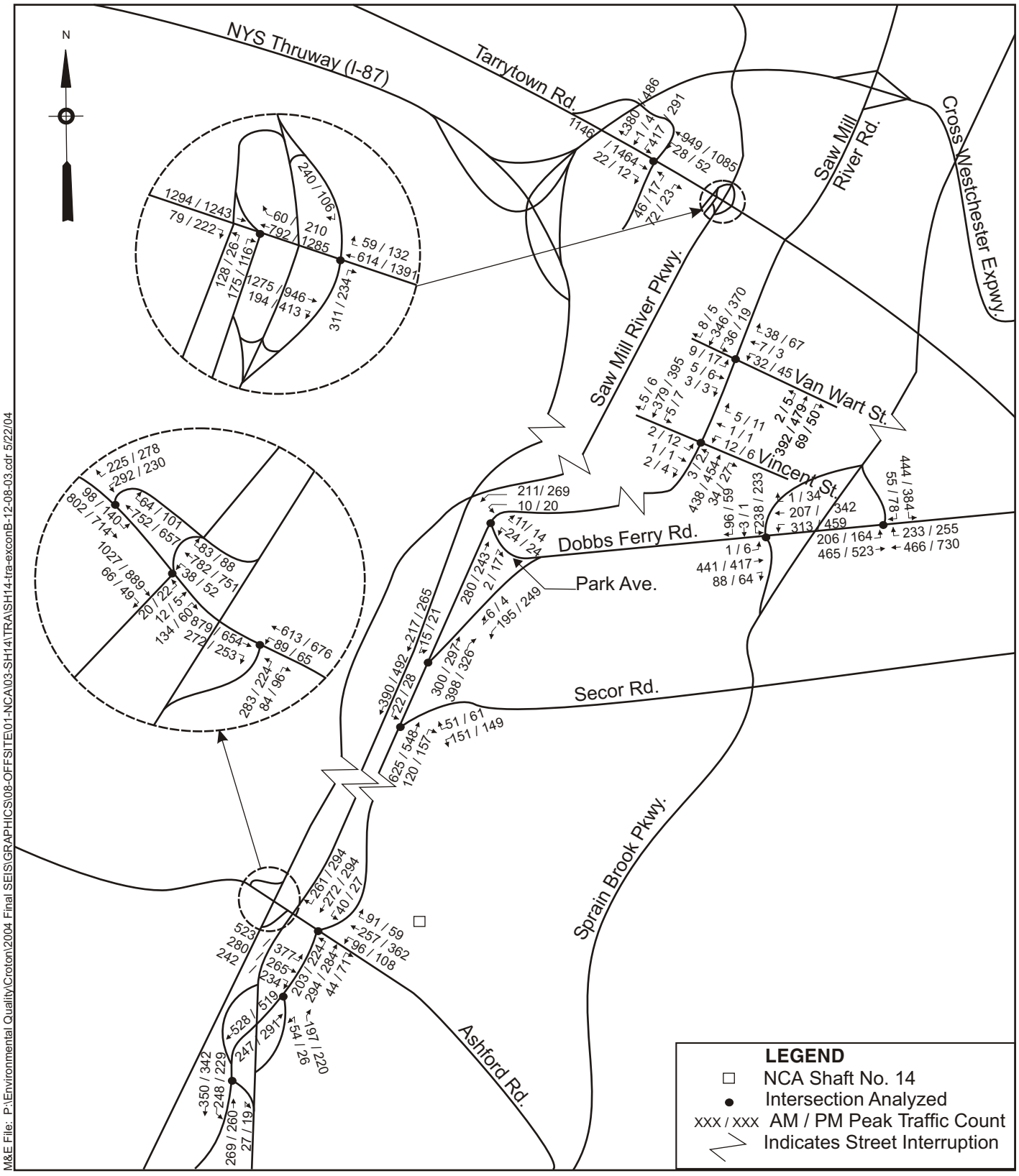
The vehicle classification counts were performed from 7 AM to 10 AM and 2 PM to 8 PM. These hours have been chosen as a representative of the periods of heaviest traffic volumes during the potential construction period. It has been assumed that construction would typically commence at 7 AM and finish no later than 6 PM. This assumption follows the local ordinances regulating construction hours.

To develop year 2002 traffic volumes for the study intersections, the traffic volumes from the turning movement counts were factored utilizing adjacent ATR counts. The resultant intersection turning movement volumes represent an average mid-weekday volume. Since the study intersections represent only a portion of the roadway networks in the study area, the turning movement volumes may not balance. This is due to several possible factors including other intersecting roads and residential and commercial entrances between study intersections, different count days, and counts performed in spring versus fall. The year 2002 traffic volumes for the AM and PM peak hours are illustrated in Figure 8.1.3-2.

As noted above, each study area intersection was analyzed in terms of its capacity to accommodate existing traffic volumes and its resulting LOS using the HCM procedures. A summary of findings is presented in Table 8.1.3-1 with the key findings discussed below. See Section 4.9, Data Collection and Impact Methodologies, Traffic and Transportation, for the procedural details.

Currently, most of the signalized intersections in the study area operate at an overall LOS D or better, although a few individual movements experience worse conditions. In some cases, there are insufficient green times to process existing traffic demands. Such disproportions can be easily remedied by shifting a modest amount of time from one approach that has unused green time to another that is congested. One signalized intersection experiences existing delays not easily remedied due to high traffic volumes. In addition to the signalized intersections, two of the seven unsignalized intersections experience LOS F conditions.

The Saw Mill River Road (Route 9A) at Ashford Avenue intersection experiences LOS E conditions during the AM and PM peak hours. This is due to the high traffic volumes on each of these roadways and the traffic traveling to the Major Deegan ramps just south and Saw Mill River Parkway just west of this location. Nearly all movements through this intersection experience unacceptable levels of service.



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Not To Scale

New Croton Aqueduct Shaft No. 14
Existing Traffic Volume - AM / PM Hour

Croton Water Treatment Plant

Figure 8.1.3-2

TABLE 8.1.3-1. 2002 EXISTING TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	EXISTING CONDITIONS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/ VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS
Tarrytown White Plains Rd (Rt 119) and New York State Thruway (I-87) EB Off Ramp	EB – TR	0.65	18.6	B	0.74	20.8	C
	WB – TR	0.42	14.3	B	0.55	16.3	B
	NB – LR	0.80	70.1	E	0.25	32.6	C
	SB – LTR	0.91	52.7	D	0.80	43.5	D
	Intersection		**27.7**	**C**		**24.3**	**C**
Saw Mill River Parkway NB Ramps @ Tarrytown White Plains Road/Rt 119	EB – TR	0.85	22.4	C	0.78	19.0	B
	WB - TR	0.26	10.6	B	0.56	13.7	B
	NB – R	0.60	30.0	C	0.45	26.2	C
	SB – R	0.47	26.6	C	0.20	22.3	C
	Intersection		**20.7**	**C**		**17.1**	**B**
Saw Mill River Parkway SB Ramps at Tarrytown White Plains Road/ Rt 119	EB – TR	0.82	20.7	C	0.83	20.9	C
	WB – TR	0.34	11.3	B	0.66	15.5	B
	NB – LR	0.58	29.2	C	0.27	23.2	C
	Intersection		**18.5**	**B**		**18.4**	**B**
Saw Mill River Rd (Rt 9A) at Dobbs Ferry Road	WB – LR	0.34	19.9	B	0.40	20.8	C
	NB – T	0.39	14.3	B	0.37	14.0	B
	NB – R	0.27	0.4	A	0.21	0.3	A
	SB – LT	0.35	14.0	B	0.37	14.1	B
	Intersection		**10.4**	**B**		**11.6**	**B**
Saw Mill River Rd (Rt 9A) at Secor Road	WB – LR	0.33	19.7	B	0.35	20.0	B
	NB – TR	0.99	49.6	D	0.89	31.7	C
	SB – LT	0.60	18.3	B	0.67	20.0	B
	Intersection		**35.7**	**D**		**25.7**	**C**
Saw Mill River Rd (Rt 9A) at Ashford Avenue	EB – L	1.05	100.5	F	0.84	59.7	E
	EB – T	0.59	44.8	D	0.64	49.8	D
	EB – R	0.33	19.7	B	0.36	27.3	C
	WB – L	0.30	46.7	D	0.27	42.6	D
	WB – T	0.89	80.2	F	1.01	101.9	F
	WB – R	0.14	26.2	C	0.09	23.8	C
	NB – L	0.58	49.7	D	0.66	54.4	D
	NB – T	0.98	99.9	F	0.99	104.1	F
	NB – R	0.07	21.9	C	0.21	45.6	D
	SB – L	0.13	43.2	D	0.07	40.1	D
	SB – T	0.94	91.4	F	0.84	68.2	E
	SB – R	0.84	68.8	E	0.80	60.9	E
	Intersection		**70.7**	**E**		**65.6**	**E**

TABLE 8.1.3-1. 2002 EXISTING TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	EXISTING CONDITIONS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/ VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS
Ashford Ave at Saw Mill River Parkway NB Ramps	EB – TR	0.70	16.8	B	0.51	13.4	B
	WB – LT	0.71	18.7	B	0.51	13.6	B
	NB – LR	0.71	33.5	C	0.58	29.0	C
	Intersection		**20.2**	**C**		**16.0**	**B**
Ashford Ave at Saw Mill River Parkway SB Off Ramps	EB – L	0.64	33.6	C	0.75	40.0	D
	EB – T	0.52	16.3	B	0.43	15.1	B
	WB – TR	1.03	61.2	E	0.88	31.9	C
	SB – LR	0.86	38.9	D	0.82	35.8	D
	Intersection		**38.7**	**D**		**27.7**	**C**
Dobbs Ferry Road and Sprain Brook Parkway NB Ramps	EB – L	0.44	9.9	A	0.51	12.9	B
	EB – T	0.44	8.3	A	0.48	8.8	A
	WB – T	0.44	8.3	A	0.67	11.9	B
	WB – R	0.13	0.2	A	0.15	0.2	A
	SB – L	1.00	65.8	E	0.87	41.4	D
	SB – R	0.13	18.1	B	0.18	18.6	B
	Intersection		**21.7**	**C**		**15.5**	**B**

TABLE 8.1.3-1. 2002 EXISTING TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

UNSIGNALIZED INTERSECTIONS	LANE GROUP	EXISTING CONDITIONS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS
Saw Mill River Rd (Rt 9A) at Van Wart Street	EB-LTR	0.00	8.0	A	0.00	8.2	A
	WB-LTR	0.03	8.5	A	0.02	8.8	A
	NB-LTR	0.23	18.8	C	0.43	25.6	D
	SB-LTR	0.07	19.9	C	0.16	28.6	D
Saw Mill River Rd (Rt 9A) at Vincent Street	EB-LTR	0.00	8.1	A	0.00	8.2	A
	WB-LTR	0.00	8.4	A	0.01	8.5	A
	NB-LTR	0.06	17.6	C	0.05	15.2	C
	SB-LTR	0.01	15.6	C	0.06	19.0	C
Saw Mill River Rd (Rt 9A) at Park Ave/ Dobbs Ferry	WB-LR	0.01	8.0	A	0.02	7.8	A
	SB-LT	0.09	13.2	B	0.07	12.1	B
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) NB Off Ramp	NB-LR	0.45	15.9	C	0.37	13.1	B
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) SB On Ramp	SB-LT	0.22	8.8	A	0.19	8.6	A
Ashford Ave at Saw Mill River Parkway SB Off	WB-LT	0.06	11.0	B	0.08	10.6	B
	NB-LTR	0.91	95.8	F	0.63	65.4	F
Dobbs Ferry Road and Sprain Brook Parkway SB	WB-LT	0.30	10.0	A	0.43	10.8	B
	SB-LTR	1.03	95.7	F	1.02	97.2	F

ABBREVIATIONS:

EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound

L-Left, T-Through, R-Right, E-W: East-West Roadway, N-S: North-South Roadway

V/C Ratio - Volume to Capacity Ratio

SEC/VEH - Seconds per Vehicle

LOS - Level of Service

The two unsignalized intersections that operate at unacceptable levels of service in both the AM and PM peak hours are Ashford Avenue at Saw Mill River Parkway Southbound On Ramp/Southfield Avenue and Dobbs Ferry Road at Sprain Brook Parkway Southbound Ramps. The stop controlled approaches of both of these intersections suffer delays.

Safety. Accident data information was obtained from the period from May 1, 1998 to April 30, 2001. Table 8.1.3-2 below summarizes the accident data. Within the study area, there were a total of 50 reportable accidents that occurred between May 1, 1998 and April 30, 2001, of which none involved fatalities, 23 involved injuries, and 27 were property damage only.

Parking. There are no posted parking regulations on the local streets near the study locations, and because the area is generally commercial in nature, on-street parking demand is very low. Off-street lots provide parking for all of the offices and municipal buildings with ample parking-space supplies for employees and visitors.

Transit. The study area is serviced by four lines of the Westchester County Bee-Line System. The #1C, #5, #6, and the #38 all have stops within the study limits. The # 1C provides service from MTA NYC transit subway station at West 242nd Street in the Bronx to the Westchester Medical Center. The line provides bus service to three MTA Metro North Railroad stations, at Yonkers, Glenwood, and Dobbs Ferry. Within the study area the primary bus route is along Route 9A, Saw Mill River Road. The #5 bus provides service between Harrison and Yonkers. Within the project area the bus travels along Route 9A/Saw Mill River Road. The #6 bus provides service from Pace University in Pleasantville to downtown Yonkers. The #6 travels along Route 100B/Dobbs Ferry Road and Saw Mill River Road within the project area. The #38 travels along Secor Road and Hartsdale Road providing service from the MTA's Metro North Railroad Hartsdale Station into the town of Greenburgh.

TABLE 8.1.3-2. NCA SHAFT NO. 14 INVENTORY OF ACCIDENTS

Intersection	Total # of Reportable Accidents[1]	Total # of FTL	Total # of INJ	Total # of PDO
Tarrytown White Plains Road (Rt. 119) and New York Thruway (I-87) EB Off Ramp	0	0	0	0
Saw Mill River Ramps at Tarrytown White Plains Road (Rt. 119)	0	0	0	0
Saw Mill River Road (Rt. 9A) at Van Wart Street	3	0	2	1
Saw Mill River Road (Rt. 9A) at Vincent Street	0	0	0	0
Saw Mill River Road (Rt. 9A) at Park Ave./Dobbs Ferry	1	0	0	1
Saw Mill River Road (Rt. 9A) at Dobbs Ferry Road	12	0	5	7
Saw Mill River Road (Rt. 9A) at Secor Road	15	0	6	9
Saw Mill River Road (Rt. 9A) at Ashford Ave	13	0	9	4
Saw Mill River Road (Rt. 9A) at Gov. Thomas Dewey Thruway (I-87) NB Off Ramp	1	0	0	1
Saw Mill River Road at Gov. Thomas Dewey Thruway SB On Ramp	5	0	1	4
Ashford Ave. at Saw Mill River Parkway NB Ramps	0	0	0	0
Ashford Ave. at Saw Mill River Parkway SB Off Ramp	0	0	0	0
Dobbs Ferry Road (Rt. 100B) and Sprain Brook Parkway Ramps	0	0	0	0

NOTES:

1. Reportable accidents consist of all fatal, injury, or property damage accidents that exceed NYS criteria for minimum damage.

