L. Noise

1. Summary of Additional Technical Studies

With the exception of an analysis of vehicular traffic associated with construction activities, no additional technical studies or modeling, beyond certain clarifications in the comments below, have been prepared for the FEIS. The analysis of the vehicular traffic associated with construction activities found that noise from the associated roadway traffic would be more than 9 dB(A) lower than the construction sound sources and would not have a significant impact on noise levels beyond those provided in the DEIS.

2. Plan Changes and Impact Summary

The modified FEIS plan would not result in any further noise related impacts beyond those detailed in the DEIS.

3. Comments and Responses

Comment L.1
The DEIS states that one noise receptor, located near Hoag Corners Road, will experience an increase in noise levels of approximately 35 dB(A) [to 84.8 dB(A)], for a period of several weeks during construction. See page III.L-10. It is suggested in the accompanying text that "all contractors could be required to properly maintain their equipment and have … a muffler that is in good working order." As an increase of 35dB(A) is significant, and as stated on page III.L-10, this would be "very audible and loud", DEC believes that contractors must maintain their equipment properly, adequate mufflers must be used, and contractors must make every effort to attenuate noise levels in the vicinity of this residential receptor. A temporary berm or other measure (such as movable barriers), could mitigate unacceptable noise levels at this and other locations during construction.

(Scott Ballard, Environmental Analyst, New York State Department of Environmental Conservation, Letter, Pg. 13)

Response L.1
Comment noted. See Response L.27.

Comment L.2
This section of the DEIS could also be revised to state that all equipment will be required to utilize alternative back-up alarm systems, rather than "beepers", to mitigate noise impacts associated with construction.

(Scott Ballard, Environmental Analyst, New York State Department of Environmental Conservation, Letter, Pg. 13)

Response L.2
Construction activity and garbage collection shall be limited to time periods described by local or county ordinance. However, by law and for safety purpose, back up beepers can not be disabled on construction or other "heavy" vehicles.

Two OSHA requirements, 29 CFR 1926.601(b)(4) and 1926.602(a)(9), relate to back-up alarms in construction. Both provisions apply only to the motor vehicles and materials handling equipment used in construction operations. The Agency has explained that these requirements allow employers some flexibility in determining the best method to warn of the danger of a backing vehicle. Specifically, when a driver's view to the rear is obstructed, the vehicle must be either equipped with an alarm or an observer must signal the driver that it is safe to proceed. If an alarm is used, it must be loud enough to be distinguishable from other sounds. Furthermore, OSHA's experience has shown the value of back-up alarms in protecting workers and the general public from serious injury.

The National Institute for Occupational Safety and Health (NIOSH) conducts workplace safety and health research, and attempts to identify the causes of work-related diseases and injuries and potential hazards of new work technologies and practices. OSHA has no requirements for back-up alarms in the general industry standards, 29 CFR Part 1910. However, 29 CFR Part 1926.601(b)(4) of the Construction Safety and Health Regulations indicates:

"(4) No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:

(i) The vehicle has a reverse signal alarm audible above surrounding noise level or;

(ii) The vehicle is backed up only when an observer signals that it is safe to do so."

The alarm is only required when vision to the rear of the operator is obstructed and the operator lacks an observer to signal him.

It would be the employer's obligation to determine the noise level in his particular worksite and select an appropriate alarm if he chooses to use it.

A second regulation, 29 CFR Part 1926.602(a)(9), reads as follows:

"(9) Audible alarms

(i) All bidirectional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn has to be maintained in operative condition.

(ii) No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employer signals that it is safe to do so."

The regulations allow a 90 decibel (dba), 8-hour exposure for employees.

Comment L.3
Page III.C-11 indicates that rock crushers will be used on site to prepare fill material for reuse. The noise analysis did not include potential noise generated by operation of rock crusher(s), and must be revised to include these additional pieces of equipment. Additional detail is also required regarding proposed rock crusher use: a plan should be developed which specifies where the crushers will be used; whether these will be mobile; whether any mitigation is proposed for these additional noise sources; and whether the rock crushers will require a permit or registration from the Department.

(Scott Ballard, Environmental Analyst, New York State Department of Environmental Conservation, Letter, Pg. 13)

Response L.3
The noise analysis as presented in the DEIS Response L.27 includes an unmuffled, 1972 Caterpillar D-9 and an unmuffled diesel generator. This equipment has a source strength which readily accounts for emissions from a rock crusher (i.e., both are rated at approximately 94 dB(A) at 50 feet). Therefore, a separate analysis is unnecessary. Further, the need for a rock crusher for project demolition also has environmental benefits. That is, materials used in the psychiatric facility's original construction will be re-used for this project. Thus, many of the added impacts associated with the use of "virgin" materials (e.g., mining excavations, transport, manufacturing GHG emissions, etc.) will be avoided.

