III.F: Noise

F. Noise

1. Introduction

This section summarizes the comprehensive noise impact assessment study prepared for the Project. The study is in Appendix 3.F of this DEIS.

As discussed below, there are a number of standards, criteria, and guidelines used for evaluating and assessing noise.

a. Sound Basics & Noise Descriptors

Sound is comprised of pressure waves that move or propagate through the air or other media. Noise is unwanted sound. The standard noise measurement unit is the decibel (dB). Sound energy dissipates (noise decreases) as the receiver distance from the noise source increases. Sound levels can also be dissipated by ground and atmospheric absorption and can often be significantly reduced by barriers that block the line of sight between the noise source and the receiver. The human ear can detect changes in sound level as small as 1 dBA; however a 3 dBA change in noise level is considered to be the smallest change detectable by humans over an extended period of time. There are a number of noise descriptors used to characterize noise that take into account the variability of noise levels over time which most environments experience. Various criteria and guidelines used to characterize noise are discussed below.

(1) Sound

Sound is generated when a vibrating object (sound source) creates a physical disturbance that sets the parcels of air or other surrounding medium nearest to it in motion, causing pressure variations that form a series of alternating compression and expansion pressure waves that move or propagate outward away from a source usually in a spherical pattern.

(2) Noise

The terms “sound” and “noise” are often used synonymously. Noise is unwanted sound usually composed of a spectrum of many single frequency components, each having its own amplitude. The disturbing effects of noise depend both on the intensity and the frequency of the tones. For example, higher frequencies are often more disturbing than low frequencies. Pure tones can be more disturbing than broadband sound.

(3) A-Weighting (dBA)

Noise measurements are most often taken using the "A-weighted" frequency response function. The A-weighted frequency or dBA scale simulates the response of the human ear to sound levels (particularly low-level sound), and has been given prominence as a means for estimating annoyance caused by noise, for estimating the magnitude of noise-induced hearing damage, in hearing conservation criteria, for speech interference measurements, and in procedures for estimating community reaction to (general broad band) noise (Clayton, et al.

1978; Cheremisinoff, et al. 1977). Sound measurements are often made using the "A" frequency weighting when assessing environmental noise. The Leq or, better, the LAeq (the A-weighted equivalent continuous sound level) is an important parameter and is discussed below.

(4) Noise Descriptors

There are a number of noise descriptors used to characterize various aspects of noise that take into account the variability of noise levels over time which most environments experience. The different descriptors are applicable to different situations. Commonly used descriptors are discussed below.

(a) Equivalent Sound Level (Leq)

The equivalent sound level (Leq or LAeq) is the value of a steady-state sound, which has the same A-weighted sound energy as that contained in the time-varying sound. The Leq is a single sound level value for a desired duration, which includes all of the time-varying sound energy during that measurement period.

(b) Statistical Descriptors

Statistical sound level descriptors, such as L_1, L_{10}, L_{50}, and L_{90}, are used to represent noise levels that are exceeded 1, 10, 50, and 90 percent of the time, respectively. These statistical descriptors are also referred to as LA_1, LA_{10}, LA_{50} and LA_{90} when they are calculated based on the A-weighted scale.

(c) Residual Noise Level

Measurement of the residual or background sound level is useful in characterizing a community with respect to noise. The residual sound level is the minimum sound level in the absence of identifiable or intermittent local sources. Comparisons of data have shown that the L90, measured with a continuous statistical sound meter, and the residual sound level, measured by trained personnel with a sound-level meter, are closely correlated with one another. (Bolt, Beranek, and Newman, Inc. 1978)

(d) Day/Night Equivalent Sound Level (Ldn)

The day/night equivalent sound level (Ldn) is the A-weighted equivalent level for a 24-hour period (U.S. EPA 1974). The daytime Leq (Ld) is the equivalent A-weighted sound level for daytime hours (7:00 AM to 10:00 PM.), and the nighttime Leq (Ln) is the equivalent A-weighted sound level for nighttime hours (10:00 PM. to 7:00 AM).