SOURCE: New York Department of Transportation

ABBREVIATION:

FTL – Accidents with a fatality

INJ – Accidents with personal injury

PDO – Property Damage Only Accidents

Noise Analysis.

Preliminary Noise Screening for Mobile Source Noise Analysis. As outlined in the methodologies section, and as the initial step in the mobile source noise analysis, a preliminary noise screening using passenger car equivalence (PCE) values was performed to determine whether receptors located near the identified noise-sensitive route segments would experience an increase in noise level of 3 dBA or more as a result of the additional vehicular traffic generated by the project. Existing and future anticipated traffic data for the noise-sensitive route segments in the vicinity of the NCA Shaft No. 14 were analyzed to determine a PCE value for each segment for the morning peak hour, the afternoon peak hour, and the lowest traffic-volume off-peak (i.e. quietest) hour for the existing condition. The preliminary noise screening was performed by comparing the existing PCEs with existing PCEs plus the addition of the future project-generated PCEs. The equation shown below was used for this comparison. Future PCEs would be from additional traffic resulting from the proposed project.

$$\text{If } \frac{\text{Existing PCEs + Future Project-Generated PCEs}}{\text{Existing PCEs}} > 2.0 \text{ then an impact may occur.}$$

This comparative analysis of existing PCEs and future PCEs was used to determine whether the receptors near the identified noise-sensitive route segments would potentially experience a doubling or more of PCEs. Three decibels (dBA) is used for screening purposes since it correlates to an increase that is perceptible to human auditory sensitivity. This threshold is used as a guideline to determine whether anticipated project impacts warrant further field measurements and subsequent Traffic Noise Model (TNM) analysis. A doubling of PCEs corresponds to a noise increase of three dBA. CEQR has established a project-induced noise level increase threshold of 3-5 dBA at receptors. Route segments that did not experience a doubling of PCEs due to project-induced traffic, therefore, would not exceed this impact threshold.

Table 8.1.3-3 presents the comparison of existing PCEs to anticipated future maximum PCEs resulting from project related activities along route segments.

The time period representing the largest increase in future PCEs resulting from the proposed project was used for comparative analysis. The traffic generated by construction activities was not anticipated to change over the course of the construction period. As a result, mobile source noise levels would not fluctuate substantially over the course of the construction phase. The year 2013 was selected as a representative construction year because it falls at the approximate midpoint of the construction schedule.

Following the preliminary noise screening, the only route segment that required a detailed analysis of potential impacts from mobile source noise was Center Street between Saw Mill River Road and American Legion Drive because the predicted PCE volume would double. A detailed analysis using TNM was required for Center Street during the lowest traffic volume hour (10:00 -11:00 AM).

TABLE 8.1.3-3. COMPARISON OF EXISTING PCES AND FUTURE PCES FROM CONSTRUCTION IN VICINITY OF NCA SHAFT NO. 14 (2013)

	Location	Period of Analysis (Weekday)	Existing PCEs	Time	New Passenger Car	New Trucks	New PCEs	PCE Ratio	Incremental Change in dbA	Further Analysis Required?
1	Saw Mill River Rd btw Ashford Ave & Dobbs Ferry Road	AM Peak	5950	08:00 - 09:00	86	3	227	1.04	0.16	No
		PM Peak	4810	17:00 - 18:00	86	3	227	1.05	0.20	No
		Quietest Period	1981	10:00 - 11:00	0	4	188	1.09	0.39	No
2	Saw Mill River Rd btw Dobbs Ferry Road and Tarrytown Road	AM Peak	3373	08:00 - 09:00	5	2	99	1.03	0.13	No
		PM Peak	2805	17:00 - 18:00	5	2	99	1.04	0.15	No
		Quietest Period	1084	10:00 - 11:00	0	4	188	1.17	0.69	No
3	Tarrytown Rd btw Saw Mill River Pkwy & I287	AM Peak	8607	08:00 - 09:00	0	2	94	1.01	0.05	No
		PM Peak	8990	17:00 - 18:00	0	2	94	1.01	0.05	No
		Quietest Period	3407	10:00 - 11:00	0	4	188	1.06	0.23	No
4	Dobbs Ferry btw Saw Mill River Road and Sprain Brook Pkwy	AM Peak	2064	08:00 - 09:00	25	0	25	1.01	0.05	No
		PM Peak	1576	17:00 - 18:00	25	0	25	1.02	0.07	No
		Quietest Period	636	10:00 - 11:00	0	0	0	1.00	0.00	No
5	Saw Mill River Rd btw Ashford Ave and I-87	AM Peak	7916	08:00 - 09:00	47	3	188	1.02	0.10	No
		PM Peak	6393	17:00 - 18:00	47	3	188	1.03	0.13	No
		Quietest Period	1645	10:00 - 11:00	0	2	94	1.06	0.24	No
6	Center Street between Saw Mill River Road and American Legion Drive	AM Peak	503	08:00 - 09:00	116	5	351	1.70	2.30	No
		PM Peak	770	17:00 - 18:00	116	5	351	1.46	1.63	No
		Quietest Period	269	10:00 - 11:00	0	6	282	2.05	3.11	Yes
7	American Legion Drive between Center Street and Parking Lot next to Shaft No. 14	AM Peak	1020	08:00 - 09:00	149	5	384	1.38	1.39	No
		PM Peak	770	17:00 - 18:00	149	5	384	1.50	1.76	No
		Quietest Period	644	10:00 - 11:00	0	6	282	1.44	1.58	No

Notes:
New PCEs = (no. of cars + no. of trucks(47))
PCE ratio = (Existing PCEs + Project generated PCEs) / Existing PCEs
Incremental change in dBA = 10 log (PCE ratio)

Methodology to establish AM/PM peak hour existing and project-induced PCEs discussed in Data Collection and Impact Methodologies, Section 4.10, Noise

Quietest hour existing PCEs calculated from traffic data (automatic traffic recorders, vehicle classifications, and turning movement counts). ATRs and VCs were used to establish traffic volume and mix along a route segment. Where ATRs were not available, the TMC count from the peak hour for the adjacent intersection was used to establish the trip assignment for the route segment. ATR and VC data from the nearest physically similar route sement for the quietest hour was used to establish volume and mix.

Quietest hour project-induced PCEs derived by assuming deliveries constant between 7 AM and 5 PM. Route segments established in Traffic Analysis Section.

Mobile Source Noise. The roadways considered for mobile source noise analysis at the Shaft Site are those presented in Table 8.1.3-4 and Figure 8.1.3-3. The roadways considered for analysis were those local routes identified as proposed transportation routes that connect the major thoroughfares to the Shaft Site. Sensitive receptors along the proposed project's possible transportation routes were identified. Route segments that did not contain sensitive receptors along them were not considered for further noise analysis. The major thoroughfare for commercial vehicles to the Shaft Site is the New York State (NYS) Thruway (I-87) to the west. In addition, major thoroughfares that commuter traffic (i.e. passenger cars) could use to access the Shaft Site are the Saw Mill River Parkway to the west and the Sprain Brook Parkway to the east. Therefore, the potential for noise impacts along those roadways connecting I-87, the Saw Mill River Parkway, and the Sprain Brook Parkway to the Shaft Site was evaluated.

As discussed above, Center Street required a detailed analysis. Baseline noise measurements were collected during the lowest traffic volume hour (10:00 AM-11:00 AM) at a representative noise-sensitive receptor location along Center Street (NCA14-M1). This noise-sensitive receptor would be potentially impacted by the project-related mobile sources traveling along the roadway.

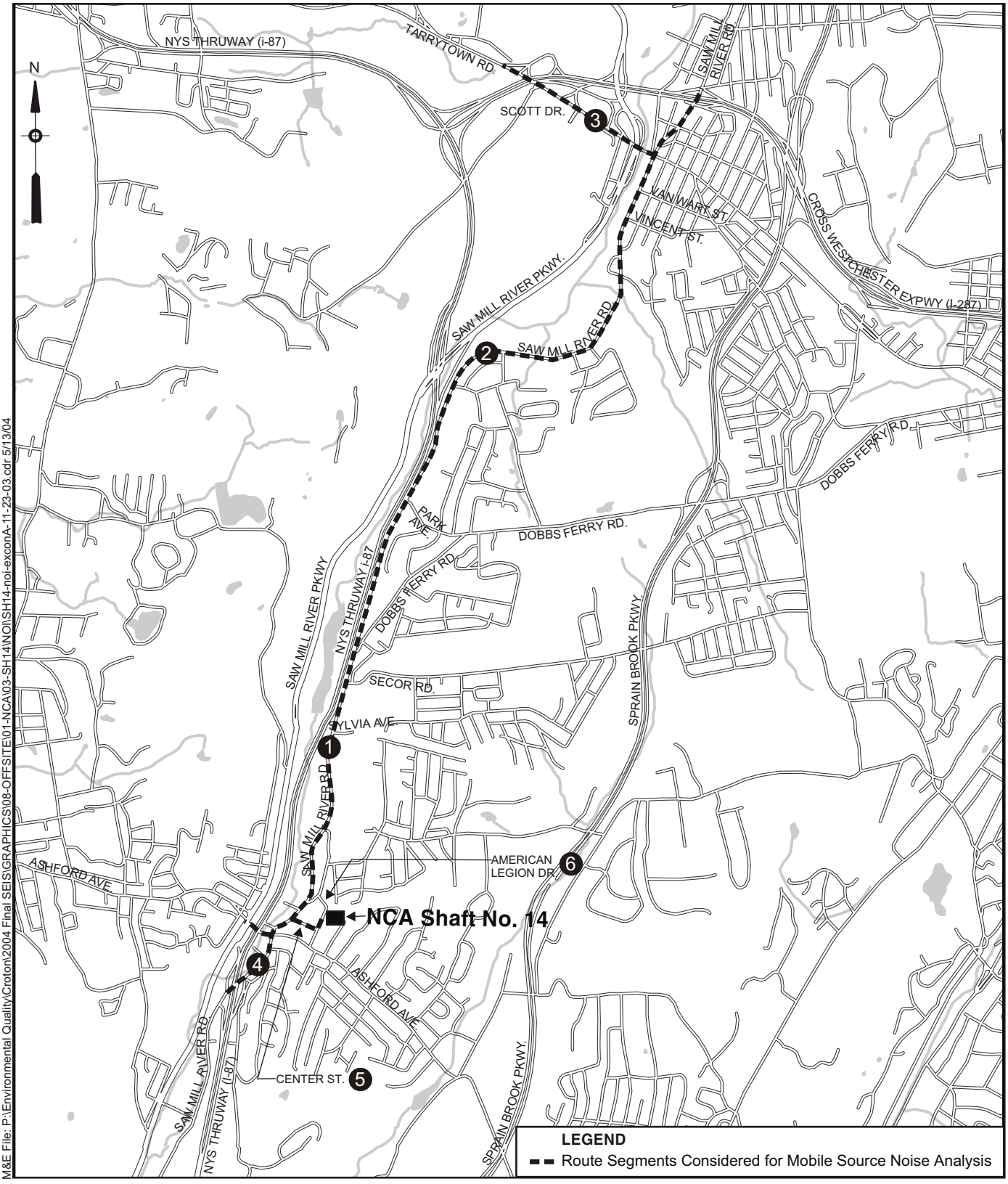
Figure 8.1.3-4 shows the location of receptor NCA14-M1.

TABLE 8.1.3-4. ROUTE SEGMENTS CONSIDERED FOR MOBILE SOURCE NOISE ANALYSIS AT NCA SHAFT NO.14

No.	Route Segment
1	Saw Mill River Rd between Ashford Ave and Dobbs Ferry Rd.
2	Saw Mill River Rd between Dobbs Ferry Rd and Tarrytown Rd.
3	Tarrytown Rd between Saw Mill River Rd and I-287
4	Saw Mill River Rd between Ashford Ave and I-287
5	Center Street between American Legion Drive and Saw Mill River Rd.

Traffic data (including traffic volume, vehicle classification, vehicle direction, and road geometries) were collected on Center Street at the same time as the noise measurements were collected. These data were input into the TNM model to determine if a good correlation existed between the measured existing Leq value and the TNM-calculated existing Leq value. Measured readings within three dBA of the TNM-calculated value represent a good correlation, as this increment of change in noise level is generally not perceptible to the human ear. A good correlation also indicates that vehicular traffic is the dominant noise source. Vehicular traffic was the dominant noise source at the various receptors along noise-sensitive route segments for the Shaft Site. Noise levels at mobile source receptors, therefore, vary with traffic volumes.

The data presented in Table 8.1.3-5 indicate that a good correlation exists between the measured Leq value and TNM-calculated Leq value. The noise monitoring yielded Leq of 64.6 dBA, while TNM calculated Leq of 62.6 dBA, a discrepancy of 1.8 dBA.