Comment L.4
The DEIS should present a table that contains the noise monitoring locations, their associated land use, and what part of the noise analysis each receptor was used for (ex: mobile source, construction, building attenuation, etc.). The table should refer to the receptor sites by number.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.4

II.L-1
Noise Monitoring Locations

SITE #	LOCATION	LAND USE		NOISE ANALYSIS TYPE
		EXISTING	PROPOSED	
1	WINGDALE ELEMENTARY SCHOOL	SCHOOL	SCHOOL*	MOBILE SOURCE/BUILDING ATTENUATION
2	DOVER PLAINS LIBRARY, 1797 RT 22, WINGDALE, NY	LIBRARY	LIBRARY*	MOBILE SOURCE/BUILDING ATTENUATION
3**	SW DEVELOPMENT CORNER (RT 55/22)	TRAIN STATION	TRAIN STATION	MOBILE SOURCE/CONSTRUCTION
3a	SE DEVELOPMENT CORNER (RT 55/22)	TRAIN STATION	TRAIN STATION	MOBILE SOURCE/CONSTRUCTION
3b	NW DEVELOPMENT CORNER (RT 55/22)	ABANDONED PSYCH FACILITY	COMM/RETAIL/ RESIDENTIAL	MOBILE SOURCE/BUILDING ATTENUATION/CONSTRUCTION
3c	NE DEVELOPMENT CORNER (RT 55/22)	ABANDONED PSYCH FACILITY	COMM/RETAIL/ RESIDENTIAL	MOBILE SOURCE/BUILDING ATTENUATION/CONSTRUCTION
4	PSYCH FACILITY - EAST DEVELOPMENT AREA	ABANDONED PSYCH FACILITY	COMM/RETAIL/ RESIDENTIAL	MOBILE SOURCE/BUILDING ATTENUATION/CONSTRUCTION
5	GOLF COURSE ENTRANCE - WHEELER ROAD	OPEN SPACE/GOLF COURSE	RESIDENTIAL	MOBILE SOURCE/BUILDING ATTENUATION/CONSTRUCTION
6	SOUTHERN RESIDENTIAL RECEPTOR (RT 22/55)	RESIDENTIAL	RESIDENTIAL*	MOBILE SOURCE/BUILDING ATTENUATION/CONSTRUCTION
7	HOAGS CORNER ROAD & WHEELER ROAD	RESIDENTIAL/ABONDONED RESIDENTIAL/ OPEN SPACE	RESIDENTIAL	MOBILE SOURCE/CONSTRUCTION

* No proposed construction or changes to existing land use
** Site # 3 has been sectioned and renamed as Site #3, 3a, 3b and 3c due to a change in sampling locations after the original submission. Sites 3a, 3b and 3c are not necessary and have been excluded from the analysis.

Comment L.5
The DEIS omits figures that had previously been provided showing the location of receptors for the noise analysis. Those figures should be provided and should clearly show the specific locations of receptor sites 3 through 7.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.5
Exhibit II.L-1 indicates the original ten (10) site locations used to obtain the noise monitoring data. For analytical purposes, these were condensed to seven (7) locations. The seven (7) site locations are further described in the DEIS Section III.L, part 2. The sites located in the Exhibit are as follows:

Site Location #1:	***Wingdale Elementary School, Rt 55, Wingdale, NY***
Site Location #2:	***Dover Plains Public Library, 1797 Rt. 22, Wingdale, NY***
Site Location #3:	***SW Development Corner (Rt. 55/Rt. 22)***
Site Location #3a:	***SE Development Corner (Rt. 55/Rt. 22)***
Site Location #3b:	***NW Development Corner (Rt. 55/Rt. 22)***
Site Location #3c:	***NE Development Corner (Rt. 55/Rt. 22)***
Site Location #4:	***Psych Facility – East Development Area – Wheeler Road***
Site Location #5:	***Golf Course Entrance – Wheeler Road***
Site Location #6:	***Southern Residential Receptor (Rt. 55/Rt. 22)***
Site Location #7:	***Hoags Corner Road & Wheeler Road***

Monitoring locations 3, 3a, 3b & 3c have been consolidated into Site Location 3.

Comment L.6
The analysis should include a receptor location at the residential neighborhood to the south of the proposed project.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 3)

Response L.6
The noise monitoring and analysis uses the residential trailer park neighborhood across from Rock Hill Lane as a southern residential receptor. (See Exhibit II.L-1). The trailer park consists of (11) eleven residential trailer homes situated around a circular loop road/drive way. This is considered as the southern residential receptor as it occurs south of Wheeler Road along Rt. 55/Rt. 22 and as a residential community. The southern residential site location and corresponding noise analysis is described in DEIS III.L part 2.

Comment L.7
The DEIS should define the criteria that will be use for determining an impact.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.7

The criteria which were used in the DEIS to determine an impact were the New York State Department of Environmental Conservation (NYSDEC), Guidelines for Assessing and Mitigating Noise Impacts. New York State Department of Transportation (NYSDOT) Noise Abatement Criteria (NAC) also provide useful guidance.

Comment L.8

The NYSDOT noise standards contain two criteria: the NAC and the relative increase impact criteria. These two criteria should be described.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.8

NYSDOT has noise criteria that it uses for highway projects under its jurisdiction. NYSDOT has adopted the noise criteria 23 CFR 772 of the Federal Highway Administration (FHWA), which includes "fixed" and "relative" criteria. The fixed noise criterion consists of the FHWA (NYSDOT's) Noise Abatement Criteria (NAC), which is provided in the table below.

