

III. EXISTING CONDITIONS, IMPACTS AND MITIGATION

N. Noise

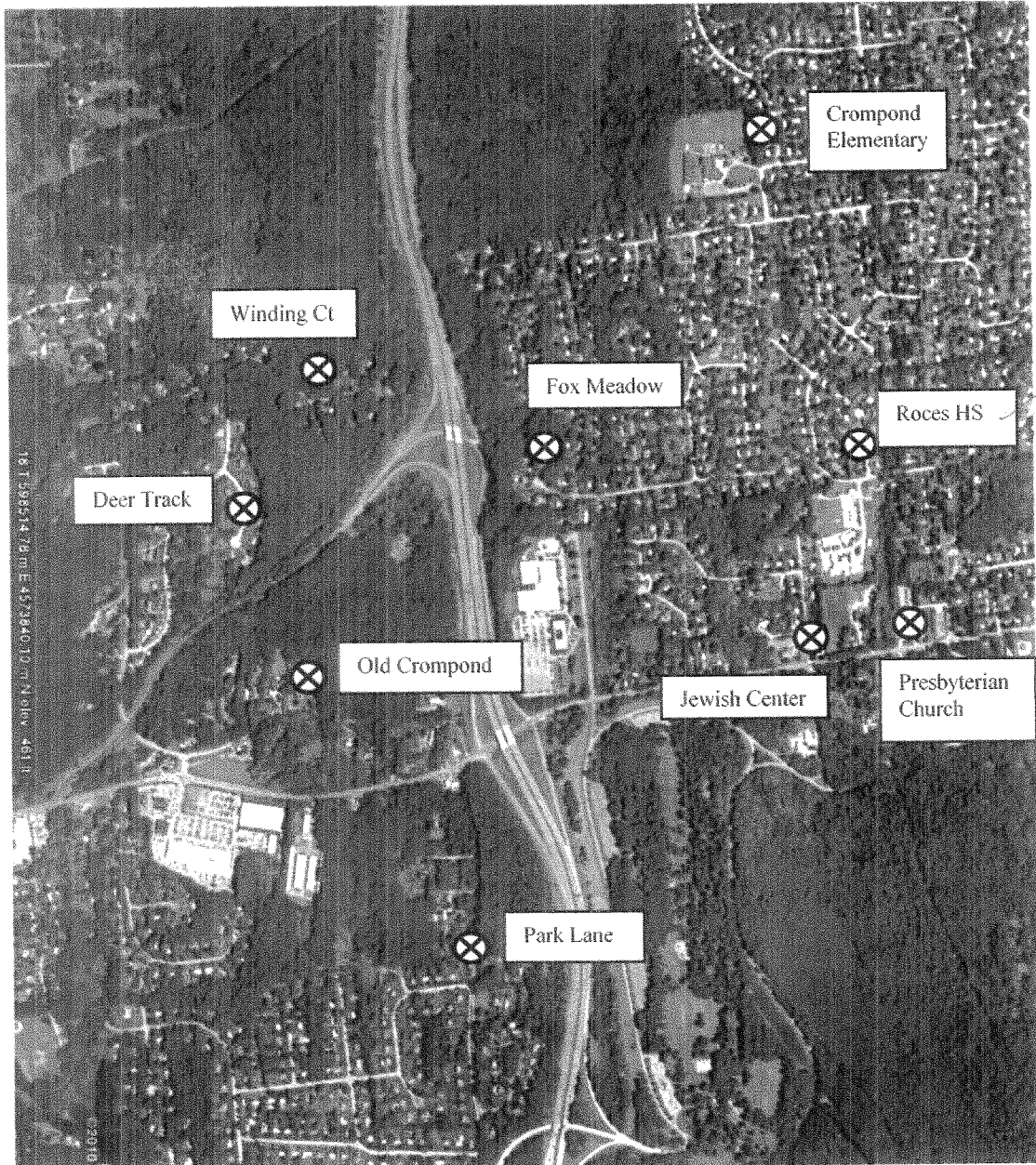
N. Noise**1. Existing Conditions****a. Description of Existing Noise Environment**

TRC conducted an ambient noise monitoring program in the vicinity of the proposed Project site on September 13-14, 2011. The ambient noise monitoring program was conducted in order to establish baseline conditions in the area and was conducted in accordance with industry accepted ANSI standards.