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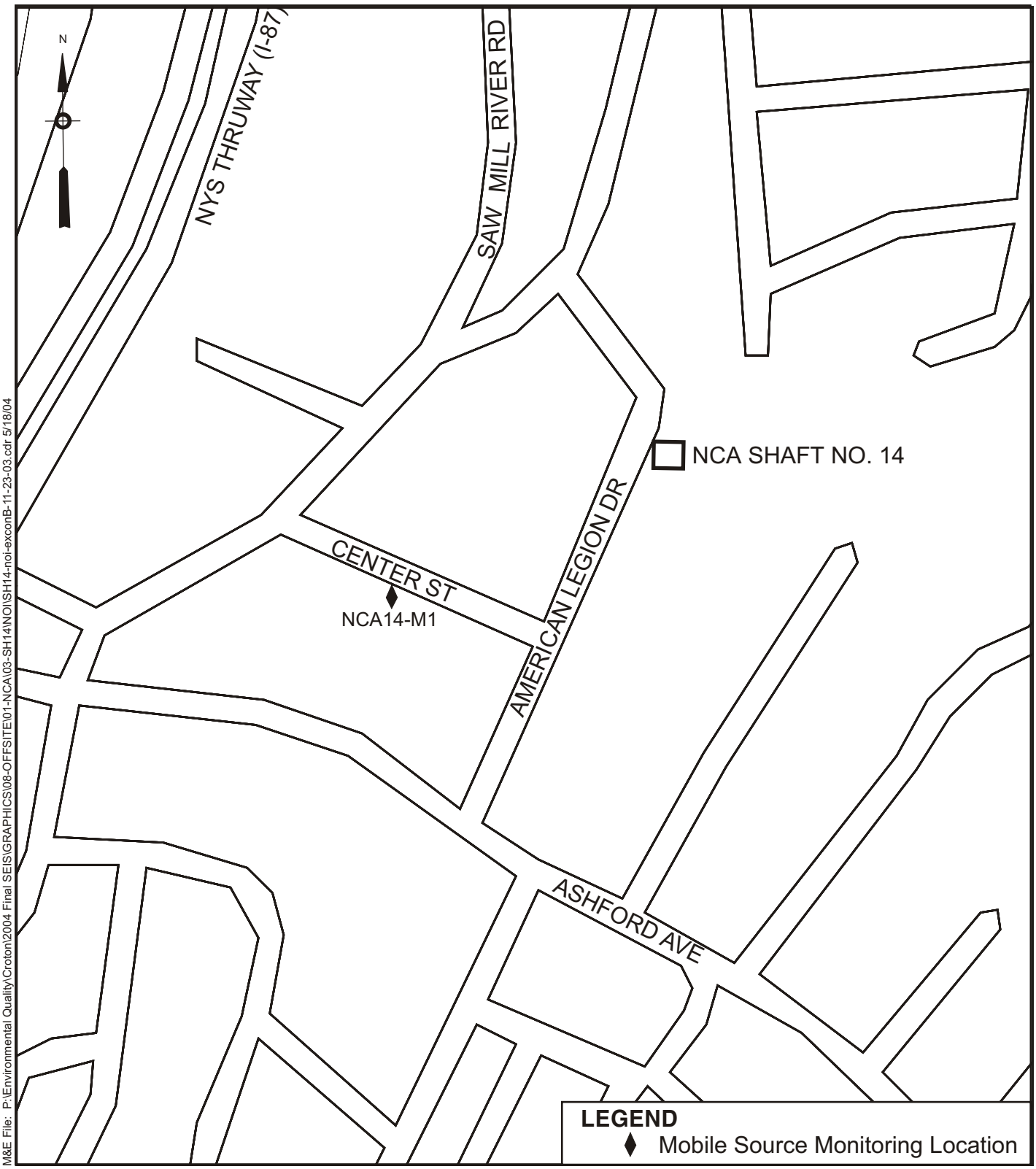
Not to Scale

NOTE: Numbers correspond to route segments listed in Table 8.1.3 - 10.

New Croton Aqueduct Shaft No. 14
Route Segments
Mobile Source Noise Analysis

Croton Water Treatment Plant

Figure 8.1.3-3



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New Croton Aqueduct Shaft No. 14 Mobile Noise Source Monitoring Location

Croton Water Treatment Plant

Figure 8.1.3-4

TABLE 8.1.3-5. EXISTING CONDITIONS AT RECEPTOR NCA14-M1 ON CENTER STREET
(dBA, Leq)

Monitoring Location	Monitoring Period	Measured Noise Level	TNM Calculated Noise Level
NCA14-M1	10:00 – 11:00 AM (Lowest traffic volume)	64.4	62.6

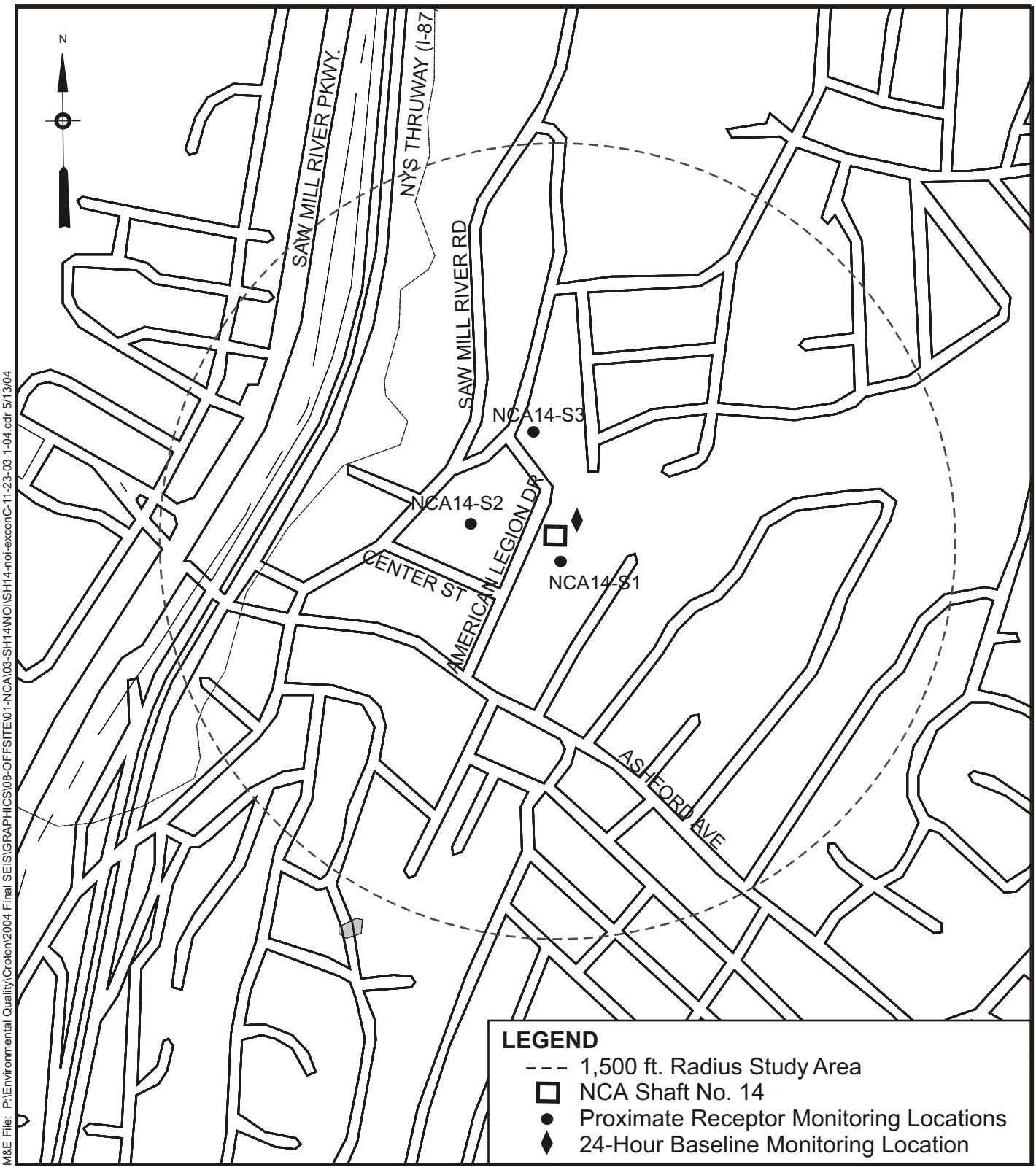
Once it was determined that the TNM model was a good predictor of traffic generated noise, the traffic data collected for Center Street during the traffic count program (corresponding to the lowest traffic volume) was entered into TNM. Table 8.1.3-6 presents two TNM-calculated Leq values, one calculated using the traffic count program data, and another calculated using data collected during the noise monitoring. The Leq calculated from the noise monitoring data was once again 62.6 dBA, while the Leq calculated using traffic count program data was 62.2 dBA. This minor discrepancy between the TNM calculated Leq values was a result of anticipated traffic variations over different days. The measured noise level was considered a better reflection of actual noise levels as it included such elements as background noise. The measured existing noise level (64.4 dBA, Table 8.1.3-5) therefore served as the basis for further analysis.

TABLE 8.1.3-6. EXISTING CONDITIONS AT NCA14-M1 ON CENTER STREET USING TRAFFIC COUNT PROGRAM DATA
(Leq, dBA)

Monitoring Location	Monitoring Period	Noise Level Calculated with TNM Using Monitoring Period Data	Noise Level Calculated with TNM Using Traffic Count Program Data
NCA14-M1	10:00 – 11:00 AM (Lowest Traffic Volume)	62.6	62.2

Stationary Source Noise. Stationary source noise monitoring was performed at the Shaft Site in order to establish existing baseline conditions. Noise monitoring was performed to reflect the construction and completed-project operation times, and to account for the receptor types that were within 1,500 feet of the Shaft Site. 24-hour baseline noise monitoring was conducted adjacent to the Shaft Site (see Figure 8.1.3-5). This location was chosen because it was the closest point on the property to a sensitive receptor. The dominant noise source at this location was traffic from American Legion Drive.

Noise level measurements were collected for 24 hours on a weekday and on a Sunday. Monitoring was performed in order to establish the period of the day with the potential for the greatest incremental change in noise. Monitoring periods were chosen to reflect planned construction activity, which may require 24-hour usage of a ventilation system. Construction activities are anticipated to take place on Monday through Friday from 7:00 AM to 6:00 PM.



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SCALE IN FEET

New Croton Aqueduct Shaft No. 14
Stationary Noise Source
Monitoring Locations

Croton Water Treatment Plant

Figure 8.1.3-5

Weekday Baseline Monitoring. The 24-hour baseline noise levels measured on a weekday are presented in Table 8.1.3-7. The quietest period (between 3:00 AM and 4:00 AM) had a Leq of 52.1 dBA and the noisiest period (between 12:00 PM and 1:00 PM) had a Leq of 66.2 dBA.

TABLE 8.1.3-7. MEASURED 24-HOUR NOISE LEVELS AT NCA SHAFT NO. 14 ON A WEEKDAY
(Leq, dBA)

	Hourly Leq											
TIME	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
AM	52.7	55.9	52.2	**52.1**	52.5	54.2	55.6	57.3	64.8	63.2	60.5	58.8
PM	**66.2**	55.3	56.2	55.8	57.0	56.6	57.3	55.9	54.3	54.7	54.3	54.1

Sunday Baseline Monitoring. The 24-hour baseline noise levels measured on a Sunday are presented in Table 8.1.3-8. The quietest period (between 3:00 AM and 4:00 AM) had a Leq of 48.5 dBA, and the noisiest period (between 12:00 PM and 1:00 PM) had a Leq of 64.4 dBA.

TABLE 8.1.3-8. MEASURED 24-HOUR NOISE LEVELS AT NCA SHAFT NO. 14 ON A SUNDAY
(Leq, dBA)

	Hourly Leq											
TIME	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
AM	50.5	51.4	50.3	**48.5**	49.2	49.9	53.2	53.6	53.4	54.9	55.6	57.4
PM	**64.4**	56.8	58.0	55.8	56.0	54.7	56.3	56.4	53.5	52.3	51.3	51.2

Following the initial 24-hour monitoring, 20-minute measurements were taken at noise sensitive receptors proximate to the Shaft Site (see Figure 8.1.3-5 above). Table 8.1.3-9 presents information regarding the proximate receptors. Measurements were conducted at each receptor during those hours that the receptor was sensitive to noise contributions. Residences were assumed to be occupied (and therefore sensitive to noise occupations) at all times.

TABLE 8.1.3-9. DESCRIPTION OF NOISE SENSITIVE RECEPTORS FOR STATIONARY SOURCE ANALYSIS

Receptor Name	Description of Receptor
NCA14-S1	Village of Ardsley Public Library
NCA14-S2	Public Park on American Legion Drive
NCA14-S3	Private Residence on American Legion Drive

Weekday Monitoring at Receptors. The 20-minute measurements were performed at these locations during the noisiest and quietest times as determined by the initial 24-hour monitoring. The noise levels and associated monitoring periods for weekday periods are presented in Table 8.1.3-10.

TABLE 8.1.3-10. TWENTY-MINUTE MEASURED WEEKDAY NOISE LEVELS AT SENSITIVE RECEPTORS NEAR NCA SHAFT NO. 14

Monitoring Location	Monitoring Period	Monitoring Time	Noise Level
NCA14-S1	Noisiest Daytime	12-1 PM	54.7
	Quietest Daytime	1-2 PM	54.6
	Quietest Nighttime	8-9 PM	57.8
NCA14-S2	Noisiest Daytime	12-1 PM	60.3
	Quietest Daytime	1-2 PM	57.4
	Quietest Nighttime	8-9 PM	56.8
NCA14-S3	Noisiest Daytime	12-1 PM	63.2
	Quietest Daytime	1-2 PM	63.4
	Quietest Nighttime	2-5 AM	55.1

Sunday Monitoring at Receptors. Twenty-minute monitoring periods and noise levels for a Sunday at proximate receptors are presented in Table 8.1.3-11.

TABLE 8.1.3-11. TWENTY-MINUTE MEASURED SUNDAY NOISE LEVELS AT SENSITIVE RECEPTORS NEAR NCA SHAFT NO. 14
(Leq, dBA)

Monitoring Location	Monitoring Period	Monitoring Time	Noise Level
NCA14-S1	Noisiest	12-1 PM	56.0
	Quietest Daytime	9-10 PM	51.8
NCA14-S2	Noisiest	12-1 PM	56.6
	Quietest Daytime	9-10 PM	54.8
NCA14-S3	Noisiest	12-1 PM	59.3
	Quietest Daytime	3-5 AM	47.1

Air Quality. A screening level analysis was performed based on the anticipated level of construction activity at NCA Shaft No. 14. No operational impacts to the air quality within the study area are anticipated as part of this project. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

Historic and Archaeological Resources. No impacts to historic and archaeological resources within the study area are anticipated as part of this project. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

Hazardous Materials. There is the potential for hazardous materials to exist at NCA Shaft No. 14. These materials could consist of asbestos-containing materials (ACM) or lead-based paint. A hazardous material evaluation will be conducted within NCA Shaft No. 14 in order to ensure environmental safety for construction workers and NYCDEP personnel and to ensure compliance with all applicable hazardous material rules and regulations. In addition, potential contamination within NCA Shaft No. 14 would not pose a threat to public health or safety since the facility is a restricted use facility. The information gathered as part of this

evaluation will be used to develop a Construction Contamination Management Plan (CCMP) and to determine the proper disposal requirements for material removed from the facility as part of the rehabilitation conducted as part of this project. The hazardous materials investigation to determine the appropriate level of material handling in accordance with a detailed CCMP would ensure the safety of public health. Therefore, no potential hazardous material impact is anticipated.

Natural Resources. No impacts to natural resources are anticipated as part of the operations of this project. Therefore, a detailed analysis of natural resources was not conducted for this site.

Water Resources. No impacts to water resources are anticipated as part of this project. Therefore, a detailed analysis of water resources was not conducted for this site.