(e) Maximum Level (Lmax)

Maximum Level (Lmax or LAmax) represents the maximum noise level that occurs during a given time period.

b. New York State Noise Criteria

The New York State Department of Environmental Conservation has published a policy and guidance document titled Assessing and Mitigating Noise Impacts (February 2, 2001). The document provides guidance on thresholds for significant sound pressure level (SPL) increase and indicates that increases ranging from 0 to 3 dBA should have no appreciable effect on receptors, increases from 3 to 6 dBA may have potential for adverse noise impact only in cases where the most sensitive of receptors are present, and sound pressure increases of more than 6 dBA may require a closer analysis of impact potential depending on existing SPLs and the character of surrounding land use and receptors. The guidance document indicates that a noise increase of 10 dBA deserves consideration of avoidance and mitigation measures in most cases, and in non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dBA at the receptor. An increase of 6 dBA may cause complaints, although there may be occasions where an increase in SPLs of greater than 6 dBA might be acceptable. A sound pressure increase of more than 6 dBA is the threshold/impact criteria used in this analysis unless otherwise indicated.

The guidance document further indicates that the addition of a noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dBA. The New York State guidance document contains a table identifying expected human reaction to various increases in sound pressure levels and it is included as Table III.F-1. The Federal Highway Administration (FHWA) publishes noise sensitivity criteria relating decibel change and relative loudness and they are included as Table III.F-2.

c. City of Yonkers Noise Code

The City of Yonkers regulates noise under Chapter 66 of the City Code (the "Noise Code"). The applicable provision (Section 66-5 E) specifies that a sound level reading taken at a residential property, arising from a commercial property, an industrial property, a public space or a public right-of-way, above seventy (70) dBA during the time period commencing at 7 AM and ending at 10 PM is evidence of a noise disturbance. This sound level falls to 50 dBA between 10 PM and 7 AM. Section 66-5 identifies situations, which shall be considered prima facie evidence of noise disturbances. Section 66-5 (f) states that a sound level reading taken at a residential property, arising from a commercial property, an industrial property, a public space or a right-of-way, above fifty (50) dBA during the time period commencing at 10 PM and ending at 7 AM the next day is also evidence of a noise disturbance. Sound-level readings above seventy-five (75) dBA at any time at a commercial property or at an industrial property (subsections (g) and (h) respectively), would be evidence of a noise disturbance. Lastly, under Section 66-5 (i), a sound plainly audible at a distance of fifty (50) feet from its source would be considered a noise disturbance.

Section 66-4 (f) of the Noise Code exempts construction noise from regulatory noise levels between the hours of 7 AM and 6 PM on weekdays (weekend construction is prohibited). A copy of the Noise Code is provided in Appendix B.

d. Noise Sensitive Receptors

Areas or receptors that are considered potentially sensitive to noise include residences, schools, hospitals, and recreational facilities (U.S. EPA 1974). The area near the Project sites consists of potentially sensitive residential receptors. The closest residences are within approximately 200 feet from Project site boundaries. The closest hospital is St. Joseph's Medical Center; the distance from the River Park Center and Palisades Point sites to the hospital is less than 2,200 feet. The hospital is within 100 feet of the Cacace Center site. The closest school to the River Park Center site is Our Lady of Mt. Carmel–St. Anthony School; it is located approximately 200 feet from the site boundary. The closest school to the Palisades Point site is City Harvest Pre-School (School 10); it is located approximately 600 feet from the site boundary. The closest church to the River Park Center site is Our Lady of Mt. Carmel Church; it is located approximately 40 feet from the site boundary. The closest church to the Palisades Point site is St. Mary's Church; it is located approximately 100 to 200 feet from the site boundary.