Table II.L-2
NYSDOT/FHWA Noise Abatement Criteria

Fixed Criteria		
Activity Category	Hourly Leq	Description of Activity Category
A	57 (Exterior)	Land for which serenity and quiet are of extraordinary significance and serves as an important public need where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D		Undeveloped lands
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

The second type of FHWA criterion relates to the relative change compared to existing noise levels. Substantial relative noise impacts occur when predicted traffic-noise levels increase by 6 decibels or more above existing noise levels. The relative criterion is consistent with NYSDEC's noise guidelines.

It should be noted that FHWA's criterion comes with some commentary language as to their use/interpretation. Per 23 CFR 772:

> ***In developing the NAC contained in the noise regulations, the FWA attempted to strike a balance between that which is most desirable and that which is feasible… The NAC are not magical numbers. The NAC should not be viewed as Federal standards or desirable noise levels…The NAC should only be used in absolute values which, when***

approached or exceeded, require the consideration of traffic noise abatement measures.

Thus, at these sound levels, noise abatement must be "considered," but it is not necessarily required. Further, abatement may include the use of building material which can reduce interior sound levels.

Comment L.9
The DEIS discussion of the noise monitoring results should also include a discussion of the weekday AM and Saturday MD results.
(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.9
The PM weekday results were primarily used for the DEIS noise analysis discussion because the highest values occurred during the PM conditions. The complete set of monitoring and modeling data, including the AM and SAT peak hours, is included in the DEIS Appendix. In the analysis of the proposed condition, the PM results were compared to the modeling results of the No Build condition so as to demonstrate the absolute sound levels and relative difference in sound levels. The following discussion details the PM, AM and Saturday monitoring results.

Measurements occurred (a) on Saturday, early PM peak (12 noon to 3 PM), April 18, 2009, in sunny conditions with winds between 0 and 10 miles per hour with 70 degree temperatures (F), (b) on Tuesday, PM peak (2:30 to 6 PM)[1], April 21, 2009 in cloudy conditions with winds between 0 and 5 miles per hour with 55 degree temperatures (F) and (c) on Wednesday, AM peak (7:00 to 10:30 AM), April 22, 2009 in cloudy conditions with winds between 0 and 5 miles per hour with 50 degree temperatures (F). All sound levels were monitored for 20 minutes. The monitored sound levels are presented in DEIS Section L, Table III.L-2, and DEIS Noise Appendix, Table 1 (at the rear of the text) and in its Appendix A. The measured levels were generally dominated by vehicle noise from Route 22/55 and Metro North trains at locations measured along Route 22/55. They would be expected to experience an increase in the dominance of average and peak values at "rush hour" periods in the AM and PM plus Saturday in the early PM.[2]

Existing sound levels were measured at the site's main entrance at Route 22/55. Noise measurements from the proposed "Town Center" showed an $L_{(eq\ -20\ min)}$ of 63.5 on the PM peak and varied from 39 dB(A) to 78 dB(A)[3]; measurements on the AM peak showed an $L_{(eq\ -20\ min)}$ 71.0 dB(A) and varied from 39.0 dB(A) to 86.0 dB(A); and the Saturday peak had a $L_{(eq\ -20\ min)}$ 64.4.0 dB(A) and varied from 43 dB(A) to 79 dB(A). The noise measurements at this location

[1] The school was measured during its own unique peak when the students are arriving or leaving.
[2] A value referred to as the "equivalent sound level," L_{eq}, averages were computed/determined from the data $L_{(eq)}$. In this case, the $L_{(50)}$ and $L_{(10)}$ were also modeled for the expected, "peak hour."
[3] The results of the PM or Saturday peak period were equal to or high than the AM peaks. Therefore, the discussion focuses on the PM and SAT results. One exception was the AM measurement at the SW corner of Route 22/55 and Wheeler Road where the measurements caught an unusually high number of heavy trucks accelerating away from the light during the measurement period.

were taken at 50 feet from the dominant source[4]. The peak measurement of 78 dB(A) was recorded when a heavy duty, diesel truck passed. This receptor has an existing sound level typical of a commercial setting. These sound levels result from the existing traffic on Route 22/55 and the occasional, passing Metro North trains at the Wingdale Station. The Route 22/55 receptors also receive some reflection from the existing psychiatric buildings. The average measurement for this point was typical for a moderate intensity commercial use (Harris, C.-1998, 3rd edition).

The Metro North trains were measured entering and leaving the Wingdale station on February 18, 2009. The train, in motion, varied from 94 to 97 dB(A) as the engine moved past to 84 to 86 dB(A) as the passenger cars moved past. The sound pressure levels generated were consistent with USEPA's Community Noise, 1971.