Infrastructure and Energy. No impacts to infrastructure or energy resources within the study area are anticipated as part of this project. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

Electric And Magnetic Fields (EMF) and/ Extremely Low Frequency Fields (ELF) Analysis. No impacts related to electric and magnetic fields or extremely low frequency fields are anticipated as part of this project. Therefore, a detailed analysis of these parameters was not conducted for this site.

Solid Waste. No impacts related to solid waste handling or facilities are anticipated as part of this project. Potential impacts during construction are discussed in the Potential Construction Impacts section below.

8.1.3.2.2. Future Without the Project

The peak construction year would be 2013 and the operation year would be 2015. The pressurization of the NCA that is associated with construction of the water treatment plant at the Eastview Site (scheduled for 2011-2015) would constitute the worst-case scenario in terms of potential future impacts at Shaft No. 14. The work at NCA Shaft No. 14 would only occur if the Eastview Site were selected as the preferred site and the NCA were the selected as the preferred treated water conveyance.

Shaft Site. In the Future Without the Project, the Shaft Site would remain largely unchanged from the existing conditions. The existing monitoring station would remain and their current operation patterns would continue. Independent of the proposed project, the NYCDEP has plans to conduct general maintenance and repair on the 115-year old NCA and its access locations. Necessary repairs to cracks and leaks would be conducted following an inspection of the NCA. In addition, new security measures (i.e., doors, windows, roof and camera and lighting) would be installed. These improvements would assist to protect the public utility and ensure its operation well into the future. This work would take place between the years of 2004 and 2007 and is subject to a separate environmental review.

Study Area. In the Future Without the Project, the predominately residential and commercial character of the area surrounding the Shaft Site would be preserved. There is one development proposal being considered by the Village of Ardsley for a three-home subdivision between Orlando and Park Avenues.[1] Should this proposed development be approved, it is anticipated to be complete before the year of completion for the proposed plant. In addition, the Ardsley Fire Department plans to replace its firehouse at its current location.

Just outside the study area there are several residential developments that have been recently approved, some of which have begun construction. To the north of the study area, a residential development consisting of 175 senior housing units and 15 single-family homes are currently under construction. The senior housing units are anticipated to be complete by the spring of 2004, and the single-family homes should be complete by the end of 2004.[2] To the west of the study area, in the Village of Dobbs Ferry, at the intersection of Ashford, Lefurgy, and Virginia Avenues, plans have been approved for four two-family homes. These homes should be constructed before 2014, the anticipated year of completion of the proposed NCA pressurization work. On the south side of Virginia Avenue and the west side of Lefurgy Avenue, plans for an eight-lot subdivision have been approved, and construction should be complete by June 2004. In addition, infill development is occurring on residential streets such as Lewis Avenue (northwest of the study area), Hillside Road (west of the study area), and Haynes Avenue (west of the study area).[3] Since the Shaft Site is located in a relatively developed part of Westchester County, the development proposals located in or just outside the study area are not anticipated to significantly alter land use trends, visual or neighborhood character. Based on the proposed developments within the study area the potential increased demands on community facilities would be re-evaluated and additional services could be provided where appropriate by the local municipality.

Traffic and Transportation. The Future Without the Project considerations include the year of existing conditions (2003) and the anticipated year of peak construction activity (2013) for the pressurization work. The 2013 Future Without the Project analysis year corresponds with the peak construction traffic year at NCA Shaft No. 14. Figure 8.1.3-6 illustrates the 2013 Future Without the Project traffic volumes. Existing traffic volumes are anticipated to increase between 2003 and the 2013 Future Without the Project analysis year. To account for the potential general traffic increases in Westchester County, an annual growth rate of 1.5 percent per year was applied to the 2002 Existing Traffic Volumes.

There are two proposed site developments in the NCA Shaft No. 14 study area, which may occur during the time frame of the Croton project. The first is the Avalon Green development located on the south side of Route 119 just east of I-287. This project would include 794 residential rental units, a daycare center, 200,000 sq. ft. of office space, and 30,000 sq. ft. of retail space. The second is Springhill Suites Hotel, which is a 145-room extended stay hotel located on the south side of Route 119 and west of I-287.

[1] Email correspondence with George Calvi, Village Manager, Village of Ardsley, July 1, 2002 and July 10, 2002, and telephone conversation on September 12, 2003.
[2] ibid
[3] Telephone conversations with Robert Fitzsimmons, Building Inspector, Village of Dobbs Ferry, July 11, 2002, and Brian Cook, Building Inspector, Village of Dobbs Ferry, September 11, 2003.

Due to the size of these developments, there would be potential impacts in the vicinity and along Route 119. Assuming that the developments would be finished by the peak construction year (2013) at NCA Shaft No. 14, mitigation measures recommended within these projects would be implemented as part of the Future Without the Project conditions. A mitigation measure was proposed at the following location:

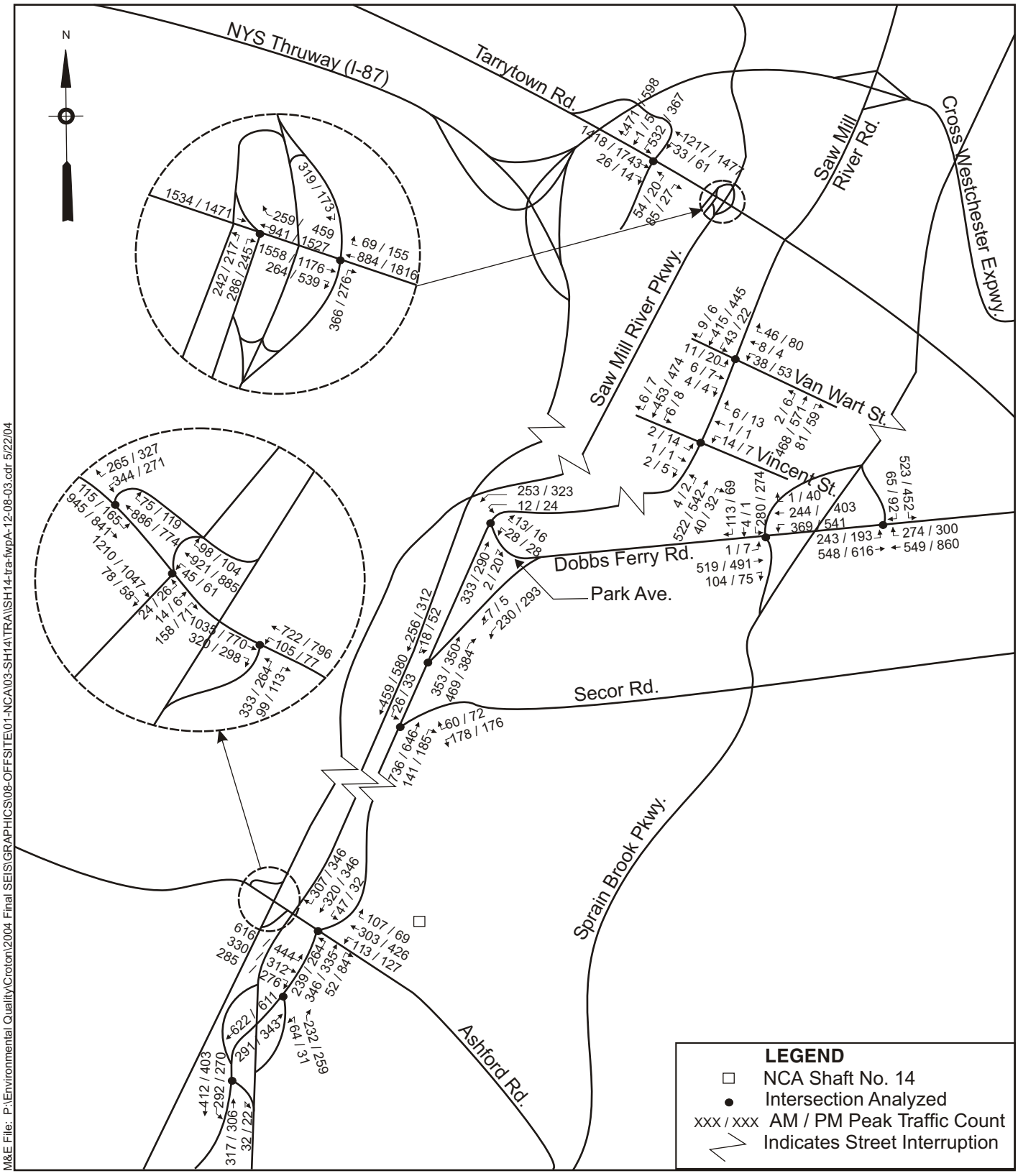
Route 119 at Valley Avenue: For the Avalon Green development, convert Valley Avenue to one-way operation northbound and adjust signal timing.

The traffic volumes due to these proposed developments and background growth would increase the traffic congestion in the project area. Results of the 2013 analysis are presented in Table 8.1.3-12. In the 2013 analysis year, eight intersections would experience marginally unacceptable LOS D or unacceptable LOS E, or F conditions for the AM and/or PM peak hours. These intersections are as follows:

- Tarrytown White Plains Road (Route 119) and New York State Thruway (I-87) Eastbound Off Ramp
- Saw Mill River Road (Route 9A) and Secor Road
- Sam Mill River Road (Route 9A) and Ashford Avenue
- Ashford Avenue and Saw Mill River Parkway Southbound Off Ramps
- Dobbs Ferry Road and Sprain Brook Parkway Northbound Ramps
- Saw Mill River Road (Route 9A) and Van Wart Street
- Ashford Avenue and Saw Mill River Parkway Southbound Ramps/Southfield Avenue
- Dobbs Ferry Road and Sprain Brook Parkway Southbound Ramps

Of these eight intersections, six intersections (five signalized and one unsignalized) have increased overall congestion (or worse LOS) from the 2002 Existing Conditions to the 2013 Future Without the Project conditions. Two unsignalized intersections would experience congested conditions unchanged from 2002 Existing Conditions.

Under 2002 Existing Conditions and 2013 Future Without the Project conditions, the following intersection congestion conditions occur. The intersection of Ashford Avenue and Saw Mill River Parkway Southbound Off Ramps and the intersection of Dobbs Ferry Road and Sprain Brook Parkway Southbound Ramps would experience unacceptable LOS F conditions in the AM and PM peak hours.



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Not To Scale

New Croton Aqueduct Shaft No. 14
2013 Future Without the Project
Traffic Volume - AM / PM Hour

Croton Water Treatment Plant

Figure 8.1.3-6

Under the 2013 Future Without the Project conditions, the intersection of Tarrytown White Plains Road and New York State Thruway Eastbound Off Ramp would experience increased overall congestion in the AM and PM peak hours. The overall LOS would be reduced from LOS C in the AM and PM peak hours to LOS E in the AM peak hour and marginally acceptable LOS D in the PM peak hour.

Under the 2013 Future Without the Project conditions, the Saw Mill River Road (Route 9A) at Secor Road intersection would have increased overall congestion from the 2002 Existing Conditions. The AM peak hour LOS would be reduced from marginally acceptable LOS D to LOS E. The PM peak hour LOS would be reduced from LOS C to marginally unacceptable LOS D conditions.

Under the 2013 Future Without the Project conditions, the Saw Mill River Road and Ashford Avenue intersection would have increased overall congestion from the 2002 Existing Conditions. In the AM and PM peak hours, the overall LOS would be reduced from LOS E to LOS F.

Under the 2013 Future Without the Project conditions, the Ashford Avenue at Saw Mill River Parkway Southbound Off Ramps would have increased overall congestion from the 2002 Existing Conditions. The AM peak hour overall LOS would be reduced from a marginally acceptable LOS D to a LOS E conditions. The PM peak hour overall LOS would be reduced from an acceptable LOS C to a marginally acceptable LOS D conditions.

Under the 2013 Future Without the Project conditions, the intersection of Dobbs Ferry Road and Sprain Brook Parkway Northbound Ramps would experience increased congestion during the AM peak hour from the 2002 Existing Conditions. In the AM peak hour, the overall LOS would be reduced from LOS C to marginally acceptable LOS D.

Under the 2013 Future Without the Project conditions, the Saw Mill River Road (Route 9A) and Van Wart Street intersection would experience increased congestion from the 2002 Existing Conditions on the stop controlled approaches. In the PM peak hour, the eastbound and westbound approaches would operate at LOS E, reduced from marginally acceptable LOS D conditions in the 2002 Existing Conditions.

TABLE 8.1.3-12. 2013 FUTURE WITHOUT THE PROJECT TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS
Tarrytown White Plains Rd (Rt 119) and New York State Thruway (I-87) EB Off Ramp	EB – TR	0.81	23.4	C	0.88	27.3	C
	WB – TR	0.58	16.8	B	0.79	22.5	C
	NB – LR	1.46	>150	F	0.42	41.7	D
	SB – LTR	1.15	121.6	F	1.01	71.1	E
	Intersection		**55.9**	**E**		**35.2**	**D**
Saw Mill River Parkway NB Ramps @ Tarrytown White Plains Road/Rt 119	EB – TR	1.06	59.8	E	0.98	36.5	D
	WB - TR	0.37	11.6	B	0.73	16.6	B
	NB – R	0.71	33.9	C	0.53	28.0	C
	SB – R	0.62	30.5	C	0.33	24.1	C
	Intersection		**41.1**	**D**		**25.9**	**C**
Saw Mill River Parkway SB Ramps at Tarrytown White Plains Road/ Rt 119	EB – T	0.91	26.7	C	0.84	17.2	B
	WB – TR	0.49	12.8	B	0.90	19.3	B
	NB – LR	1.01	70.1	E	0.96	52.8	D
	Intersection		**28.6**	**C**		**22.5**	**C**
Saw Mill River Rd (Rt 9A) at Dobbs Ferry Road	WB – LR	0.40	20.9	C	0.48	22.0	C
	NB – T	0.46	15.4	B	0.44	14.9	B
	NB – R	0.32	0.5	A	0.25	0.4	A
	SB – LT	0.42	15.0	B	0.44	15.1	B
	Intersection		**11.0**	**B**		**12.4**	**B**
Saw Mill River Rd (Rt 9A) at Secor Road	WB – LR	0.39	20.6	C	0.41	20.9	C
	NB – TR	1.16	107.9	F	1.04	63.8	E
	SB – LT	0.76	24.7	C	0.90	34.6	C
	Intersection		**69.7**	**E**		**46.9**	**D**
Saw Mill River Rd (Rt 9A) at Ashford Avenue	EB – L	1.24	50.0	F	0.99	88.6	F
	EB – T	0.70	48.6	D	0.75	55.4	E
	EB – R	0.40	20.6	C	0.43	28.4	C
	WB – L	0.35	47.4	D	0.32	43.2	D
	WB – T	1.04	119.0	F	1.19	>150	F
	WB – R	0.17	26.6	C	0.10	24.0	C
	NB – L	0.69	53.9	D	0.77	61.4	E
	NB – T	1.16	>150	F	1.16	>150	F
	NB – R	0.08	22.0	C	0.26	46.1	D
	SB – L	0.16	43.4	D	0.08	40.3	D
	SB – T	1.11	139.8	F	0.99	97.7	F
	SB – R	0.99	101.6	F	0.95	85.5	F
	Intersection		**104.3**	**F**		**91.7**	**F**