2. Existing Conditions

Existing noise was measured at several locations surrounding the proposed River Park Center, Cacace Center and Palisades Point sites during October 2006 at representative sensitive receptor locations in the vicinity of the sites. Noise measurements were obtained at five (5) locations in the vicinity of the sites at various times for a total of 13 noise monitoring events including one 24-hour monitoring event. Noise monitoring was performed for approximately 20 minutes during the morning (m), afternoon/early evening (a), and night (n) during peak hour traffic periods on adjacent roadways; and for 24 consecutive hours at one location.

a. Noise Monitoring Methodology

Noise was measured using the A-weighted scale (dBA). Integrated sound level measurements (i.e., 1/min, 1/10sec, etc.) were stored in the Bruel and Kjaer (B&K) Hand Held Analyzer Type 2231 and/or B&K Hand Held Analyzer Type 2250 memory and then the data was transferred to a computer for compilation and tabulation. The noise monitoring approach utilized follows appropriate general guidelines and recommended practices.

Observations were made, during measurement, such as with regard to temperature, wind, relative humidity, cloud cover, and wind induced noises (i.e., leaves rustling, etc.). Atmospheric conditions such as rainfall (precipitation), high humidity (greater than 90 percent), and high wind (greater than around 12 to 15 miles per hour) are avoided during field measurement because of their potential influence to have an adverse effect on noise measurements. A microphone windscreen was utilized (as appropriate) during measurements to minimize potential wind effects.

b. Selection of Noise Monitoring Locations

Criteria considered in selecting noise monitoring locations included: proximity of the location to the Project sites, existing traffic data, noise sensitive receptors (residential areas, schools, churches, hospitals, etc.) and the representativeness of the location to other project areas. In addition, logistical concerns including equipment placement, proper equipment exposure, access, and security were also considered.

Available land use information was used to categorize areas near the Project sites for noise assessment purposes. PS&S compiled aerial/land use maps of the Project area and reviewed the Project based on the selection criteria described above and utilized this information coupled with site visits and traffic data and information for existing conditions (provided by John Collins Engineers, PC) to select the noise monitoring locations.

The existing Cacace Justice Center and Police Department municipal parking lot (southern boundary of the Cacace Center site) was selected for the 24-hour measurement in part based on traffic data (provided by John Collins Engineers, PC), proximity to the proposed redevelopment project and for access and security reasons. Four (4) locations were monitored during the morning (m), afternoon/evening (a), and nighttime (n) to obtain a representative sound profile of the Project area. These monitoring locations include a location along Nepperhan Avenue on a grassy knoll in the “triangular” lot between Nepperhan Avenue, Maple Street and Waverly Street, one location at Mt. Carmel Baptist Church (located along Nepperhan Avenue on the east side of the proposed River Park Center development), a location along Palisade Avenue (a residential area north of the proposed River Park Center), and one location along Buena Vista Avenue (to the east of the proposed Palisades Point development).

c. Noise Monitoring Locations (October 2006)

A-Weighted sound-level measurements were taken at locations NM-1 (24-hour), NM-2 (m, a, n), NM-3 (m, a, n), NM-4 (m, a, n), and NM-5 (m, a, n) (see Exhibit III.F-1) in the vicinity of the proposed development areas. These monitoring locations were selected to identify ambient background sound-levels in the vicinity of the proposed Project areas.

Noise monitoring locations are listed in Table III.F-3 along with land use categories and observations. Exhibit III.F-1 shows the noise monitoring locations, which are described below.

d. Noise Monitoring Results (A-Weighted)

Existing ambient sound-level monitoring data obtained near the project areas during October 2006 has been compiled and tabulated. Appendix 3.F provides listings of sound monitoring data (ten second and one minute integrated sound measurement values).

A summary of the noise monitoring data is presented in Table III.F-4 and Exhibit III.F-2. This data represents the ambient sound environment in the area surrounding the proposed development. This Table lists the Leq, L_{10} and L_{90} values for each monitoring location for the morning, afternoon/evening and nighttime monitoring periods in the vicinity of the Project (NM-1, NM-2, NM-3, NM-4, and NM-5). The predominant noise influence is local and distant traffic (including brakes squealing, car horns, trucks, etc.), sirens, local residential activities (i.e., people walking down the street), distant and overhead aircraft, and distant construction noise. Three of the five monitoring locations exhibit lower sound levels during the nighttime period. The two locations with elevated (Leq) sound levels during the nighttime period - NM-2 and NM-3 - are located along Nepperhan Avenue and are heavily influenced by traffic noise. However, the residual or background (L_{90}) sound levels at these two locations are lower during the nighttime period as would be expected. Figure III.F-3 presents the 24-hour A-weighted (Leq) sound level measurements along with the daytime and nighttime residential standard.