Additional points were monitored to review "sensitive" receptors and/or to determine a more "ambient" condition away from the Route 22/55 corridor. The sensitive receptors were located at the library immediately west of Route 22, adjacent to Pleasant Ridge Road and at the Dover Plains Elementary school north of the proposed project site and set back from Routes 22 and 55. The results at the library indicate: the PM peak had a $L_{(eq\ -20\ min)}$ of 68.0 dB(A) and varied from 40 dB(A) to 85 dB(A); the AM peak had a $L_{(eq\ -20\ min)}$ of 67.9 dB(A) and varied from 40 dB(A) to 81 dB(A); and the Saturday peak had a $L_{(eq\ -20\ min)}$ of 62.9 dB(A) and varied from 40 dB(A) to 72 dB(A). The library receptor has an existing sound level typical of a commercial setting and an elevated sound level as compared to the school (see below) as it fronts directly on Route 22.

A PM $L_{(eq\ -20\ min)}$ of 58.2 dB(A) was measured at the school parking lot west of Route 55. The sound level varied from 40 dB(A) to 70 dB(A). During the AM monitoring time a $L_{(eq\ -20\ min)}$ of 61.9 dB(A) was measured and the levels varied from 45 dB(A) to 72 dB(A). During the Saturday monitoring a $L_{(eq\ -20\ min)}$ of 55.2 dB(A) and levels varied from 41 dB(A) to 64 dB(A). In the case of the school, the peak sound level is largely the result of its own endemic activity. That is, the school entry experiences a surge of traffic (including busses) in its peak hours[5]. The school itself is set back from Routes 22 and 55 and so, they act as an audible but only secondary sound source during its peak hours of use. The result is that the school (as provided in the modeling below) experiences lesser sound pressure levels than the measurement locations along Routes 22 or 55, but it is, and will be, well above local, "ambient" levels due to its own traffic pattern and vehicle mix.

An existing residence south of the intersection of Route 22/55 and Wheeler Road was also monitored. The PM results at these locations had a $L_{(eq\ -20\ min)}$ of 61.8 dB(A) and ranged from a level of 39 dB(A) to 77 dB(A). The AM results had a $L_{(eq\ -20\ min)}$ of 60.1 dB(A) and levels ranged from 39 dB(A) to 72 dB(A). The Saturday results had a $L_{(eq\ -20\ min)}$ of 59.4 dB(A) and levels varied from 38 dB(A) to 73 dB(A). This receptor has an elevated sound level as compared to local, "ambient" levels as it fronts directly on Route 22/55.

[4] FHWA levels are determined at 50 feet from the sound source.
[5] The school sound levels were measured when the students were arriving in the AM and leaving in the PM.

Two future residential receptor locations were measured east and west of Route 22/55 along Wheeler Road. These locations were at an existing but abandoned psychiatric building (east) and at the golf club (west) entry north of Wheeler Road. PM results at the eastern location had a $L_{(eq\ -20\ min)}$ of 55.1 dB(A) and ranged from a level of 37 dB(A) to 69 dB(A). The AM results had a $L_{(eq\ -20\ min)}$ of 41.5 dB(A) and levels ranged from 38 dB(A) to 50 dB(A). The Saturday results had a $L_{(eq\ -20\ min)}$ of 43.9 dB(A) and levels ranged from 36 dB(A) to 57 dB(A).

PM results at the western location had a $L_{(eq\ -20\ min)}$ of 53.0 dB(A) and ranged from a level of 36 dB(A) to 68 dB(A). AM results had a $L_{(eq\ -20\ min)}$ of 49.3 dB(A) and ranged from 36 dB(A) to 68 dB(A). Saturday results had a $L_{(eq\ -20\ min)}$ of 53.4dB(A) and ranged from 37 dB(A) to 69 dB(A). At the eastern receptor, the results are skewed to lower readings in the existing condition as the psychiatric buildings are largely vacant, thus diminishing traffic. At the western receptor, the golf club flanking Wheeler Road has several traffic "speed bumps" deployed across the roadway to slow traffic in the area.

Finally, an existing "rural residential" area along Wheeler and Hoag Corners Roads, was used to determine the local, ambient sound level in the existing condition. PM results at the western location had a $L_{(eq\ -20\ min)}$ of 52.9 dB(A) and ranged from a level of 36 dB(A) to 68 dB(A). The AM results had a $L_{(eq\ -20\ mn)}$ of 51.7 dB(A) and ranged from a level of 35 dB(A) to 70 dB(A). The Saturday results had a $L_{(eq\ -20\ min)}$ of 49.5 dB(A) and ranged from a level of 38 dB(A) to 66 dB(A).

The lower sound levels at this location are due to its position well away from Route 22/55, Metro North and other existing sound sources. This puts it in the category of quiet, suburban to rural neighborhoods (Harris, C.-1998, 3rd Edition).

Comment L.10
The DEIS should discuss why the noise measurements at the Wingdale Elementary School were not performed during the proposed project's vehicular traffic peak hours.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.10
The Wingdale Elementary School was chosen as a sensitive receptor because it occurs in the vicinity of the proposed development and along Rt. 55/22. The noise monitoring schedule was changed for this particular receptor to focus on the site's own endemic activity. This activity consists of buses and parent's cars during the peak times of vehicles arriving and departing from the school. These times are approximately, 8:30 A.M. and 2:30 P.M. It is the school's peak activity during these times that creates a primary noise source for the site and the ambient traffic from Rt. 55/22, is a secondary noise source. This scenario is different than those at noise monitoring locations 1, 3 & 4, where the primary source of noise levels occurs strictly from vehicular traffic along Rt. 55/Rt. 22. The monitoring times were changed to obtain each site's peak noise values during such occurrences. In this case it reflects buses and cars leaving and departing the school during the start and end of the school day.