TABLE 8.1.3-12. 2013 FUTURE WITHOUT THE PROJECT TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS
Ashford Ave at Saw Mill River Parkway NB Ramps	EB – TR	0.82	20.8	C	0.60	14.7	B
	WB – LT	0.94	36.6	D	0.67	16.7	B
	NB – LR	0.84	41.4	D	0.68	32.3	C
	Intersection		**29.2**	**C**		**18.3**	**B**
Ashford Ave at Saw Mill River Parkway SB Off Ramps	EB – L	1.00	102.7	F	1.14	138.6	F
	EB – T	0.61	17.8	B	0.51	16.2	B
	WB – TR	1.21	128.7	F	1.04	62.6	E
	SB – LR	1.01	64.7	E	0.97	55.4	E
	Intersection		**72.9**	**E**		**50.3**	**D**
Dobbs Ferry Road and Sprain Brook Parkway NB Ramps	EB – L	0.58	13.6	B	0.72	24.4	C
	EB – T	0.52	9.3	A	0.57	9.9	A
	WB – T	0.52	9.2	A	0.79	15.6	B
	WB – R	0.16	0.2	A	0.17	0.2	A
	SB – L	1.18	124.9	F	1.02	70.5	E
	SB – R	0.15	18.3	B	0.21	19.0	B
	Intersection		**36.8**	**D**		**23.3**	**C**

TABLE 8.1.3-12. 2013 FUTURE WITHOUT THE PROJECT TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

UNSIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS
Saw Mill River Rd (Rt 9A) at Van Wart Street	EB-LTR	0.00	8.2	A	0.01	8.4	A
	WB-LTR	0.05	8.8	A	0.03	9.2	A
	NB-LTR	0.36	26.1	D	0.68	48.9	E
	SB-LTR	0.11	25.8	D	0.27	44.2	E
Saw Mill River Rd (Rt 9A) at Vincent Street	EB-LTR	0.00	8.3	A	0.00	8.4	A
	WB-LTR	0.01	8.7	A	0.01	8.8	A
	NB-LTR	0.09	21.6	C	0.07	18.1	C
	SB-LTR	0.02	18.3	C	0.10	24.3	C
Saw Mill River Rd (Rt 9A) at Park Ave/ Dobbs Ferry	WB-LR	0.01	8.2	A	0.02	8.0	A
	SB-LT	0.12	14.9	B	0.10	13.4	B
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) NB Off Ramp	NB-LR	0.61	22.1	C	0.49	16.0	C
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) SB On Ramp	SB-LT	0.27	9.3	A	0.24	9.0	A
Ashford Ave at Saw Mill River Parkway SB Off	WB-LT	0.08	12.4	B	0.11	11.8	B
	NB-LTR	>1.50	>150	F	1.24	>150	F
Dobbs Ferry Road and Sprain Brook Parkway SB	WB-LT	0.39	11.1	B	0.54	12.7	B
	SB-LTR	>1.50	>150	F	>1.50	>150	F

ABBREVIATIONS:

EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound

L-Left, T-Through, R-Right, E-W: East-West Roadway, N-S: North-South Roadway

V/C Ratio - Volume to Capacity Ratio

SEC/VEH - Seconds per Vehicle

LOS - Level of Service

Noise Analysis.

Mobile Source Noise. Future Without the Project mobile source noise levels for the construction phase of the proposed NCA work was determined for the peak construction traffic year (2013). In the Future Without the Project, the noise environment was established by evaluating future traffic patterns and planned developments in the vicinity of the Shaft Site. A traffic growth factor of 1.5 percent accounted for nominal background increases over time. This growth factor was applied to the existing traffic volumes present along the noise-sensitive route segment (Center Street) that required further analysis.

Based on the results of the PCE screening analysis, Center Street between Saw Mill River Road and American Legion Drive required further analysis for the lowest traffic volume period (10:00 AM – 11:00 AM). Once the future traffic data were established, noise levels for 2013 were predicted using TNM. The incremental change between the TNM-calculated existing condition and the TNM-calculated Future Without the Project noise levels was thereby established. This incremental change was then added to the measured existing condition noise value to generate the predicted Future Without the Project noise level.

Table 8.1.3-13 compares existing sound levels to the noise levels predicted for the Future Without the Project (2013). Projected noise level increases over existing conditions were predicted to be 1.8 dBA for the morning peak hour (10:00 AM – 11:00 AM).

TABLE 8.1.3-13. FUTURE WITHOUT THE PROJECT NOISE LEVELS FOR CENTER STREET AT NCA SHAFT NO. 14
(Leq, dBA)

Monitoring Location	Monitoring Period	Measured Existing Noise Level	TNM-Calculated Existing Noise Level	TNM-Calculated Future Without (2013)	Incremental Change	Future Without the Project Noise Level (2013)
NCA14-M1	10:00 AM–11:00 AM	64.4	62.2	64.0	1.8	66.2

Existing L_{eq} calculated with TNM using data from Traffic Count Program
Incremental Change=TNM-calculated future without minus TNM-calculated existing
Future Without the Project (2013) = Measured Existing plus Incremental change

Stationary Source Noise. Future baseline noise levels at proximate receptor locations for the construction phase of the proposed NCA work was determined for the peak construction year (2013). A review of future planned developments in the vicinity of NCA Shaft No. 14 for the year 2013 revealed no new stationary noise sources that would significantly increase the existing background noise levels at proximate receptor locations. Therefore, the future baseline noise levels at stationary source receptors located near NCA Shaft No. 14 are not anticipated to change from existing noise levels measured during the noise-monitoring program.

No changes in stationary sources were anticipated for the operation year 2015 in the vicinity of the Shaft Site. Since the future baseline from stationary source noise was anticipated to remain unchanged, no further analysis of the build year was included.

Hazardous Materials. If the hazardous materials evaluation indicates that contaminants are present within NCA Shaft No. 14, these contaminants would be remediated prior to initiation of the NCA baseline rehabilitation work.

8.1.3.3. Potential Impacts

8.1.3.3.1. Potential Project Impacts

The anticipated year of completion of the proposed pressurization work is 2015. Therefore, potential project impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions for the year 2015.

In the anticipated year of completion (2015), NCA Shaft No. 14 would continue to operate as described in the Future Without the Project. The land use would not change as a result of the proposed pressurization work. The improvements made would not result in any permanent employment or other types of new activity on-site. The existing monitoring station, parking lot, and pedestrian bridge would not be expanded and the drainage channel and landscaping would remain. No employees would be assigned to this location; therefore, no services would be required and no additional infrastructure would be needed. There would be no impact on public health from the operation of NCA Shaft No. 14 during operations. With the end of the construction process no additional truck or vehicle trips to the Shaft Site would be required nor would the upgraded facility generate air emissions or noise. If the Eastview Site is selected and the NCA is pressurized, the base of Shaft No. 14 where it joins the NCA would be sealed to contain water under pressure. This would result in a significant adverse impact to the historic character of the NCA and the base of the Shaft structure.

8.1.3.3.2. Potential Construction Impacts

The anticipated year of peak construction of the proposed pressurization work is 2013. Therefore, potential project impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions for the year 2013.

Land Use. During the proposed pressurization work, land use on the Shaft Site would change temporarily in terms of the overall level of activity occurring on-site. Most of the proposed construction work at the Shaft Site would take place underground in the NCA, but the existing 17-space parking lot which abuts the northern side of the monitoring station would be occupied by construction equipment. This parking lot, which is currently used by the Village of Ardsley Public Library, would be unusable by the library on a temporary basis during the construction period.

Visual Character. A temporary chain-link fence would surround the construction area during the six-year construction period. The chain-link fence is being installed as a safety

measure and to secure the site during construction. This fence would temporarily change the visual character of the NCA Shaft No. 14 site.

Community Facilities. Emergency Services representatives would work with the City to establish a safety and emergency response plan that would adequately assess the construction activities and identify potential needs. In the event of an emergency, the construction workers at the Shaft Site would activate the response plan. It is not anticipated that these needs would result in a significantly adverse impact to services provided in the study area.

Socioeconomic Analysis. During the peak construction year, a maximum of 181 construction workers and approximately 26 construction trucks would visit the site on any given weekday. Construction workers would either arrive by public transportation (there is a Metro-North stop one block away) or by car. The construction contractor would be responsible for providing parking in one of several private lots in the area for the workers. Westchester County or the Village of Ardsley would not receive any income tax benefits from these construction workers; neither the County nor the Village taxes personal income.

The construction work forces would likely add money to the local economy through their visits to area businesses. The RIMS II multipliers for the construction industry indicate that the sectors that would benefit most during construction are retail trade and business services. It is not possible to determine exactly where the workers may conduct business, but it is likely that they would visit nearby gas stations, convenience stores, and restaurants. It is likely that some of the economic benefits from the construction activity would spill over to nearby counties. The costs of construction activities for the proposed pressurization work would be included in overall costs for the proposed project. For the complete analysis of indirect effects, refer to the socioeconomic analysis for the Eastview Site, Section 5.7.

Historic and Archaeological Resources. As discussed in the existing conditions, the Shaft building and the adjacent spillway are both eligible for listing on the National Register of Historic Places. The base of the Shaft where it joins the NCA would be sealed to contain pressurized water. This action would significantly adversely impact the historic character of the NCA and the base of the Shaft structure. The Shaft structure and historic spillway above the NCA connection would be preserved and not adversely impacted. Due to the eligible listing of the Shaft building and stone-line spillway, prior to construction, New York State Office of Parks, Recreation, and Historic Preservation in addition to the Secretary of the Interior's Standards for the Treatment of Historic Properties would be consulted to retain the historic character of the structures. There would not be any work conducted that would affect archaeological resources; therefore, no adverse impacts to archaeological resources would occur as part of this proposed work.

Traffic and Transportation. Transportation data and planning assumptions for the construction workers as well as the construction trucks during the 2013 peak construction period were presented previously in Section 4.9, Data Collection and Impact Methodologies, Traffic and Transportation. As described under Existing Conditions above, there are limited transit facilities in the vicinity of the NCA Shaft No. 14 site. For the purpose of traffic analysis, it was assumed that all construction workers would arrive in private vehicles. Table 8.1.3-4 shows the

anticipated 2013 peak year construction resources based on preliminary engineering design of the pressurization work on the Shaft Site. Table 8.1.3-5 shows the resulting peak construction generated based on preliminary engineering design. Typically, each construction vehicle is considered to be equivalent to 1.5 passenger cars for 2-axle trucks and 2.0 passenger cars for 3-axle trucks. For conservative results, however, each construction truck was assumed to be a 3-axle truck, or equivalent to 2.0 passenger cars.

As described under existing conditions, there are limited transit facilities in the vicinity of the Shaft Site. For the purpose of traffic analysis, it was assumed that all construction workers would arrive in private vehicles. Table 8.1.3-14 shows the anticipated 2013 peak year construction resources based on preliminary engineering design of the pressurization work on the Shaft Site. Table 8.1.3-15 shows the resulting peak construction generated based on preliminary engineering design. Typically, each construction vehicle is considered to be equivalent to 1.5 passenger cars for 2-axle trucks and 2.0 passenger cars for 3-axle trucks. For conservative results, however, each construction truck was assumed to be a 3-axle truck, or equivalent to 2.0 passenger cars.

TABLE 8.1.3-14. CONSTRUCTION RESOURCE REQUIREMENTS

Potential Construction Impacts	**NCA Shaft No. 14**
Peak Year	2013
Construction Hours	7:00AM to 6:00 PM
Construction Shifts	1
Construction workers on a peak day	181
Construction vehicles on a peak day	26
Peak time of arrival (workers)	6:00 AM to 7:00 AM
Peak time of departure (workers)	6:00 PM to 7:00 PM
Period of arrivals and departures (trucks)	7:00 AM to 6:00 PM

TABLE 8.1.3-15. CONSTRUCTION TRIP GENERATION

	AM Peak Hour			**PM Peak Hour**		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Auto	143	8	151	8	143	151
Trucks	4	1	5	1	4	5
Total	147	9	156	9	147	156
PCE Total	151	10	161	10	161	161

Traffic assignment of construction workers to and from the Shaft Site was determined through the use of population densities from census information within a 5-mile radius of the site. Census areas that exhibited larger population densities within this area were assumed to generate a higher number of project-related trips. Traffic assignment of construction trucks was based on anticipated truck origins and known truck routes in the study area.

The project-generated construction traffic was added to the year 2013 Future Without the Project volumes in the AM and PM peak hours and capacity analyses were performed for these combined conditions. Figure 8.1.3-7 shows the potential pressurization generated traffic. Figure 8.1.3-8 shows the total combined traffic under construction conditions. Table 8.1.3-16 shows a comparison of the traffic conditions for the 2013 Future Without the Project and the 2013 Potential Construction Impacts.

The following is a summary of potential impacts based upon the capacity analysis performed at the NCA Shaft No. 14 study intersections.