The residual (L90) sound level is representative of the ambient environment without the influence from extraneous noise sources. These values range from a low of 55 dBA during the day and 51 dBA at night to a high of 62 dBA during the day and 54 dBA at night.

A summary of 1-hour Leq values, the lowest Leq value and the highest Leq value, from each monitoring period (morning, afternoon/evening, and night) are presented in Table III. F-5.

Table III.F-1
Human Reaction to Increases in Sound Pressure Level

Increase in Sound Pressure (dB)	Human Reaction
Under 5	Unnoticed to tolerable
5 – 10	Intrusive
10 – 15	Very noticeable
15 – 20	Objectionable
Over 20	Very objectionable to intolerable

Source: New York State Department of Environmental Conservation. Assessing and Mitigating Noise Impacts. (NYSDEC October 6, 2000.)

Table III.F-2
Noise Sensitivity Criteria
Decibel Changes and Loudness

Change (dBA)	Relative Loudness
0	Reference
3	Barely perceptible change
5	Readily perceptible change
10	Half or twice as loud
20	1/4 or four times as loud
30	1/8 or eight times as loud

Source: Based on Highway Traffic Noise Analysis and Abatement – Policy and Guidance. (FHWA, June 1995.)

Table III.F-3
Noise Monitoring Locations

ID#	Location	Period	Land Use	Observations
NM-1	Yonkers Courthouse Municipal Lot	24-hour	Social or Community Service/Residential	Local and distant traffic, car stereos, car horns, sirens, local residential activities (i.e., pedestrian walking/talking on phones), some auto activity in the parking lot, distant and overhead aircrafts and birds.
NM-2	Waverly St./Maple St./Nepperhan Ave.	M/A/N[b]	Residential/Commercial	Local and distant traffic, car stereos, car horns, sirens, local residential activities (i.e., pedestrians walking), distant and overhead aircrafts and birds.
NM-3	177 Nepperhan Ave (Mt. Carmel Church)	M/A/N[b]	Social or Community Service/Residential/Commercial	Local and distant traffic, car stereos, car horns, sirens, local residential activities (i.e., pedestrian walking), distant and overhead aircrafts and a street cleaner.
NM-4	Palisade Avenue	M/A/N[b]	Residential/Commercial	Local and distant traffic, car stereos, car horns, sirens, local residential activities (i.e., playing/shouting in the ball court), distant and overhead aircrafts and birds.
NM-5	Buena Vista Avenue	M/A/N[b]	Residential/Social or Community Service	Local and distant traffic, car stereos, car horns, sirens, local residential activities (i.e., pedestrian walking), distant and overhead aircrafts, commuter rail line, sugar factory sounds, dogs and birds.

Note:
(a) Approximate noise monitoring locations are shown on Exhibit III.F-1
(b) The monitoring location ID# NM-2m M/A/N indicates the part of the day when monitoring was performed, i.e., M = Morning A = Afternoon, N = Night
(c) Daytime is defined as 7:00 AM to 10:00 PM and nighttime is defined as 10:00 PM to 7:00 AM