Ambient monitoring was conducted at a total of nine representative locations (Exhibit III.N-1) in the Project area. Nighttime noise monitoring was conducted at five of the nine locations that are proximate to the site, in order that potential impacts due to Project operation could be evaluated. Measurements were conducted at all nine locations during the day. The daytime data were collected in order to assess potential construction related impacts. The four daytime only measurement locations included non-residential noise sensitive uses, located somewhat further from the Project Site. The nine noise monitoring locations included the following.

- Winding Court
- Deer Track Court
- Fox Meadow Court
- Old Crompond Road
- Park Lane
- Crompond Elementary School (daytime only)
- Roces Alternative High School (daytime only)
- First Presbyterian Church of Yorktown (daytime only)
- Yorktown Jewish Center (daytime only)

**Exhibit III.N-1
Monitoring Locations**



The noise monitoring program included short-term (15 minutes in duration at each location) during the night and/or day. Monitoring was conducted with a RION NA-27 precision Type 1 octave band analyzer. The microphone was fitted with a windscreen to reduce wind generated noise and mounted on a tripod at a height of approximately five feet above the ground. The instrument was configured to measure and store the L_{eq} one-third octave band levels.

Existing noise sources during the day consisted mainly of vehicular traffic sounds from the Taconic State Parkway, Route 35/Crompond Road, local roads, and insect noise. Other natural sounds (birds, rustling vegetation) were also present. Noise sources at night include the same vehicular traffic sources as during the day and significant insect sound.

Insect noise is common during warm weather months, and in a setting such as the Project area, and can contribute significantly to total ambient sound levels. Insect noise is concentrated in the higher frequencies of the sound spectrum, and is easily recognizable upon reviewing the spectral shape of the measured data. It is therefore possible to remove the insect noise contribution from the measured sound levels, in order to provide a more conservative measure of the existing noise environment (e.g., that which might occur during cold weather months when insect noise is not present).

b. Current Ambient Sound Levels

A summary of the overall A-weighted L_{eq} data collected during the noise monitoring program is presented in Table III.N.1. A review of the data reveals the significant contribution of insect noise during the nighttime hours. Nighttime sound levels are between nine and 14 dBA lower when the contribution of insect noise is removed. A further review reveals that insect noise is a minor contributor to daytime levels, as the difference after insect noise was removed is one dBA or less.

Table III.N.1
Measured Ambient Noise Levels (dBA)

Location	Daytime L_{eq}		Nighttime L_{eq}	
	With Insect Noise	Without Insect Noise	With Insect Noise	Without Insect Noise
Winding Court	47	47	56	46
Deer Track Court	44	44	57	43
Fox Meadow Court	49	49	55	46
Old Crompond Road	53	53	57	47
Park Lane*	45	44	54	45
Crompond Elementary School	54	53	---	---
Roces Alternative High School	46	45	---	---
First Presbyterian Church of Yorktown	55	55	---	---
Yorktown Jewish Center	60	60	---	---

*Data collected at this location were also utilized to represent ambient conditions at the few residences just north of this location on Carpenter Road.

Nighttime noise levels are, for the most part, very similar to daytime noise levels when insect noise is removed. It is not unusual in this type of setting for the lower level of activity at night, and associated lower noise level, to be offset by the more favorable noise propagation conditions, and therefore greater sound level, of nearby sources; in this case particularly from the Taconic Parkway. Sound travels much more effectively at night than it does during warm, sunny days with light winds. Vehicular traffic sound from the Taconic State Parkway was more noticeable at night than during the day.

Ambient noise levels (without insects) during the day varied greatly between 44 dBA up to 60 dBA. The higher noise levels were measured at locations along major roadways (First Presbyterian Church, Jewish Center), where vehicular traffic noise dominated the noise environment. Nighttime noise

levels at the residential locations proximate to the facility were very similar, ranging from 43 dBA to 47 dBA.

The ambient sound levels utilized for the impact assessment are those with insect noise removed.