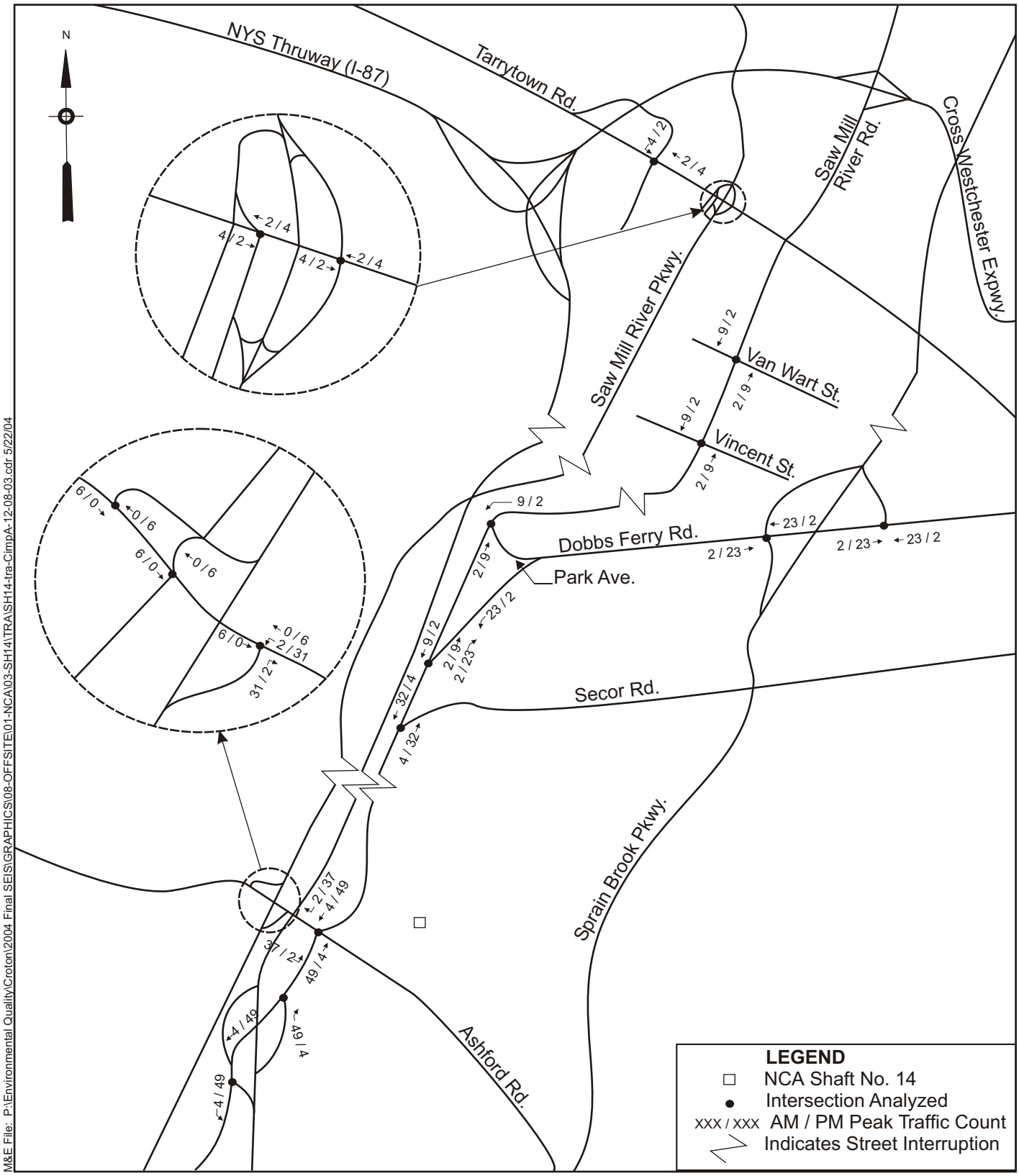
Traffic. Applying the potential traffic impact criteria described in the Potential Construction Impacts, Section 4.9.3.4, Methods of Analysis, Traffic and Transportation, four (4) signalized intersections would potentially experience potential significant adverse impacts due to construction traffic in the AM and/or PM peak hours. These intersections are described below. Section 9.4, Mitigation of Potential Impacts, presents mitigation measures that would be implemented if practicable and feasible. If these mitigation measures were not implemented, these potentially significant adverse impacts would remain unmitigated.

At the Saw Mill River Road (Route 9A) and Ashford Avenue intersection, the overall intersection delay would increase in both the AM and PM peak hours. In the AM peak hour, the overall intersection delay would increase from 98.1 seconds (LOS F) to 121.5 seconds (LOS F). In particular, the eastbound lefts and the northbound through movements would experience increases in delay, both exceeding 150 seconds of delay in the 2013 peak construction year. In the PM peak hour, the overall intersection delay would increase from 91.7 seconds (LOS F) to 101.8 seconds (LOS F). This intersection would have a potential significant adverse impact due to the projected 92 construction vehicles in the peak construction year.

At the intersection of Ashford Avenue and Saw Mill River Parkway Northbound Ramps, the northbound approach would experience an increase in delay from 41.4 seconds (LOS D) to 48.8 seconds (LOS D) in the AM peak hour.

At the intersection of Ashford Avenue and Saw Mill River Parkway Southbound Off Ramps, the eastbound left turns would experience an increase in delay from 138.6 seconds (LOS F) to 144.2 seconds (LOS F) in the PM peak hour.

Parking. Construction at the Shaft Site is not anticipated to provide on-site parking facilities for construction vehicles and workers during project construction. All construction vehicles and workers would be required to park on local streets or possibly in nearby public parking lots. The parking requirements would have to be coordinated with commercial owners of such parking facilities, however, it is anticipated that plenty of nearby parking is available to accommodate the needs of the construction workers and construction vehicles. Based on the transportation data and planning assumptions presented in Section 4.9, Data Collection and Impact Methodologies, Traffic and Transportation, the use of nearby public parking would need to accommodate 161 construction worker vehicles. Since adequate parking is available, no potential significant adverse parking impacts are anticipated to occur to the adjacent parking facilities in the vicinity of the Shaft Site.



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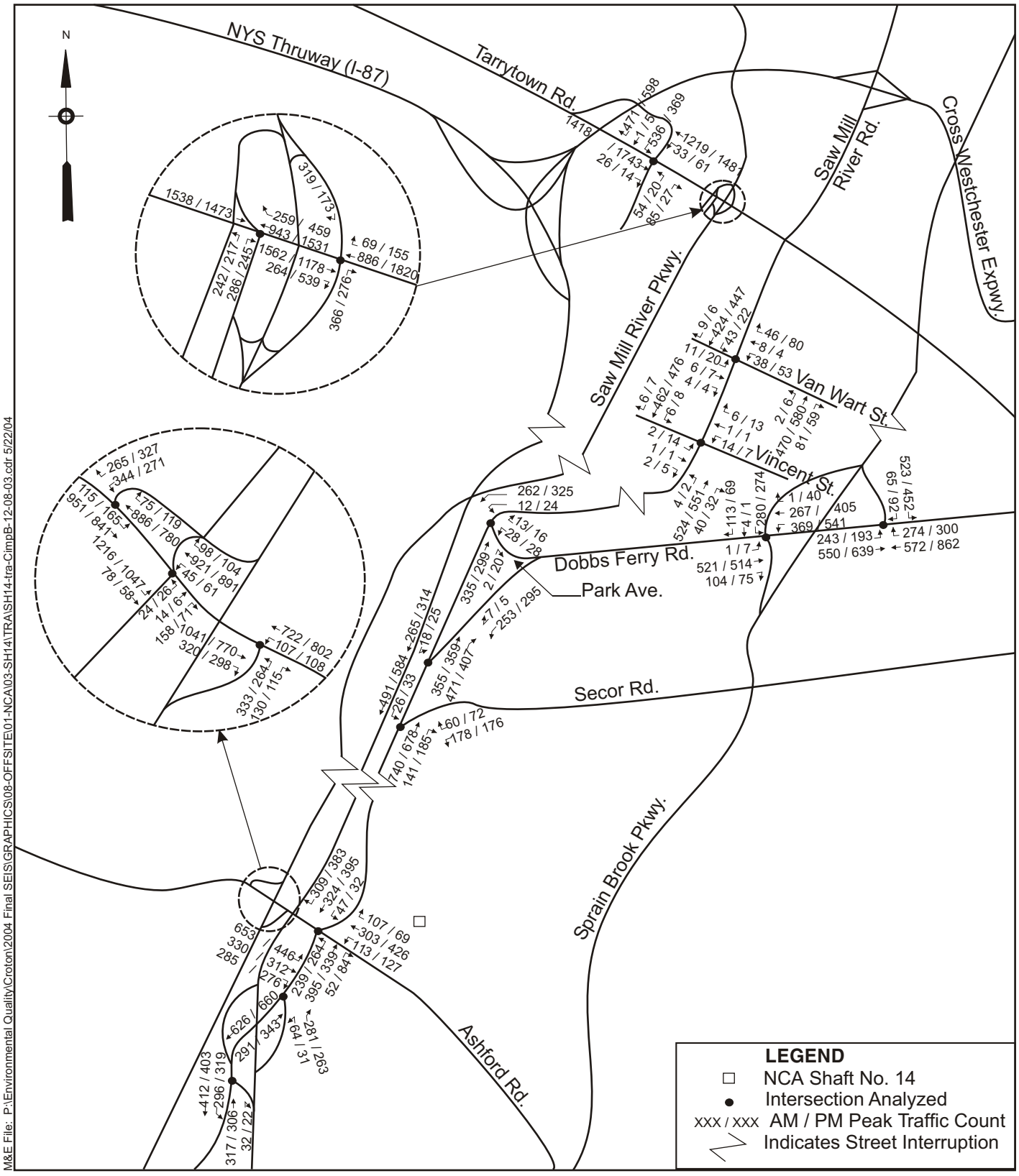
Not To Scale

New Croton Aqueduct Shaft No. 14
Construction Traffic Distribution - AM / PM Hour

Croton Water Treatment Plant

Figure 8.1.3-7



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Not To Scale

New Croton Aqueduct Shaft No. 14
Construction Year 2013
Traffic Volume - AM / PM Hour

Croton Water Treatment Plant

Figure 8.1.3-8

TABLE 8.1.3-16. 2013 POTENTIAL CONSTRUCTION IMPACTS TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT						2013 CONSTRUCTION IMPACTS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			WEEKDAY AM PEAK			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS
Tarrytown White Plains Rd (Rt 119) and New York State Thruway (I-87) EB Off Ramp	EB – TR	0.81	23.4	C	0.88	27.3	C	0.81	23.4	C	0.88	27.3	C
	WB – TR	0.58	16.8	B	0.79	22.5	C	0.58	16.8	B	0.79	22.6	C
	NB – LR	1.46	>150	F	0.42	41.7	D	1.47	>150	F	0.42	42.0	D
	SB – LTR	1.15	121.6	F	1.01	71.1	E	1.16	123.4	F	1.01	71.7	E
	Intersection		**55.9**	**E**		**35.2**	**D**		**56.6**	**E**		**35.4**	**D**
Saw Mill River Parkway NB Ramps @ Tarrytown White Plains Road/Rt 119	EB – TR	1.06	59.8	E	0.98	36.5	D	1.06	60.6	E	0.98	36.7	D
	WB - TR	0.37	11.6	B	0.73	16.6	B	0.37	11.6	B	0.73	16.6	B
	NB – R	0.71	33.9	C	0.53	28.0	C	0.71	33.9	C	0.53	28.0	C
	SB – R	0.62	30.5	C	0.33	24.1	C	0.62	30.5	C	0.33	24.1	C
	Intersection		**41.1**	**D**		**25.9**	**C**		**41.5**	**D**		**26.0**	**C**
Saw Mill River Parkway SB Ramps at Tarrytown White Plains Road/ Rt 119	EB – T	0.91	26.7	C	0.84	17.2	B	0.92	27.0	C	0.84	17.3	B
	WB – TR	0.49	12.8	B	0.90	19.3	B	0.49	12.8	B	0.90	19.5	B
	NB – LR	1.01	70.1	E	0.96	52.8	D	1.01	70.1	E	0.96	52.8	D
	Intersection		**28.6**	**C**		**22.5**	**C**		**28.7**	**C**		**22.6**	**C**
Saw Mill River Rd (Rt 9A) at Dobbs Ferry Road	WB – LR	0.40	20.9	C	0.48	22.0	C	0.44	21.6	C	0.48	22.1	C
	NB – T	0.46	15.4	B	0.44	14.9	B	0.46	15.4	B	0.45	15.1	B
	NB – R	0.32	0.5	A	0.25	0.4	A	0.32	0.6	A	0.27	0.4	A
	SB – LT	0.42	15.0	B	0.44	15.1	B	0.43	15.2	B	0.45	15.1	B
	Intersection		**11.0**	**B**		**12.4**	**B**		**11.4**	**B**		**12.3**	**B**
Saw Mill River Rd (Rt 9A) at Secor Road	WB – LR	0.39	20.6	C	0.41	20.9	C	0.39	20.6	C	0.41	20.9	C
	NB – TR	1.16	107.9	F	1.04	63.8	E	1.17	109.9	F	1.09	77.1	E
	SB – LT	0.76	24.7	C	0.90	34.6	C	0.81	27.7	C	0.92	38.2	D
	Intersection		**69.7**	**E**		**46.9**	**D**		**70.9**	**E**		**55.2**	**E**

TABLE 8.1.3-16. 2013 POTENTIAL CONSTRUCTION IMPACTS TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

SIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT						2013 CONSTRUCTION IMPACTS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			WEEKDAY AM PEAK			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS
Saw Mill River Rd (Rt 9A) at Ashford Avenue	EB – L	1.24	>150	F	0.99	88.6	F	1.32	>150	F	1.00	90.4	F
	EB – T	0.70	48.6	D	0.75	55.4	E	0.70	48.6	D	0.75	55.4	E
	EB – R	0.40	20.6	C	0.43	28.4	C	0.40	20.6	C	0.43	28.4	C
	WB – L	0.35	47.4	D	0.32	43.2	D	0.35	47.4	D	0.32	43.2	D
	WB – T	1.04	119.0	F	1.19	>150	F	1.04	119.0	F	1.19	>150	F
	WB – R	0.17	26.6	C	0.10	24.0	C	0.17	26.6	C	0.10	24.0	C
	NB – L	0.69	53.9	D	0.77	61.4	E	0.69	53.9	D	0.77	61.4	E
	NB – T	1.16	>150	F	1.16	>150	F	1.32	>150	F	1.18	>150	F
	NB – R	0.08	22.0	C	0.26	46.1	D	0.08	22.0	C	0.26	46.1	D
	SB – L	0.16	43.4	D	0.08	40.3	D	0.16	43.4	D	0.08	40.3	D
	SB – T	1.11	139.8	F	0.99	97.7	F	1.12	144.1	F	1.13	141.5	F
	SB – R	0.99	101.6	F	0.95	85.5	F	1.00	104.2	F	1.06	114.9	F
	Intersection		**104.3**	**F**		**91.7**	**F**		**121.5**	**F**		**101.8**	**F**
Ashford Ave at Saw Mill River Parkway NB Ramps	EB – TR	0.82	20.8	C	0.60	14.7	B	0.83	20.9	C	0.60	14.7	B
	WB – LT	0.94	36.6	D	0.67	16.7	B	0.95	38.2	D	0.79	21.0	C
	NB – LR	0.84	41.4	D	0.68	32.3	C	0.90	48.8	D	0.69	32.5	C
	Intersection		**29.2**	**C**		**18.3**	**B**		**31.2**	**C**		**20.0**	**C**
Ashford Ave at Saw Mill River Parkway SB Off Ramps	EB – L	1.00	102.7	F	1.14	138.6	F	1.00	102.7	F	1.16	144.2	F
	EB – T	0.61	17.8	B	0.51	16.2	B	0.61	17.9	B	0.51	16.2	B
	WB – TR	1.21	128.7	F	1.04	62.6	E	1.21	128.7	F	1.05	65.0	E
	SB – LR	1.01	64.7	E	0.97	55.4	E	1.01	64.7	E	0.97	55.4	E
	Intersection		**72.9**	**E**		**50.3**	**D**		**72.8**	**E**		**51.5**	**D**
Dobbs Ferry Road and Sprain Brook Parkway NB Ramps	EB – L	0.58	13.6	B	0.72	24.4	C	0.60	14.4	B	0.72	24.4	C
	EB – T	0.52	9.3	A	0.57	9.9	A	0.52	9.3	A	0.59	10.3	B
	WB – T	0.52	9.2	A	0.79	15.6	B	0.54	9.5	A	0.79	15.7	B
	WB – R	0.16	0.2	A	0.17	0.2	A	0.16	0.2	A	0.17	0.2	A
	SB – L	1.18	124.9	F	1.02	70.5	E	1.18	124.9	F	1.02	70.5	E
	SB – R	0.15	18.3	B	0.21	19.0	B	0.15	18.3	B	0.21	19.0	B
	Intersection		**36.8**	**D**		**23.3**	**C**		**36.6**	**D**		**23.3**	**C**