Table III.F-4
Existing Noise Monitoring Data

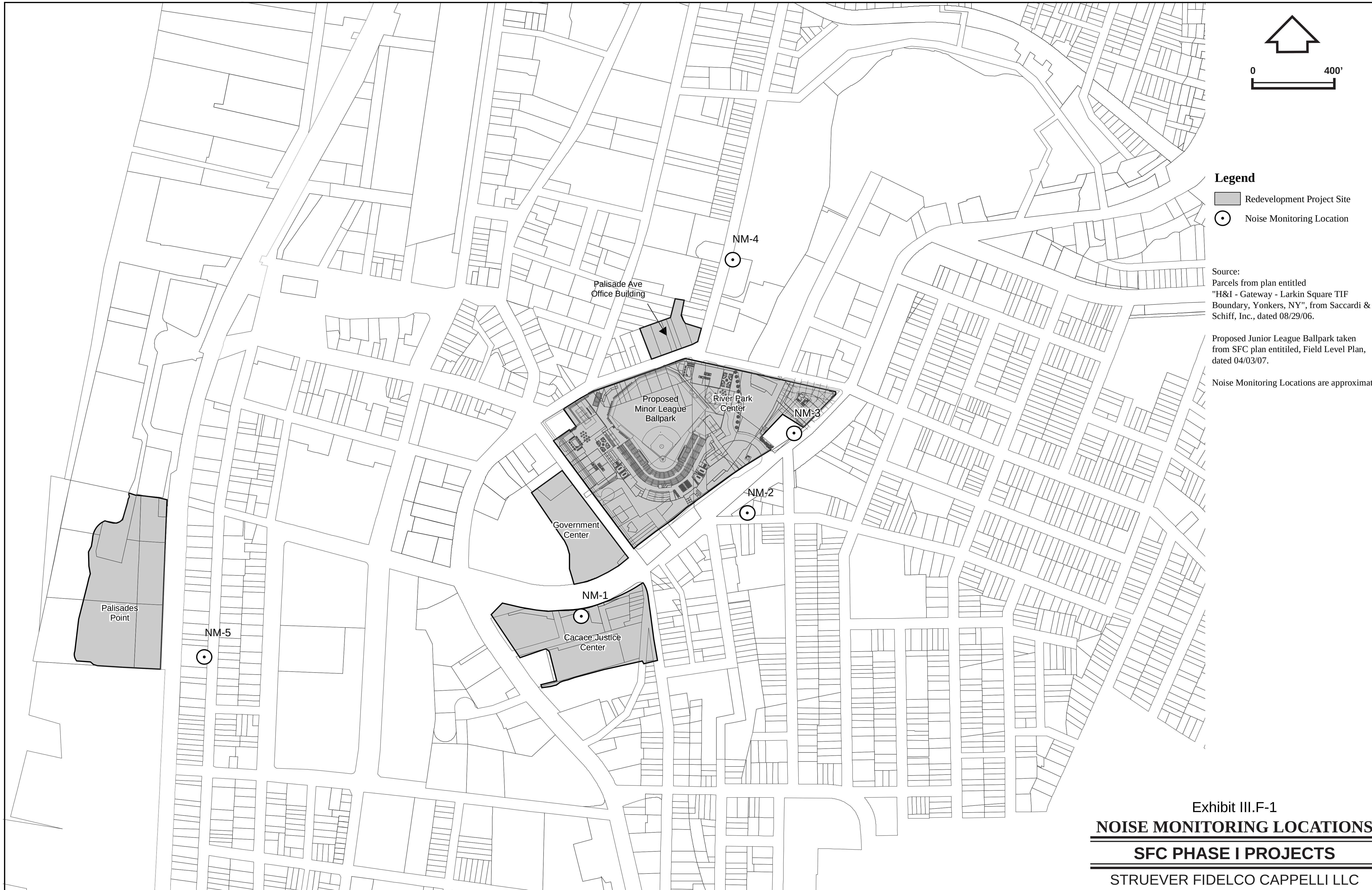
Morning Monitoring Period		**LAeq [dB]**	**LA10 [dB]**	**LA90 [dB]**	**LAMax [dB]**
NM-1 (Ld)	Cacace Justice Center Municipal Lot	65.4	69.2	58.5	86.7
NM-2m	Waverly St/Maple St/Nepperhan Ave	68.8	72.3	60.0	87.1
NM-3m	Mt. Carmel Baptist Church/Nepperhan	72.4	75.3	62.3	87.1
NM-4m	Palisade Avenue	66.5	68.4	55.5	87.9
NM-5m	Buena Vista Avenue	65.1	68.1	57.3	83.6
Afternoon/Evening Monitoring Period		**LAeq [dB]**	**LA10 [dB]**	**LA90 [dB]**	**LAMax [dB]**
NM-1 (Ld)	Cacace Justice Center Municipal Lot	65.4	69.2	58.5	86.7
NM-2a	Waverly St/Maple St/Nepperhan Avenue	68.5	71.5	58.0	87.1
NM-3a	Mt. Carmel Baptist Church/Nepperhan	68.3	70.5	58.3	91.9
NM-4a	Palisade Avenue	70.8	71.8	58.0	97.1
NM-5a	Buena Vista Avenue	65.6	69.0	55.5	89.7
Nighttime Monitoring Period		**LAeq [dB]**	**LA10 [dB]**	**LA90 [dB]**	**LAMax [dB]**
NM-1 (Ln)	Cacace Justice Center Municipal Lot	60.9	64.8	52.2	85.2
NM-2n	Waverly St/Maple St/Nepperhan Avenue	68.5	65.2	50.9	93.6
NM-3n	Mt. Carmel Baptist Church/Nepperhan Ave	71.7	70.3	54.0	96.1
NM-4n	Palisade Avenue	65.5	67.2	52.7	89.7
NM-5n	Buena Vista Avenue	60.2	63.8	51.7	78.6