2. Potential Impacts

Noise Ordinances and Impact Criteria

Town of Yorktown Noise Ordinance:

The Town of Yorktown has a “nuisance” type of noise ordinance in their Town Code (Chapter 216-2) which prohibits loud and unreasonable sounds such as radios and television sets which disturb the peace and quiet of neighboring residents, unnecessary horns and signaling devices on automobiles, yelling and shouting, and un-muffled exhausts of internal combustion engines. Other unreasonable sounds are also enumerated. Construction activity and related noise is regulated by Chapter 216-2 of the Town of Yorktown Code. Construction generated noise is limited to the hours of 7:00 a.m. to 11:00 p.m. on Monday through Thursday, 7:00 a.m. to 10:00 p.m. on Friday, 8:00 a.m. to 10:00 p.m. on Saturday and 8 a.m. to 11 p.m. on Sunday. The ordinance does not place numerical limits on any noise generating sources associated with the Project.

New York State Department of Environmental Conservation Impact Criterion:

The NYSDEC has a program guidance document entitled *Assessing and Mitigating Noise Impacts* (NYSDEC 2000). This guidance, which is premised on state statutory authority, has been utilized as a standard for evaluating potential noise impacts from numerous projects throughout New York. The NYSDEC guidance recommends that for non-industrial settings, the SPL (Sound Pressure Level) due to a permanent source should probably not exceed ambient noise levels by more than 6 dBA at a given receptor in order to avoid noise impacts. The addition of any noise source, in a non-industrial setting, should not raise the total future ambient noise level above a maximum of 65 dBA.

The NYSDEC guidance explicitly states that the 6 dBA increase is to be used as a general guideline. There are other factors which should also be considered. For

example, in settings with very low ambient sound levels, a greater increase may be acceptable since sound levels are so low.

a. Future Noise Levels

No-Build Condition

Without the Project, the noise levels around the Project site would likely remain essentially unchanged, with no additional traffic or other noise generated at the site.

b. Noise Sensitive Receptors

Build Condition

The area surrounding the proposed facility consists of a mix of residential and commercial land uses. The most proximate residential uses include a few residences on Old Crompond Road to the southwest, residences on Deer Track Court and Winding Court to the northwest and north, a residential development on Park Lane to the south, and a residential neighborhood across the Taconic Parkway to the east. A shopping center is located south of the proposed site. Other commercial uses are also located in the area. The following locations, which were depicted on Exhibit III.N-1, were identified as having the potential to be impacted by noise.

- Winding Court
- Deer Track Court
- Fox Meadow Court
- Old Crompond Road
- Park Lane
- Crompond Elementary School (daytime only)
- Roces Alternative High School (daytime only)
- First Presbyterian Church of Yorktown (daytime only)
- Yorktown Jewish Center (daytime only)

c. Project Related Noise

Rooftop HVAC and Refrigeration Units

Computer noise modeling of the major facility sources was conducted utilizing the CadnaA noise model. The modeling analysis accounted for the proposed site plan and building features (e.g., rooftop parapet). Existing offsite topographic features were also included. Source heights and sound level data for the rooftop HVAC and refrigeration units were obtained from potential equipment vendors. The modeling conservatively assumed that all rooftop units would be operating simultaneously.

Provided in Table III.N.2 are the modeled sound levels at all nearby residential areas with all HVAC units operating simultaneously (e.g., peak sound levels), and compared to the measured existing ambient sound levels. A review of these data reveals that peak noise levels generated by simultaneous operation of all the facility rooftop HVAC and refrigeration units will be below the existing ambient sound levels. Increases in total noise levels during nighttime hours would be one dBA or less, well below the NYSDEC noise impact criterion. Exhibit III.N-2 displays the results as a noise contour map.

Table III.N.2
Calculated HVAC Noise (dBA)