Comment L.11
The DEIS should identify the measurement length of the Leq values presented (ex: Leq[20-minute]).

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.11
The DEIS indicates the average noise level over the sampling time as the "L_{eq}" value. The noise sampling events occurred over a period 20 minutes at each site location. The average noise level for sampling from a 20 minute time interval will be presented as "$L_{eq(20\text{-}minute)}$" within the in the FEIS. The actual values have not changed from the DEIS.

Comment L.12
For several receptor locations, there is a large discrepancy between the measured existing noise levels and the modeled existing noise levels. This discrepancy is larger than would be normally acceptable and there is no explanation of the discrepancy.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 10)

Response L.12
As described in the Noise Appendix to the DEIS:

> ***A PM L_{eq} of 58 dB(A) was measured at the school parking lot west of Route 55. In the case of the school, the peak sound level is largely the result of its own endemic activity. That is, the school entry experiences a surge of traffic (including busses) in its peak hours. The school itself is set back from Route 22 and 55 and so, they act as an audible but only secondary sound source in its peak hours of use.***

At this location, 58.2 dB(A) $L_{(eq\ -20\ min)}$ was measured but the same location "modeled" at 53.5 dB(A) in the PM. For the AM, this location was measured at 61.9 dB(A) $L_{(eq\ -20\ min)}$ and modeled at 52.9 dB(A) $L_{(eq\ -20\ min)}$. These discrepancies are explained by the DEIS text. That is, the busses and endemic traffic should result in higher sound levels at the school than are caused by peak traffic on Route 22 or 55. The Transportation Noise Model (TNM) Look-up considered only traffic "ambient" volumes plus traffic related to the project. Since this traffic will only occur on Route 22 and 55 (as opposed to on the school's own, internal roadways) and these routes are secondary sources of sound during the school's peak hour, the modeling result will frequently be less then the measured result. Please note that that when the school has no "standard," endemic traffic on Saturday, the result is the reverse.

A second location, on Wheeler Road east of Route 22/55, also experienced differentials between monitored versus modeled results. For example, in the PM the sound was measured at 43.9 dB(A) $L_{(eq\ -20\ min)}$ and modeled at 51.2 dB(A) $L_{(eq\ -20\ min)}$; in the AM the sound was measured at 41.5 dB(A) $L_{(eq\ -20\ min)}$ and modeled at 49.3 dB(A) $L_{(eq\ -20\ min)}$. In these cases, the modeled result substantially exceeded the monitored result. As explained in the DEIS' Noise

Appendix text, " At the eastern receptor, the results are skewed to lower readings in the existing condition as the psychiatric buildings are largely vacant, thus diminishing traffic." The buildings also seem to be having something of a sound shadow sound barrier effect at the monitored location. Finally, traffic was highly erratic at the location-again seemingly to be related to the abandoned nature of the surrounding property.

Comment L.13
The DEIS should identify which noise receptor locations exceed the NAC in the existing condition and at what time period(s).

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.13
The library and the southwestern corner of Route 22/5 (i.e., the Metro North Wingdale train station parking lot) both exceed the NYSDOT/FHWA NAC in the existing condition. DEIS Table III.L-2 shows the library exterior sound level was measured at 68 dB(A) $L_{(eq\ -20\ min)}$ in the PM[6] and 67.9 dB(A) $L_{(eq\ -20\ min)}$ in the AM. Modeled levels were slightly lower and below 67 dB(A) $L_{(eq\ -20\ min)}$. This sound level in the existing condition on the library's exterior is due to traffic on and proximate to Route 22. The sound level at the southwestern corner of Route 22/55 (i.e., the Metro North Wingdale train station parking lot) was measured at 71 dB(A) $L_{(eq\ -20\ min)}$ in the AM. Modeled levels were lower and below 67 dB(A) $L_{(eq)}$. This sound level in the existing condition was due to traffic (especially accelerating heavy trucks) on and proximate Route 22/55.

Comment L.14
The DEIS should identify which noise receptor locations exceed the NAC in the No Build condition and at what time period(s).

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.14
By necessity, all 2020 No Build sound levels were predicted by use of the Transportation Noise Model, Look-up tables (i.e., they can not be measured or monitored as in the existing condition). DEIS Table III.L-3 shows that in no case did any of the receptors exceed the NYSDOT/FHWA NAC for the 2020 No Build.
Comment L.15
The DEIS should discuss the NYSDOT relative impact criteria for the No Build condition.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.15
DEIS Table III.L-3 provides a comparison of the 2020 No Build and Build conditions. Response L.18 below provides a discussion of the differential in light of NYSDOT's relative impact criteria for the two receptors which exceed the NYSDOT/FHWA NAC.

[6] AM, PM and SAT always refer to the peak hour.

Two additional receptors in the newly created neighborhoods that are a part of the Proposed Action and which have a differential sound level between the No Build condition and Build condition approaching or exceeding 6 dB(A) $L_{(eq)}$ are included and discussed in Response L.20, below.