TABLE 8.1.3-16. 2013 POTENTIAL CONSTRUCTION IMPACTS TRAFFIC CONDITIONS FOR NCA SHAFT NO. 14

UNSIGNALIZED INTERSECTIONS	LANE GROUP	2013 FUTURE WITHOUT THE PROJECT						2013 CONSTRUCTION IMPACTS					
		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS	V/C RATIO	DELAY (SEC/ VEH)	LOS
Saw Mill River Rd (Rt 9A) at Van Wart Street	EB-LTR	0.00	8.2	A	0.01	8.4	A	0.00	8.3	A	0.01	8.4	A
	WB-LTR	0.05	8.8	A	0.03	9.2	A	0.05	8.8	A	0.03	9.2	A
	NB-LTR	0.36	26.1	D	0.68	48.9	E	0.37	26.5	D	0.69	51.4	F
	SB-LTR	0.11	25.8	D	0.27	44.2	E	0.11	26.3	D	0.27	45.6	E
Saw Mill River Rd (Rt 9A) at Vincent Street	EB-LTR	0.00	8.3	A	0.00	8.4	A	0.00	8.4	A	0.00	8.4	A
	WB-LTR	0.01	8.7	A	0.01	8.8	A	0.01	8.7	A	0.01	8.8	A
	NB-LTR	0.09	21.6	C	0.07	18.1	C	0.09	21.7	C	0.07	17.9	C
	SB-LTR	0.02	18.3	C	0.10	24.3	C	0.01	17.5	C	0.10	24.8	C
Saw Mill River Rd (Rt 9A) at Park Ave/ Dobbs Ferry	WB-LR	0.01	8.2	A	0.02	8.0	A	0.01	8.2	A	0.02	8.0	A
	SB-LT	0.12	14.9	B	0.10	13.4	B	0.12	15.0	C	0.10	13.5	B
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) NB Off Ramp	NB-LR	0.61	22.1	C	0.49	16.0	C	0.68	24.0	C	0.51	16.6	C
Saw Mill River Rd (Rt 9A) at and New York State Thruway (I-87) SB On Ramp	SB-LT	0.27	9.3	A	0.24	9.0	A	0.28	9.3	A	0.28	9.2	A
Ashford Ave at Saw Mill River Parkway SB Off	WB-LT	0.08	12.4	B	0.11	11.8	B	0.08	12.4	B	0.11	11.8	B
	NB-LTR	>1.50	>150	F	1.24	>150	F	>1.50	>150	F	1.26	>150	F
Dobbs Ferry Road and Sprain Brook Parkway SB	WB-LT	0.39	11.1	B	0.54	12.7	B	0.39	11.2	B	0.55	13.1	B
	SB-LTR	>1.50	>150	F	>1.50	>150	F	>1.50	>150	F	>1.50	>150	F

ABBREVIATIONS:

EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound

L-Left, T-Through, R-Right, E-W: East-West Roadway, N-S: North-South Roadway

V/C Ratio - Volume to Capacity Ratio

SEC/VEH - Seconds per Vehicle

LOS - Level of Service

Safety. One intersection experienced a high rate of accidents between May 1998 and April 2001, and that is Saw Mill River Road (Route 9A) at Secor Road.

At the intersection of Saw Mill River Road (Route 9A) and Secor Road, there are projected to be 1,601 vehicles entering the intersection in the AM peak hour and 1,690 vehicles entering in the PM peak hour. The construction activities would increase these volumes by 36 vehicles in each of the peak hours, or by 2.2 percent in the AM peak hour and 2.1 percent in the PM peak hour. With 5 reportable accidents annually, this increase in traffic at this location can be anticipated to translate to less than one additional accident per year and less than one additional accident over the entire construction period.

Transit. The construction at this location is not anticipated to generate any significant adverse transit ridership.

Pavement Infrastructure. The construction at this location is not anticipated to generate any adverse construction truck loads.

Noise Analysis. The traffic generated by construction activities and the construction equipment tally was not anticipated to change over the course of the construction period. As a result, mobile and stationary source noise levels resulting from construction would not fluctuate substantially over the course of the construction phase. The year 2013 was selected as a representative construction year because it falls at the approximate midpoint of the construction schedule.

A fan would be placed at the shaft access point and may operate continuously (24 hours a day, seven days a week) for the duration of construction activities. The fan would discharge through ventilation louvers that would be placed at the top of the existing access shaft. Even though construction would not take place on weekends, analysis of construction impacts from stationary sources included both weekdays and weekends to account for possible continuous use of the fan.

The Shaft Site falls within the jurisdiction of the Village of Ardsley. The Village of Ardsley does not provide absolute construction noise limits during the daytime. However, the local noise ordinance prohibits the generation of construction noise from 8:00 PM to 8:00 AM on weekdays and Saturdays and from 8:00 PM to 10:00 AM on Sundays and holidays.[4] Therefore, a noise variance would have to be obtained in order for construction activities to begin earlier than 8:00 AM (See Permits and Approvals section below).

In the absence of specific local limits, standards from CEQR that govern construction noise were used to evaluate any impacts to the Shaft Site. Applicable standards relating to single-family residences were applied to the area surrounding the Shaft Site, which is zoned for single-family residences and for general business. According to CEQR, a project-generated increase of 5 dBA or more over the baseline noise level recorded at a sensitive receptor during the daytime is considered a significant impact if the existing noise level is less than 60 dBA. If the existing noise level is 62 dBA or more, a 3 dBA incremental change constitutes a significant impact. A 3

[4] Village of Ardsley Code. Chapter 137-1 – 137-3.

dBA incremental threshold applies during the nighttime.[5] The area surrounding the Shaft Site is zoned as single-family residences and for general business.

Mobile Source Noise. Potential impacts from mobile sources during the construction phase of the proposed project were determined for the Shaft Site. The peak construction-traffic year of 2013 was selected as a representative construction year for this analysis. On the basis of the initial PCE screening analysis, it was determined that a detailed analysis was required to determine whether construction related traffic would cause a significant impact at a sensitive receptor identified on Center Street. Analyses were performed for the lowest weekday traffic-volume hour (10:00 - 11:00 AM). Future mobile source noise levels for year 2013 were determined by adding future construction traffic (2013) to Future Without the Project traffic (2013). Total noise levels from mobile sources during the construction phase then were calculated using TNM. This total noise level was compared to the Future Without the Project level for 2013 in order to determine whether construction-related traffic resulted in a 3-5-dBA increase in noise levels.

Table 8.1.3-17 presents Future Without the Project year mobile source noise levels and Future With the Project construction mobile source noise levels (year 2013). The TNM calculated value for the hour of interest (10:00 AM to 11:00 AM) was 66.4 dBA, which corresponded to an incremental change of 2.4.

On the basis of the detailed analysis of mobile source impacts, it was concluded that construction noise from mobile sources would not result in an increase in noise levels that exceed the 3-5 dBA threshold used to define significance.

TABLE 8.1.3-17. MOBILE SOURCE CONSTRUCTION NOISE LEVELS NEAR NCA SHAFT NO. 14 WEEKDAY CONSTRUCTION HOURS (Leq, dBA)

Monitoring Location	Monitoring Period	Predicted Future Without the Project Noise Level (2013)	TNM-Calculated Future Without the Project (2013)	TNM-Calculated Future With the Project (2013)	Incremental Change	Exceed Threshold (Yes/No)
NCA14-M1	10:00-11:00 AM	66.2	64.0	66.4	2.4	No

Stationary Source Noise. Potential noise impacts from construction activities were determined for the receptors proximate to the Shaft Site. As discussed above, stationary source noise created during the construction phase was quantified using equipment data. An algorithm (that considered equipment noise levels, usage factors, and distances from source to receptor) was used to calculate the average noise level for a typical hour during peak construction (see Section 4.10, Data Collection and Impact Methodologies, Noise). Noise levels for construction equipment were determined from industry and governmental publications. Usage factors

[5] City of New York. October 2001. CEQR Technical Manual.

accounted for intermittent utilization, and subsequent noise generation, of construction equipment throughout the course of a normal workday. The horizontal and vertical distances from construction equipment to the receptors being studied were measured in order to calculate the line-of-sight distance used in the algorithm.[6] The noise levels from construction activity were then added to the 2013 Future With the Project noise level to arrive at a future construction noise level. Table 8.1.3-18 presents construction equipment, including associated noise levels and usage factors.[7] Equipment noise levels (at their associated reference distances) and the usage factors are standard values established through noise studies. The usage factors are not anticipated to change because the scope of work would not change significantly over the construction duration.

TABLE 8.1.3-18. NOISE LEVELS AND USAGE FACTORS FOR EQUIPMENT USED AT NCA SHAFT NO. 14
(Leq, dBA)

Equipment	Equipment Noise Level	Reference Distance (feet)	Usage Factor
Ventilation Fans	59	5	1.0
20-Ton Crane	83	50	0.08
Concrete Pump	82	50	0.4
Trucks	88	50	0.16

Source: Bolt, Beranek, and Newman, Inc. December 1971. Noise from Construction Equipment and Operations, Buildings Equipment, and Home Appliances.

Table 8.1.3-29 compares noise levels for weekday construction hours for the Future Without the Project (2013) to noise levels for year 2013 including contributions from project construction activities. This comparison determined whether construction would result in noise increasing to levels that exceed the 3-5 dBA significance threshold.

Ardsley Public Library (NCA14-S1). Noise levels predicted to occur as a result of the proposed construction at the Ardsley Public Library (NCA14-S1) would exceed the 3 - 5 dBA threshold used to define significance. The largest incremental change at this receptor (located immediately to the south of the Shaft Site) over the Future Without the Project level would be 20.4 dBA. Predicted noise levels would exceed the acceptable threshold during the construction period from 2011 to 2015 for this receptor. This noise level increase would constitute a significant adverse impact that would require mitigation. Section 9.4, Mitigation of Potential Impacts, presents a discussion of possible mitigation measures that would be implemented if practicable and feasible. If mitigation measures are not implemented, the potential significant impact would remain unmitigated. It is unlikely, however, that all of the construction equipment would be operating simultaneously over the course of a construction day (as was assumed for this analysis).

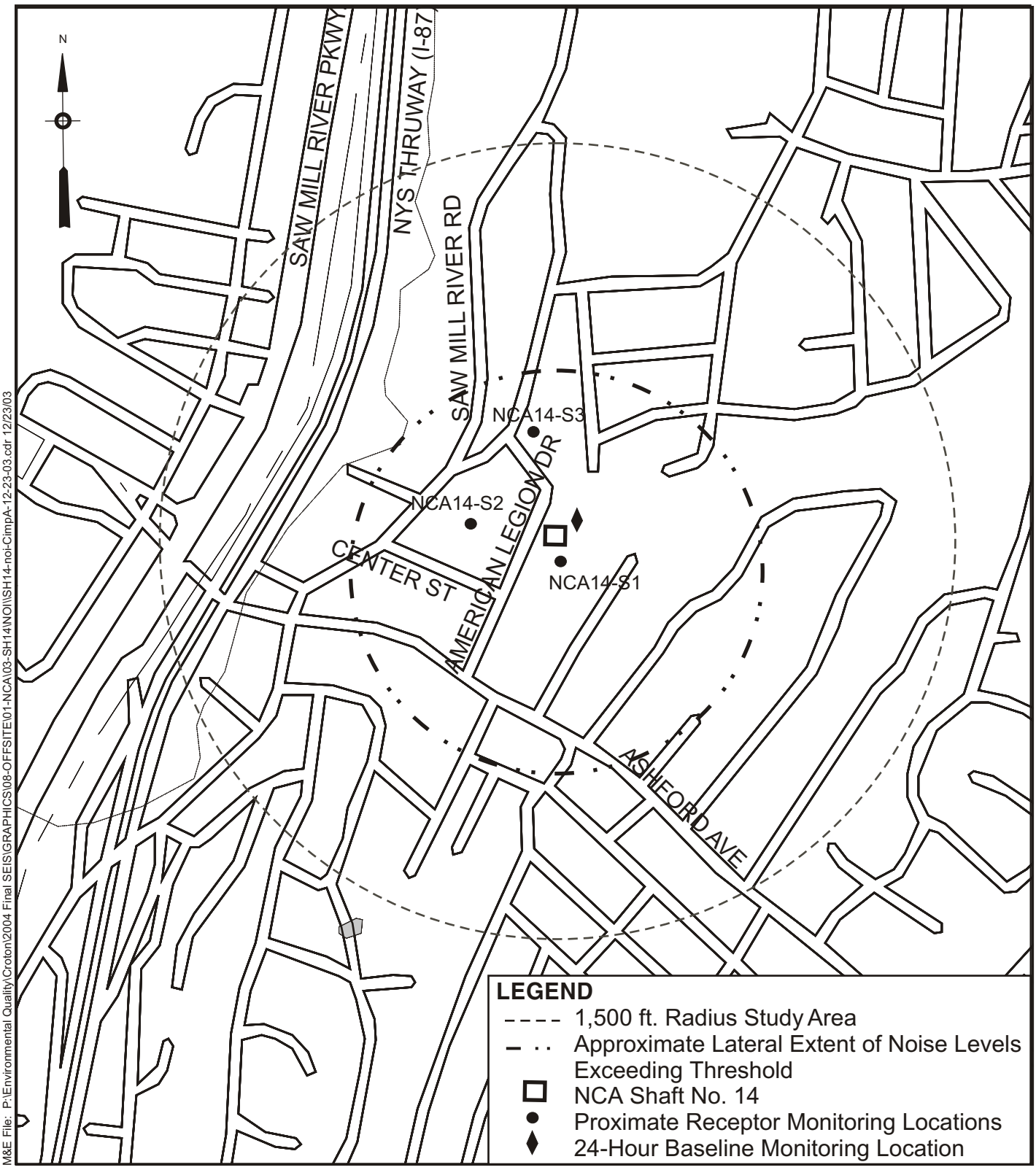
An analysis was performed to determine the total distance beyond the library (and further to the south) that noise levels exceeding the 3-5-dBA threshold would extend. This was performed to

[6] City of New York. October 2001. CEQR Technical Manual.
[7] City of New York. October 2001. CEQR Technical Manual.

determine both the maximum distance that the noise levels would extend and to what extent local noise-sensitive receptors would be affected. Noise levels that exceed the 3-5 dBA threshold would extend from the north of the site to a maximum distance of approximately 750 feet to the south of the library. This area includes several private residences that could be adversely affected if attenuation measures are not implemented (see Figure 8.1.3-18).