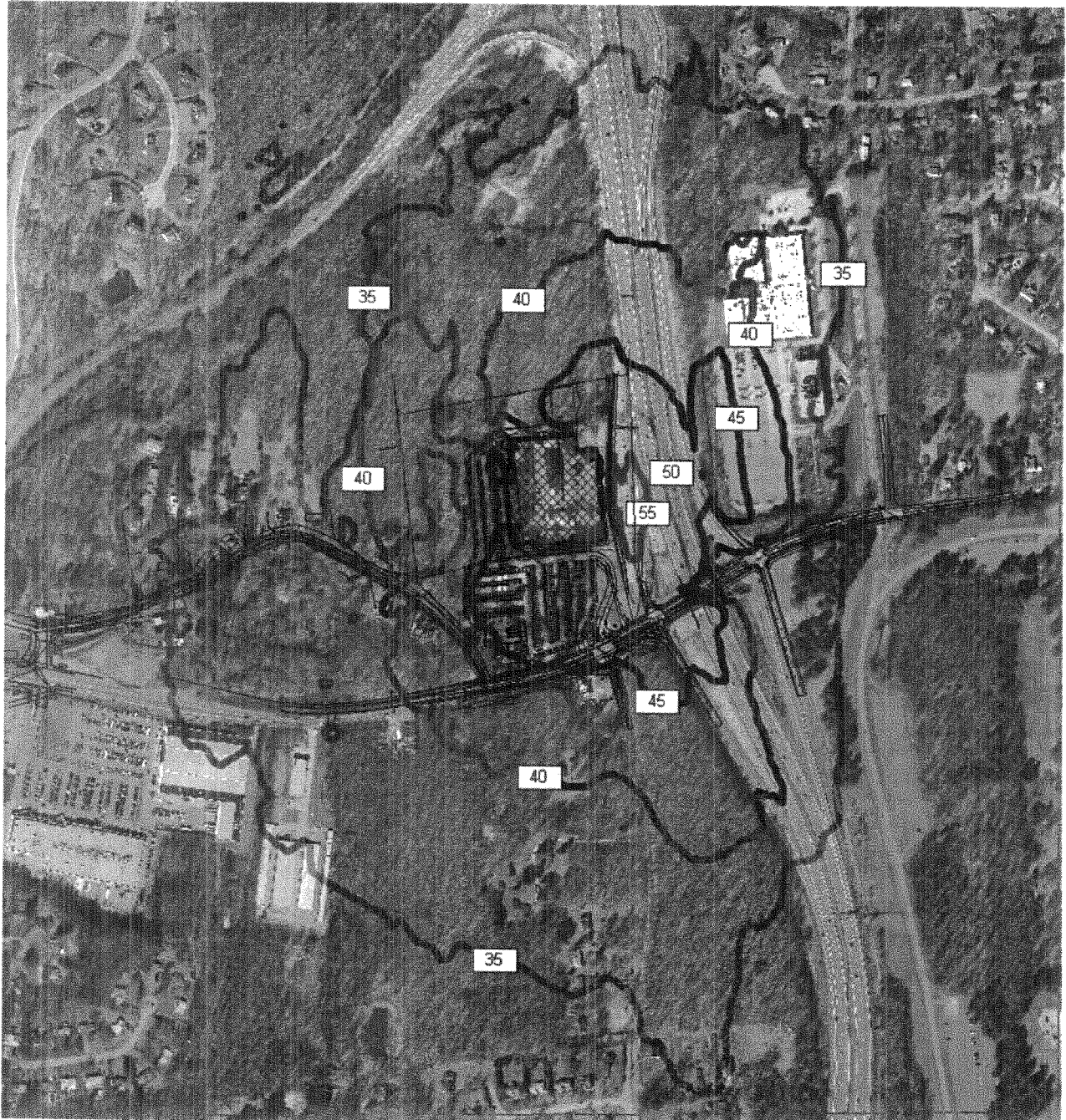
Location	Measured Nighttime	Calculated HVAC Noise	Combined Future Level	Increase Over Existing Condition
Winding Court	46	11	46	0
Deer Track Court	43	34	44	1
Fox Meadow Court	46	34	46	0
Old Crompond Road	47	39	48	1
Carpenter Road	45*	38	46	1

*Ambient data from Park Lane location

How combined level calculated?

Exhibit III.N-2
Operational Noise Contour Map (dBA)

Deer Track Court - No #



Legend?

Delivery Trucks and Tire and Lube Express (TLE)

Delivery trucks will access the facility via the southern driveway entrance and utilize a dedicated road along the eastern side of the proposed building. This access route serves to shield residences to the west of the facility from truck related noise. The loading dock area will be located on the northeast end of the building. Heavy trucks traveling at 15 miles per hour through the property were assumed for the analysis. Delivery truck modeling was conducted by evaluating a truck at three discrete points within the facility. Each of these three points would be in line with residential locations, such that the peak sound level expected (e.g., without shielding from the building) was calculated. A fourth point was added that included two trucks idling at the loading dock. The highest calculated sound levels at each receptor location, for any truck position within the site, is provided in Table III.N.3, along with the existing nighttime ambient noise level.

3 trucks at once?
or
1 truck at 3 points?