Note:
(a) Approximate noise monitoring locations are shown on Exhibit III.F-1
(b) The monitoring location ID# NM-2 m, a, n indicate the part of the day when monitoring was performed, i.e., m=morning, a=afternoon/evening, n=night
(c) Daytime is defined as 7:00 AM to 10 PM and nighttime is defined as 10:00 PM to 7:00 AM

Table III.F-5
Existing Noise (Leq) Summary

Yonkers	**Minimum LAeq [dB]**	**Maximum LAeq [dB]**
Morning Monitoring Period (to coincide with the Traffic Engineer AM Project Generated Traffic Peak)	65.1	72.4
Afternoon/Evening Monitoring Period (to coincide with the Traffic Engineer PM Project Generated Traffic Peak)	65.4	70.8
Nighttime Monitoring Period	60.2	71.7

Note:
(a) Approximate noise monitoring locations are shown on Exhibit III.F-1
(b) The monitoring location ID# NM-2 m, a, n indicate the part of the day when monitoring was performed, i.e., m=morning, a=afternoon/evening, n=night
(c) Daytime is defined as 7:00 AM to 10 PM and nighttime is defined as 10:00 PM to 7:00 AM
(d) Morning monitoring period measurements were collected between 7:00 AM and 9:30 AM, afternoon/evening monitoring period measurements were collected between 3:30 PM and 6:00 PM and nighttime monitoring period measurements were collected between 9:30 PM and 12:00 AM



Source:
Parcels from plan entitled "H&I - Gateway - Larkin Square TIF Boundary, Yonkers, NY", from Saccardi & Schiff, Inc., dated 08/29/06.

Proposed Junior League Ballpark taken from SFC plan entitled, Field Level Plan, dated 04/03/07.

Noise Monitoring Locations are approximate.