Comment L.16
The DEIS should discuss the NYSDEC impact criteria for the No Build condition.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.16
DEIS Table III.L-3 provides a comparison of the 2020 No Build and Build conditions. Response 15 below provides a discussion of the differential in light of NYSDEC's relative impact criteria for the two receptors which exceed the NYSDOT/FHWA NAC.

Two additional receptors in neighborhoods that will be created as part of the Proposed Action and which have a differential sound level between the No Build condition and Build condition approaching or exceeding 6 dB(A) $L_{(eq)}$ are included and discussed in Response 17, below.

Comment L.17
The discussion of the Build results is confusing. For example, it is unclear as to whether there is a significant impact at the golf course.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.17
DEIS Table III.L-3 provides a comparison of the 2020 No Build and Build conditions. Response L.18 below provides additional discussion of the differential in light of NYSDEC's relative impact criteria for the two receptors which exceed the NYSDOT/FHWA NAC.

There are only two receptors which will "exceed" the operational, relative sound level increase criteria of NYSDEC and NYSDOT. These two receptors will be within neighborhoods that will be newly created as part of the Proposed Action and which have a differential sound level between the No Build condition and Build condition approaching or exceeding 6 dB(A) $L_{(eq)}$. They are included and discussed in Noise Response L.20.

With regard to the golf course, the receptor location chosen to monitor and model will be changed from a golf course to a residential use. It was chosen just for that purpose and is discussed in Response L.20. The golf course will remain as a part of the project but will be re-configured to extend further northward and westward. As such, the impact "to" the golf course during project "operation" will be similar to the modeled Hoag Corner residence. DEIS Table III.L-3 provides a comparison of the 2020 No Build and Build conditions at this receptor. In the SAT scenario (the maximum predicted levels), the sound levels will increase from 49.8 dB(A) $L_{(eq)}$ to 53.3 dB(A) $L_{(eq)}$. The absolute levels are well below the NYSDOT/FHWA NAC and the relative maximum increase of 3.5 dB(A) will be well below the relative sound level increase criteria of NYSDEC and NYSDOT.

Comment L.18
The DEIS should identify which noise receptor locations exceed the NAC in the Build condition and at what time period(s).

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.18
The library and the southwestern corner of Route 22/55 (i.e., the Metro North Wingdale train station parking lot) both are modeled to exceed the NYSDOT/FHWA NAC in the Build, PM and SAT conditions. Both receptors exceeded the 67 dB(A) NAC standard or were close to it (within 3 dB(A)) in the existing condition (both measured and modeled).

Table III.L-3 shows the library exterior sound level was modeled to be at 67.7 dB(A) $L_{(eq)}$ in the PM and 68.6 dB(A) $L_{(eq)}$ in the SAT. As with the existing condition, the sound level on the library's exterior is due to traffic on and proximity to Route 22. The relative increase was 1.2 to 3.0 dB(A) $L_{(eq)}$, respectively and so, is considered unnoticeable to tolerable (NYSDEC) and well within NYSDOT's acceptable, relative increase criteria of 6 dB(A) $L_{(eq)}$.

Table III.L-3 shows that the southwestern corner of Route 22/55 (i.e., the Metro North Wingdale train station parking lot) sound level was modeled at 67.4 dB(A) $L_{(eq)}$ in the PM and 67.8 dB(A) $L_{(eq)}$ in the SAT. These modeled levels were actually lower than the 71 dB(A) $L_{(eq\ -\ 20\ min)}$ measured at this location in the existing condition (see Noise Response #19 above). The modeled sound levels in the build condition will be due to traffic (especially accelerating heavy trucks) on and proximity to Route 22/55. The relative increase was 1.8 to 3.0 dB(A) $L_{(eq)}$, respectively and so, is considered unnoticeable to tolerable (NYSDEC) and well within NYSDOT's acceptable, relative increase criteria of 6 dB(A) $L_{(eq)}$.

Table III.L-3
Comparison of Noise Levels by Receptor

RECEPTORS	2008 AM Existing	2020 AM No Build	2020 AM Build	Build V. Existing	*Build V. No Build*	2008 PM Existing	2020 PM No Build	2020 PM Build	Build V. Existing	*Build V. No Build*	2008 SAT Existing	2020 SAT No Build	2020 SAT Build	Build V. Existing	*Build V. No Build*
LIBRARY	65.6	65.8	66.6	1.0	*0.8*	66.3	66.5	67.7	1.4	*1.2*	65.4	65.6	68.6	3.2	*3.0*
SCHOOL	52.9	53.1	53.9	1.0	*0.8*	53.5	53.8	55.0	1.5	*1.2*	52.7	52.9	55.9	3.2	*3.0*
ROUTE 22/55 SW CORNER	64.4	64.7	66.1	1.7	*1.4*	65.3	65.6	67.4	2.1	*1.8*	64.5	64.8	67.8	3.3	*3.0*
ROUTE 22/55 S. RESIDENCE	59.5	59.8	61.2	1.7	*1.4*	60.3	60.6	62.4	2.1	*1.8*	59.6	59.8	62.9	3.3	*3.1*
WHEELER (MAIN ST.) EAST*	49.3	49.3	59.4	10.1	***10.1***	51.2	51.2	59.9	8.7	***8.7***	51.2	51.2	62.5	1.3	***11.3***
WHEELER (MAIN ST.) WEST*	55.0	55.0	60.8	5.8	***5.8***	55.0	55.6	63.0	8.0	***7.4***	55.7	55.8	63.6	7.9	***7.8***
HOAG CORNERS RESIDENCE	48.8	49.8	50.0	1.2	*0.2*	50.8	50.8	52.2	1.4	*1.4*	49.8	49.8	53.3	3.5	*3.5*

Note: Results in dB(A), L(eq).