Public Park on American Legion Drive (NCA14-S2). Noise levels predicted to occur as a result of the proposed construction at the public park on American Legion Drive (NCA14-S2) would exceed the 3 - 5 dBA threshold used to define significance. The largest incremental change at this receptor (located to the west of the Shaft Site) over the Future Without the Project level would be 11.4 dBA. Predicted noise levels would exceed the acceptable threshold during the construction period from 2011 to 2015 for this receptor. This noise level increase would constitute a significant adverse impact that would require mitigation. Section 9.4, Mitigation of Potential Impacts, presents a discussion of possible mitigation measures that would be implemented if practicable and feasible. If mitigation measures are not implemented, the potential significant impact would remain unmitigated. It is unlikely, however, that all of the construction equipment would be operating simultaneously over the course of a construction day (as was assumed for this analysis).

An analysis was performed to determine the total distance beyond the park (and further to the west) that noise levels exceeding the 3-5-dBA threshold would extend. This was performed to determine both the maximum distance that the noise levels would extend and to what extent local noise-sensitive receptors would be affected. Noise levels that exceed the 3-5 dBA threshold would extend from the west of the site to a maximum distance of approximately 370 feet to the west of the park. This area encompasses the remainder of this park. No other receptors lie within this area (see Figure 8.1.3-9).



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SCALE IN FEET

New Croton Aqueduct Shaft No. 14 Lateral Extent of Noise Levels Exceeding Threshold (Before Mitigation)

Croton Water Treatment Plant

Figure 8.1.3-9

Private Residence on American Legion Drive (NCA14-S3). Noise levels predicted to occur as a result of the proposed construction at a residence on American Legion Drive (NCA14-S3) would exceed the 3 - 5 dBA threshold used to define significance. The largest incremental change at this receptor (located to the north of the Shaft Site) over the Future Without the Project level would be 4.4 dBA. Predicted noise levels would exceed the acceptable threshold during the construction period from 2011 to 2015 for this receptor. This noise level increase would constitute a significant adverse impact that would require mitigation. Section 9.4, Mitigation of Potential Impacts, discusses possible mitigation measures that would be implemented if practicable and feasible. If mitigation measures are not implemented, the potential significant impact would remain unmitigated. It is unlikely, however, that all of the construction equipment would be operating simultaneously over the course of a construction day (as was assumed for this analysis).

An analysis was performed to determine the total distance beyond the residence (and further to the west) that noise levels exceeding the 3-5 dBA threshold would extend. This was performed to determine both the maximum distance that the noise levels would extend and to what extent local noise-sensitive receptors would be affected. Noise levels that exceed the 3-5 dBA threshold would extend from the north of the site to a maximum distance of approximately 125 feet to the north of the residence of the park. This area to the north of NCA14-S3 includes additional residences (see Figure 8.1.3-9).

Table 8.1.3-20 compares noise levels for Sundays and weekdays during quietest non-working hours for the Future Without the Project (2013) to noise levels for year 2013 levels including contributions from project construction activities. Whereas no construction would occur outside of 7:00 AM – 6:00 PM on weekdays, a ventilation fan positioned at the entrance to the shaft and potentially left on at all times during construction may produce more noticeable noise emissions. Construction-related noise from activities on Sundays and weekday during evening hours ("non-construction") hours only includes noise emissions due to operation of the ventilation fan.

The only receptor that experiences an incremental change on Sundays and weekdays (during the non-working hours) is the library. However, this incremental change of 0.1 is negligible, and none of the monitoring locations showed a noise level increase that would exceed the 3-5 dBA or more threshold value on Sundays and weekends.

TABLE 8.1.3-19. NOISE LEVELS FROM CONSTRUCTION ACTIVITIES AT RECEPTORS NEAR NCA SHAFT NO. 14 WEEKDAY CONSTRUCTION HOURS (Leq, dBA)

Proximate Receptor	Monitoring Period	Future Without Project Noise Level (2013)	Predicted Construction Noise Level	Total Noise Level During Construction[1] (2013)	Incremental Change	Exceed Threshold (Yes/No)
NCA14-S1	Quietest (1-2 pm)	54.6	75.0	75.0	20.4	Yes
	Noisiest (12-1 pm)	54.7	75.0	75.0	20.3	Yes
NCA14-S2	Quietest (1-2 pm)	57.4	68.5	68.8	11.4	Yes
	Noisiest (12-1 pm)	60.3	68.5	69.1	8.8	Yes
NCA14-S3	Quietest (1-2 pm)	63.4	65.6	67.6	4.2	Yes
	Noisiest (12-1 pm)	63.2	65.6	67.6	4.4	Yes

[1]Total Noise Level = logarithmic addition of Future Without Project and Predicted Construction Noise Level

TABLE 8.1.3-20. NOISE LEVELS FROM CONSTRUCTION ACTIVITIES AT RECEPTORS NEAR NCA SHAFT NO. 14 SUNDAYS AND NON WORKING WEEKDAY HOURS (Leq, dBA)

Proximate Receptor	Monitoring Period	Future Without Project Noise Level (2013)	Predicted Construction Noise Level	Total Noise Level During Construction[1] (2013)	Incremental Change	Exceed Threshold (Yes/No)
NCA14-S1	Sunday Quietest (9-10 pm)	51.8	33.4	51.9	0.1	No
	Sunday Noisiest (12-1 pm)	56.0	33.4	56.0	0.0	No
	Non-work Quietest (8-9 pm)	57.8	33.4	57.8	0.0	No
NCA14-S2	Sunday Quietest (9-10 pm)	54.8	27.4	54.8	0.0	No
	Sunday Noisiest (12-1 pm)	56.6	27.4	56.6	0.0	No
	Non-work Quietest (8-9 pm)	56.8	27.4	56.8	0.0	No
NCA14-S3	Sunday Quietest (3-4 am)	47.1	21.6	47.1	0.0	No
	Sunday Noisiest (12-1 pm)	59.3	21.6	59.3	0.0	No
	Non-work Quietest (3-4 am)	55.1	21.6	55.1	0.0	No

[1]Total Noise Level = logarithmic addition of Future Without Project + Predicted Construction Noise Level

Combined Mobile and Stationary Source Noise. The library and the public park each would be exposed to the combined effect of both mobile and stationary noise generated by construction activities at the Shaft Site. Based on the PCE screen presented in Table 8.1.3-3, the largest potential incremental change in mobile source noise levels due to construction activities for the route segments along which these sensitive receptors are located would be 1.76 dBA. Receptors at this site already would have significant adverse noise impacts due to contributions from stationary source noise. The contribution from mobile sources to the total noise would not appreciably change predicted noise levels.

Practical and feasible mitigation measures would be considered in the final design of the project to decrease to 5 dBA or less the incremental change experienced at the receptors near NCA Shaft No. 14. Section 9.4, Mitigation of Potential Impacts, discusses possible mitigation measures.

Air Quality.

Shaft Site. Work at NCA Shaft No. 14 would result in emissions of air pollutants associated with exhaust from construction activity. The construction activities at the Shaft Site would involve the use of one crane, one backhoe/loader, and supply delivery trucks. In general, diesel-powered equipment and trucks are mainly a concern because of the potential particulate matter that they can emit. Also, a 200 hp electric-powered fan would provide ventilation for workers located below ground. Construction activities are also a source of fugitive dust emissions that may have a substantial, but temporary effect on local air quality. Therefore, the construction at the Shaft Site was examined for its potential to create a significant adverse impact from the emissions of PM_{10} and $PM_{2.5.}$

Mobile Sources. As described in Section 4.11, Data Collection and Impact Methodologies, Air Quality, the screening threshold for carbon monoxide is 100 vehicles per hour and 21 trucks per hour for $PM_{2.5}$. At the completion of the construction activity, the shaft would be unmanned, and there would not be any vehicle trips. During construction, the number of construction-related vehicle trips at the worst impacted intersection is lower than the 100 vehicle screening threshold. In addition, the number of construction trucks is also anticipated to be lower than 21 trucks. Therefore, no significant mobile source impact is anticipated and no further mobile source analysis is required.

Stationary Sources. As mentioned in the earlier section, the shaft would not be manned after the completion of the construction activity, and there would not be any sources of stationary sources. During the construction, there would be a crane and a backhoe on-site. Since this equipment would be used only as needed, the construction stationary sources at the Shaft Site would not be anticipated to have any significant or adverse impacts on the air quality.

Hazardous Materials. The environmental assessment undertaken confirmed the presence of hazardous materials at the Shaft Site and determined that the hazardous materials primarily originated from one or more off-site sources. The documented release of fuel oil from a leaking tank at the Ardsley Public Library in 1996 is still impacting the study area. Based on soil and groundwater testing data, environmental contaminants of potential concern at the Shaft Site are associated with the soil and groundwater and include:

- Volatile organic compounds
- Semi-volatile organic compounds
- Total petroleum hydrocarbons
- Volatile organics

It is well established that the semi-volatile organic compounds found in the soil as well as the total petroleum hydrocarbons are primarily the result of the 1996 fuel oil spill at the Ardsley Public Library. Similarly, the volatile and semi-volatile organic compounds are routinely present in the extracted groundwater recovered by the remediation system currently in operation near the Shaft Site. The presence of hazardous or contaminated materials at the Shaft Site may threaten human health or the environment only when exposure to those materials occurs. The scope of the proposed pressurization work planned at the Shaft Site would not include the excavation of soil around the Shaft building, the blow-off structure, and adjacent sections of the NCA.

Hazardous Materials Used During Construction. During the construction activities at the Shaft Site, the Contractor may introduce a variety of hazardous materials to the Shaft Site to support the construction activity. The specific types and quantities of hazardous materials stored and used on the construction site would depend on the nature and extent of activities being performed. In general, various hazardous materials would be used to support the operation of vehicles and heavy equipment (e.g., diesel fuel, gasoline, lubricants, glycol) as well as hazardous materials used in the construction process itself (e.g., concrete release agents, adhesives, paints and coatings). Each contractor would provide Material Safety Data Sheets (MSDS) for the construction-related hazardous materials that they would introduce to the Shaft Site.

No impacts are anticipated from hazardous materials within NCA Shaft No. 14. These materials, if they were found within the structure, would have been remediated as part of the NCA baseline rehabilitation work.

Infrastructure and Energy. The introduction of 181 construction employees would require the availability of utilities to service the employees and the construction-related activities.

Water Supply. During construction, the contractor would likely select a method of supplying water from alternate sources to best suit their method of working. By using the independent source of water for construction, the potential impact on the study area water supply system would be adverted. Therefore, these conditions would be the same as those presented in the Future Without the Project analysis, and no significant adverse impacts are anticipated to the water supply system.

Sanitary Sewage. Throughout the construction period, portable rest rooms would be made available for the construction personnel. The sanitary sewage would be collected and properly disposed of through a contract with a private hauler. No connection or discharge to the existing sanitary sewer system would be made, so these conditions would remain the same as those presented in the Future Without the Project analysis. Therefore, no significant adverse impact is anticipated.

Stormwater System. Construction staging would be limited to the paved parking lot and no soil disturbance is anticipated at this site. The stormwater drainage system would remain the same as described in the Future Without the Project. Surface runoff would continue to drain into the existing open channel flood-stream in the vicinity of the Shaft Site; therefore, no significant adverse impact is anticipated on the existing stormwater drainage system in the study area.

Energy Demand. The proposed pressurization work on the NCA would involve installation of some minor ventilation equipment and an office trailer. The ventilation equipment and the office trailer are anticipated to require a temporary 500 to 1,000-kVA service that would be hard wired directly to the existing Con Edison grid, and would operate independently of the existing electrical system. The existing electrical system; therefore, would not be altered from the Future Without the Project. Con Edison would be responsible for supplying this temporary power independently to the existing system; therefore, this system would no be altered from Future Without the Project considerations. No significant adverse impact is anticipated on the existing electric utilities in the study area.

Gas Demand. As in the Future Without the Project analysis, natural gas would not be utilized during construction. No connection to the existing gas main would be made; therefore, no deviation from the Future Without the Project conditions would occur. No significant adverse impact is anticipated.

Solid Waste. Construction activities would generate worker generated solid waste and miscellaneous construction debris. All worker-generated and miscellaneous construction debris would be removed from the Shaft Site by a private hauler, and brought for disposal to the Westchester County Sanitation System.

During the proposed pressurization work the estimated manpower would be 181 individuals, whom would each generate 13 lbs/week of solid waste. This would make the total employee generated solid waste during construction 2,353 lbs/week of solid waste. Additional miscellaneous solid waste would be generated as a byproduct of construction. This material would be highly variable in nature; it would include concrete forms, packaging, scraps of pipe, ductwork, sheetrock, and electrical materials. This amount of waste would be added to the worker-generated waste described above. The Future Without the Project considerations do not anticipate future solid waste generation at the Shaft Site. However, the quantity of solid waste generated during construction would be negligible compared to the amount handled by the County solid waste disposal system, and would be easily handled by the existing Westchester County Sanitation System. It is anticipated that the solid waste produced by construction workers would not result in a significant adverse impact on local or regional solid waste.

Public Health. The presence of a crane and concrete pump, as well as a few delivery trucks, would not constitute a public health risk from air emissions or traffic. Therefore, there is no potential for significant impacts from the proposed construction activity at the Shaft Site.

Permits and Approvals. The following table lists the discretionary approvals that would be required for the proposed project at the NCA Shaft No. 14 Site.

TABLE 8.1.3-21. POSSIBLE APPROVALS AND PERMITS REQUIRED FOR NCA SHAFT NO. 14

DEPARTMENT	PERMIT TITLE
New York State	
Department of Health	• State Environmental Review Certification for New York Revolving Fund Program (Public Health Law, Sections 1161 and 1162; 21 NYCRR Part 2604)
NYSOPRHP	• State Historic Preservation Office Approval
Village of Ardsley	
Board of Trustees	• Building Permit (Greenburgh Town Code, Section 100-5) • Variance for Construction Activity Prior to 8 AM (Ardsley Village Code Section 137-1 to 137-4)
Village Board	• Village Board Resolution (work authorization)