Table III.N.3

Calculated Delivery Truck Noise (dBA)

Location	Measured Nighttime	Highest Calculated Delivery Truck Noise	Combined Future Level	Increase Over Existing Condition
Winding Court	46	20	46	0
Deer Track Court	43	38	44	1
Fox Meadow Court	46	44	48	2
Old Crompond Road	47	39	48	1
Carpenter Road	45*	43	47	2

*Ambient data from Park Lane location

Explanation

The modeling results indicate that delivery truck sound levels at the nearest residences would be below existing nighttime ambient sound levels. Future increases in noise would be two dBA or less, which is well below the NYSDEC noise impact criterion. Further, these noise events will be brief, as it is estimated that about five trucks per night will access the facility. Further, observations made during the ambient noise monitoring program revealed noise levels generated by occasional loud cars and motorcycles on the Taconic

Parkway and Route 35/Crompond Road at night generated much higher sound levels than the trucks would at the receptor locations.

Smaller delivery trucks and garbage trucks would also access the building via the southern driveway entrance. Additionally, some sound would be generated by the proposed Tire and Lube Express (TLE) at the facility. The delivery trucks at this location, because they would usually only be medium sized trucks or smaller, would generate lower sound levels than the large delivery trucks at the loading dock. These sound levels would also only occur during the day.

Traffic Related Noise

A noise impact evaluation was performed by calculating expected noise level increases associated with traffic volumes. Traffic noise was evaluated by obtaining traffic count data for the No-Build and Build scenarios. Noise levels associated with vehicular traffic are a function mainly of traffic speed, vehicle mix (automobiles, medium trucks, heavy trucks) and volume.

Posted vehicle traffic speeds will not be affected by the project. Vehicle mixes are also anticipated to be essentially the same. Therefore, any changes in traffic related noise will be a function of the change in volume. For example, a doubling of traffic volume (assuming speeds and vehicle mixes do not change) equates to an increase in noise of 3 dBA.

Traffic volumes for each of the intersections evaluated for the traffic study, for each scenario, were tabulated and are presented in Table III.N.4. The increase in noise over the No-Build scenario for each time period is also presented. The data reveal that negligible increases over the no-build scenario will be experienced at any of the intersections due to increased vehicular traffic. The greatest calculated increase is only 1.2 dBA. All other increases are limited to less than 1 dBA, which is an essentially imperceptible increase. Using the NYSDEC impact criterion discussed previously, no significant adverse noise impacts would be expected from increased vehicular traffic associated with the project.

**Table III.N.4
Calculated Traffic Noise**

Yorktown Costco Traffic Noise Analysis											
Intersection	No-Build	Build	Sound Level Increase over	Intersection	No-Build	Build	Sound Level Increase over				
1 - NYS Route 35/US Route 22 and Lexington Avenue	Traffic Volumes			9 - NYS Route 35/US Route 22 and Taconic State Parkway SB Ramp	Traffic Volumes						
	AM Peak	2556	2568	0.0		AM Peak	2673	2720	0.1		
	PM Peak	2868	2964	0.1		PM Peak	3097	3457	0.5		
	Saturday Peak	2740	2897	0.2		Saturday Peak	3051	3633	0.8		
2 - NYS Route 35/US Route 22 and Bear Mountain Parkway Extension		AM Peak	2379	2392	0.0	10 - NYS Route 35/US Route 22 and Taconic State Parkway NB Ramp		AM Peak	1958	1992	0.1
	PM Peak	2952	3048	0.1		PM Peak	3153	3410	0.3		
	Saturday Peak	2728	2883	0.2		Saturday Peak	2741	3156	0.6		
3 - NYS Route 35/US Route 22 and Pine Grove Court		AM Peak	2178	2193	0.0	11 - NYS Route 35/US Route 22 and Strang Boulevard		AM Peak	1757	1778	0.1
	PM Peak	2717	2823	0.2		PM Peak	2244	2398	0.3		
	Saturday Peak	2579	2750	0.3		Saturday Peak	2154	2402	0.5		
4 - Bear Mountain Parkway Extension and Old Crompond Road		AM Peak	944	945	0.0	12 - NYS Route 35/US Route 22 and NYS Route 132		AM Peak	1853	1873	0.0
	PM Peak	1280	1288	0.0		PM Peak	2378	2522	0.3		
	Saturday Peak	888	903	0.1		Saturday Peak	2395	2629	0.4		
5 - Old Crompond Road and Stoney Street		AM Peak	382	383	0.0	13 - NYS Route 35/US Route 22 and Springhurst Street		AM Peak	1939	1956	0.0
	PM Peak	752	761	0.1		PM Peak	2288	2418	0.2		
	Saturday Peak	626	640	0.1		Saturday Peak	2291	2500	0.4		
6 - NYS Route 35/US Route 22 and Stoney Street		AM Peak	2626	2641	0.0	14 - NYS Route 35/US Route 22 and Granite Springs Road		AM Peak	2366	2383	0.0
	PM Peak	3505	3620	0.1		PM Peak	2530	2655	0.2		
	Saturday Peak	3408	3595	0.2		Saturday Peak	2527	2730	0.3		
7 - NYS Route 35/US Route 22 and Old Crompond Road		AM Peak	2187	2203	0.0	15 - NYS Route 35/US Route 22 and Baldwin Road		AM Peak	1949	1963	0.0
	PM Peak	2763	2878	0.2		PM Peak	2235	2331	0.2		
	Saturday Peak	2732	2919	0.3		Saturday Peak	2090	2245	0.3		
8 - NYS Route 35/US Route 22 and Mohansic Avenue		AM Peak	2269	2333	0.1	16 - NYS Route 35/US Route 22/Commerce Street and NYS Route		AM Peak	2587	2595	0.0
	PM Peak	3025	3585	0.7		PM Peak	3045	3108	0.1		
	Saturday Peak	2933	3838	1.2		Saturday Peak	2956	3056	0.1		