A differential of 3 dB(A) or less is inaudible. A differential of 6 dB(A) or more requires further discussion or analysis (see appendix text).

* These receptors have skewed, low sound levels in the existing condition and will be residences within the development itself (see appendix text).

NYSDEC guidance specifies less than 65 dB(A) for non-industrial sites and up to 79 dB(A) for industrial sites.

FHWA guidance specifies less than 67 dB(A) for most, developed sites and up to 72 dB(A) for industrial sites.

Comment L.19
Unlike the NYSDEC criteria, the NYSDOT relative impact criteria compares the Build to the Existing condition, not the Build to the No Build condition.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.19
DEIS Table III.L-3 contains the data necessary to make comparisons between the Existing, No Build and Build conditions. The differential between the Existing and Build Condition is 0.0 to 0.6 dB(A) $L_{(eq)}$ higher than the No Build to Build comparisons. Therefore, there is no material change in the results in relation to the NYSDOT/FHWA NAC, NYSDOT's relative criteria and NYSDEC's relative criteria.

Comment L.20
The DEIS should not discuss the potential for mobile source impacts on future residential receptors that are part of the proposed project.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.20
In accordance with the commenter, the results for the future Build condition 2020 along Wheeler Road east and west as presented in Table III L.3 may be disregarded. However, the Applicant has presented these data to demonstrate to the Board that these locations will experience a transition in use and the "operational" sound level "impacts" which will result. In the case of Wheeler Road, east (to become Main Street east), the location will transition from an abandoned psychiatric facility (with unusually low ambient sound levels) to a suburban, mixed residential and commercial neighborhood. Further, the receptor located along Wheeler Road west (to become Main Street west), will transition from a golf course-quiet suburban to a more intensive suburban use. In both cases, these locations will experience the highest increases in ambient (operations) sound levels modeled for the proposed project. This result is to be expected because of the project's substantial, planned change in use for both locations.

Comment L.21
The DEIS should cite the reference for the FHWA recommended interior sound level of 45 dBA for residences and 50 dBA for commercial and office uses.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.21
The DEIS cited a 45 dB(A) and 50 dB(A) "FHWA-recommended" <u>interior</u> sound levels for residential and commercial buildings. This was derived from FHWA's <u>The Audible Landscape: A Manual for Highway Noise and Land Use</u> (1974). However, the commentor has pointed out the more relevant FHWA/NYSDOT Noise Abatement Criteria (NAC) criteria of 52 dB(A) $L_{(eq-L)}$ for the interior sound level in "residences" or "libraries." Given the results and analysis of the DEIS, the interior of the library (the "oldest", existing, occupied structure

with the "loudest" external noise level) has a 48.6 dB(A) $L_{(eq-L)}$ and the "newer" construction at the school provide a 35.9 dB(A) $L_{(eq-L)}$ interior sound level. Therefore, the existing structural attenuation will provide sufficient reductions to achieve acceptable interior noise levels for the various building's intended uses per the FHWA/NYSDOT NAC.

Comment L.22
If the analysis did not indicate a mobile source impact at an existing residential receptor, then the receptor should not be included in the "interior sound level" (i.e., building attenuation) analysis discussion.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.22
The only two receptors used in the discussion of interior sound levels were the library and school. Both receptors showed a maximum differential of 3.2 dB(A) $L_{(eq-)}$ for the Saturday Build condition. The differential does not exceed the NYSDOT or NYSDEC, dB(A) relative criteria. However, the reason for this was their inclusion in the discussion was: (1) in the Build condition, the library exceeds the FHWA/NYSDOT external NAC (but not the interior) and (2) both were/are considered more "sensitive" land uses.

Comment L.23
The DEIS incorrectly cites the FHWA sound reduction due to a building type as dBA instead of dB.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.23
Comment noted.

Comment L.24
A table of the proposed project's buildings, their associated uses, and required amount of attenuation needed to satisfy interior noise level criteria should be created for the DEIS.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.24
Given the FHWA estimate (from the 1970's) that masonry construction and, in this case modern construction with double glazed windows will have an attenuating effect of some 35 dB(A), none of the proposed building's interiors will approach FHWA's/NYSDOT's NAC. Thus, a table of the project's buildings and the required attenuation is unnecessary.

Comment L.25
The DEIS should explain why the Saturday analysis time period was used for comparative purposes in the construction noise analysis.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.25

In general, the SAT peak hour tended to be as quiet as or quieter than the AM or PM peak hours. This was particularly true for the two sensitive land uses-the library and the school. Further, construction will likely occur on a Saturday when more people tend to be at home (i.e., it is generally a day off from work). This combination of features in this case, led the authors to use the SAT peak hour for construction comparisons.

Comment L.26

The DEIS should address the noise effects of vehicular traffic associated with construction activities.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.26

DEIS Section N provides expected peak construction vehicle occurrences during the peak hour. Approximately 45 to 50 worker vehicles could be expected during the peak hour, most of which would arrive and depart from the Route 22/Wheeler Road intersection. Further, some 10 medium duty trucks and 5 heavy duty trucks could be expected to occur. Information and data that was used for the 20220 Build condition in the Noise Model FHWA Lookup modeling (provided in the DEIS) was reviewed and revised to reflect the above increase in automobile volumes. This was done at the intersection of Route 22/55 with Wheeler Road (west) and along Hoag Corners Road. The data and results are shown as 2020 Build plus construction (an increase in volumes) in the following table. The results were 70.9 dB(A) $L_{(eq-h)}$ and 61.9 dB(A) $L_{(eq-h)}$, respectively. Since both results were clearly more than 9 dB(A) less than the construction sound sources (94 dB(A) at 50 feet), the roadway traffic (including the construction vehicles) were determined to have no significant impact on noise levels beyond those provided in the DEIS.

Table II.L-4

** * * * Results calculated with TNM Version 2.5 * * * **

CONSTRUCTION - 2020 BUILD HOAG CORNERS ROAD

** * * * TRAFFIC VOLUME/SPEED INFORMATION * * * **

Automobile volume (v/h):	*148.0*
Average automobile speed (km/h):	*30.0*
Medium truck volume (v/h):	*40.0*
Average medium truck speed (km/h):	*30.0*
Heavy truck volume (v/h):	*12.0*
Average heavy truck speed (km/h):	*30.0*
Bus volume (v/h):	*2.0*

Average bus speed (km/h): *30.0*

Motorcycle volume (v/h): *1.0*

Average Motorcycle speed (km/h): *30.0*

** * * * TERRAIN SURFACE INFORMATION * * * **

Terrain surface: *hard*

** * * * RECEIVER INFORMATION * * * **

DESCRIPTION OF RECEIVER # 1

2020 BUILD + CONSTRUCTION

Distance from center of 3.7-meter wide, single lane roadway (m): 10.0

A-weighted Hourly Equivalent Sound Level without Barrier (dBA): *61.9*

** * * * Results calculated with TNM Version 2.5 * * * **
CONSTRUCTION - 2020 BUILD RT 22-55
** * * * TRAFFIC VOLUME/SPEED INFORMATION * * * **

Automobile volume (v/h): *1104.0*

Average automobile speed (km/h): *40.0*

Medium truck volume (v/h): *326.0*

Average medium truck speed (km/h): *40.0*

Heavy truck volume (v/h): *79.0*

Average heavy truck speed (km/h): *40.0*

Bus volume (v/h): *18.0*

Average bus speed (km/h): *40.0*

Motorcycle volume (v/h): *19.0*

Average Motorcycle speed (km/h): *40.0*

** * * * TERRAIN SURFACE INFORMATION * * * **

Terrain surface: *hard*

** * * * RECEIVER INFORMATION * * * **

DESCRIPTION OF RECEIVER # 1

2020 BUILD + CONSTRUCTION

Distance from center of 3.7-meter wide, single lane roadway (m): *10.0*

A-weighted Hourly Equivalent Sound Level without Barrier (dBA): *70.9*

Comment L.27
The DEIS should explain whether a usage factor was part of the prediction of noise levels due to onsite construction equipment.

(Graham Trelstad, AKRF, Memorandum to Town Board, 7/30/09, Pg. 11)

Response L.27
The construction noise assumed that the "loudest" bulldozer- a "1972"model Caterpillar D-9 and the loudest compressor-an Ingersol-brand unsilenced diesel-would run "side by side"- for a peak hour[7]. No mitigating measures (see below) were assumed to be present. Two construction sites close to the Wheeler Road/Hoags Corner Road intersection's south eastern and north western corners were assumed to be simultaneously constructed. The sound procedures model also included a linear source along Wheeler Road adjacent to the construction sites. However, it is expected to be more than 9 dB(A) "quieter" and so, will have no discernable effect on the overall construction noise level. This approach was taken to provide a worst case scenario. This was especially true on the project's extreme western side, where construction activity will be introduced temporarily-intermittently (for up to several period of months) on the south eastern and north eastern corner of Wheeler and Hoags Corners Roads. This approach provides a peak, worst-case construction hour. However, it is expected that:

1. ***More "modern" equipment will be utilized, which includes lesser noise generation levels and/or greatly improved mufflers/silencers.***
2. ***Construction equipment can be positioned in a manner which reduces the propagation of sound to the west.***
3. ***It is more likely that one neighborhood will be in full construction at any on time (either northeast or southeast of Wheeler Road) but not both.***
4. ***Measures may be incorporated into more detailed project plans, such as temporary construction berms, which will increase the attenuation of the construction noise.***

[7] FHWA- Highway Construction Noise: Measurement, Prediction and Mitigation. 1973