None on TSP, Strang Neighborhood

Construction Noise

The construction process for this Project will generally include the following phases:

- Ground Clearing
- Demolition
- Excavation
- Foundations
- Building Construction
- Restoration/Finishing

The construction process for commercial type projects generally occurs in the following sequences: ground clearing, demolition and excavation (road and infrastructure construction), foundations, building construction, exterior finishing and cleanup. Construction equipment utilized will differ from sequence to sequence. Construction equipment utilized differs in each phase, but in general, heavy equipment (bulldozers, loaders, dump trucks) is used during the excavation and demolition phases. Noise is generated during construction primarily from diesel engines that power the equipment. Exhaust noise is usually the predominant source of diesel engine noise, which is the reason that maintaining functional mufflers on all equipment will be a requirement of the Project.

Peak noise levels of construction equipment likely to be used for the Project are summarized in Table III.N.5 (BBN, 1971; NYSDEC, 1974). Typical site average sound levels for each phase of construction are presented in Table III.N.6 (BBN, 1971). Noise levels in the tables are presented for a reference distance of 50 feet. The nearest residences to the edge of the Project property are at least 650 feet away. Most residences and other noise sensitive areas are located much further from the project. Sound levels experienced at offsite locations will be much lower.

The project site covers a fairly large area. The actual sound levels which will be experienced by existing off-site residential uses surrounding the site will be a function of distance, the equipment in operation at any given time, and the speed at which the equipment engines are operating. As such, there is no one

single sound level that will occur during construction, and no one existing residential use will be exposed to the same sound levels over an extended period of time, as construction progresses through the site. For the purposes of this analysis, the construction equipment was assumed to be located in the approximate center of the proposed building site in order to determine average construction noise levels.

Table III.N.5
Noise Levels of Major Construction Equipment

Equipment Type	Noise Level (dBA) At 50 Feet
Cement Trucks	85
Front Loaders	79
Graders	85
Bulldozers	85
Pickup Trucks	55
Backhoes	80
Concrete Mixers	85
Excavator	85

Dumptrucks?

Sources (BBN, 1971; NYSDEC, 1974; MADEP)

Table III.N.6
Typical Site Average Noise Levels by Construction Activity (dBA)

Construction Phase	Noise Level (dBA) at 50 Feet	
	Maximum Number of Equipment in Operation	Minimum Required Equipment in Operation
Ground Clearing	84	83
Demolition	89	83
Excavation	89	71
Foundations	77	77
Building Construction	84	72
Restoration/Finishing	89	74

Source (BBN, 1971)

The calculated levels were arrived at utilizing the same CadnaA noise model and assumptions utilized for calculating the HVAC noise levels. Calculated site average noise levels and the existing daytime ambient noise levels at each noise sensitive location are provided in Table III.N.7 (maximum equipment) and Table III.N.8 (minimum equipment).

The data presented in Table III.N.7 reflect the average sound level occurring when the maximum amount of construction equipment is operating at the site, a conservative estimate. The data in Table III.N.8 reflect the average sound level when only the minimum equipment required is in operation. Demolition noise sources associated with removing the existing structures are anticipated to be similar to those associated with Project construction.

Table III.N.7

Calculated Site Average Construction Noise Levels – Maximum Equipment (dBA)

Receiver	Existing Daytime Leq	Ground Clearing	Demolition	Excavation	Foundations	Building Assembly	Finishing
Winding Court	47	27	27	32	20	27	32
Deer Track Court	44	45	45	50	38	45	50
Fox Meadow Court	49	45	45	50	38	45	50
Old Crompond Road	53	52	52	57	45	52	57
Carpenter Road	44	53	53	58	45	53	58
Crompond Elementary School	53	16	16	21	9	16	21
Roces Alternative High School	45	23	23	28	16	23	28
First Presbyterian Church of Yorktown	55	23	23	28	16	23	28
Yorktown Jewish Center	60	25	25	30	18	25	30

Table III.N.8

: Calculated Site Average Construction Noise Levels – Minimum Equipment (dBA)

Receiver	Existing Daytime L_{eq}	Ground Clearing	Demolition	Excavation	Foundations	Building Assembly	Finishing
Winding Court	47	26	15	14	20	15	14
Deer Track Court	44	44	33	32	38	33	32
Fox Meadow Court	49	44	33	32	38	33	32
Old Crompond Road	53	51	40	39	45	40	39
Carpenter Road	44	52	41	40	45	41	40
Crompond Elementary School	53	15	4	3	9	4	3
Roces Alternative High School	45	22	11	10	16	11	10
First Presbyterian Church of Yorktown	55	22	11	10	16	11	10
Yorktown Jewish Center	60	24	13	12	18	13	12

The construction sound levels presented above indicate that construction noise will be above existing conditions at the most proximate receptors (e.g., Old Crompond Road and Carpenter Road), and mainly when the maximum equipment is in operation. Most construction phases will generate noise levels that will be below ambient levels, especially when the minimum amount of equipment is in operation (Table III.N.8). Construction noise levels will be insignificant at the more distant noise sensitive areas.

Construction noise and equipment will not be unusual, as they will be typical of those associated with any commercial development. It is important to note that the equipment presented is not used in each phase of construction.

Further, equipment used is not generally operated continuously, nor is all of the equipment always operated simultaneously. There will therefore be times when no equipment is operating and noise will be at ambient levels. Construction activities are also scheduled to occur during daytime hours, when many people are at work and away from home.

The construction noise levels presented above are those that would be experienced for people outdoors. A building (house) will provide significant attenuation for those who are indoors. Sound levels can be expected to be up to 27 dBA lower indoors with the windows closed. Even in homes with the windows open, indoor sound levels can be reduced by up to 17 dBA (USEPA, 1978).

3. Mitigation Measures

Operational Noise

The noise assessment revealed that sound levels due to Project operation, including HVAC, truck delivery, and from vehicular traffic, and the associated increases over existing conditions, would be well below the NYSDEC noise impact criterion. Further Project noise levels were also shown to be below existing ambient conditions. Accordingly, no significant noise impacts are expected, and no mitigation measures are deemed necessary.

Construction Noise

The short-term nature of construction activities does not warrant any physical mitigation measures. Construction noise will also be temporary in nature. However, as a general good construction practice to reduce construction noise to the greatest extent possible and practical, functional mufflers will be maintained on all construction equipment.

Route? to 9 or 684?

The Town of Yorktown noise ordinance is designed to minimize potential noise impacts due to construction by limiting construction activities to between the hours of 7:00 a.m. to 11:00 p.m. on Monday through Thursday, 7:00 a.m. to 10:00 p.m. on Friday, 8:00 a.m. to 10:00 p.m. on Saturday and 8 a.m. to 11 p.m. on

Sunday. It is therefore considered to be an effective administrative mitigation measure, and project construction hours will be in compliance with the ordinance.

Accordingly, no long term or permanent noise impacts are anticipated due to Project construction activities.