Exhibit III.F-1

NOISE MONITORING LOCATIONS

SFC PHASE I PROJECTS

STRUEVER FIDELCO CAPPELLI LLC

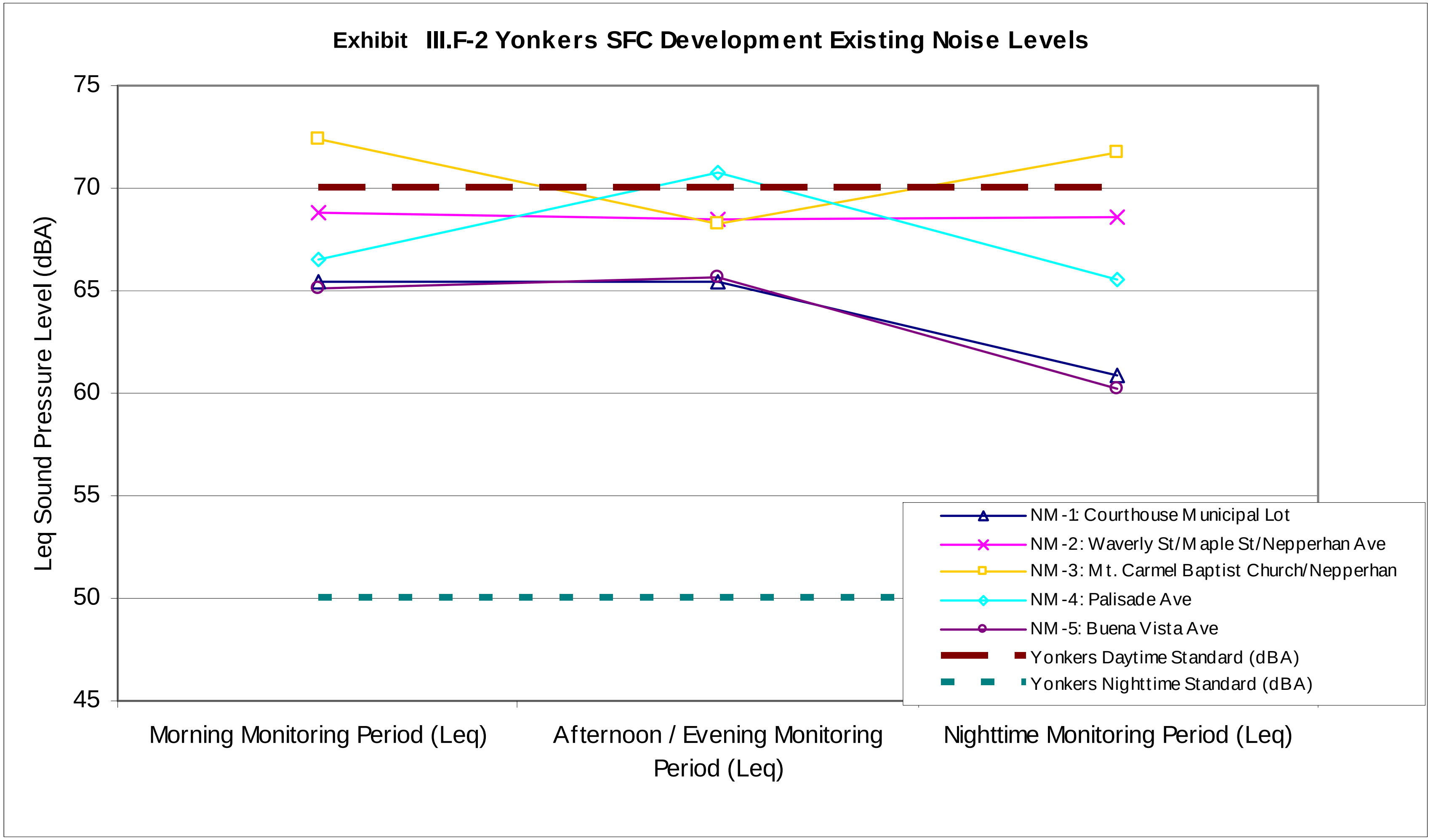


Exhibit III.F-2 Yonkers SFC Development Existing Noise Levels
Leq Sound Pressure Level (dBA)
75
70
65
60
55
50
45
Morning Monitoring Period (Leq)
Afternoon / Evening Monitoring Period (Leq)
Nighttime Monitoring Period (Leq)
NM-1: Courthouse Municipal Lot
NM-2: Waverly St/Maple St/Nepperhan Ave
NM-3: Mt. Carmel Baptist Church/Nepperhan
NM-4: Palisade Ave
NM-5: Buena Vista Ave
Yonkers Daytime Standard (dBA)
Yonkers Nighttime Standard (dBA)

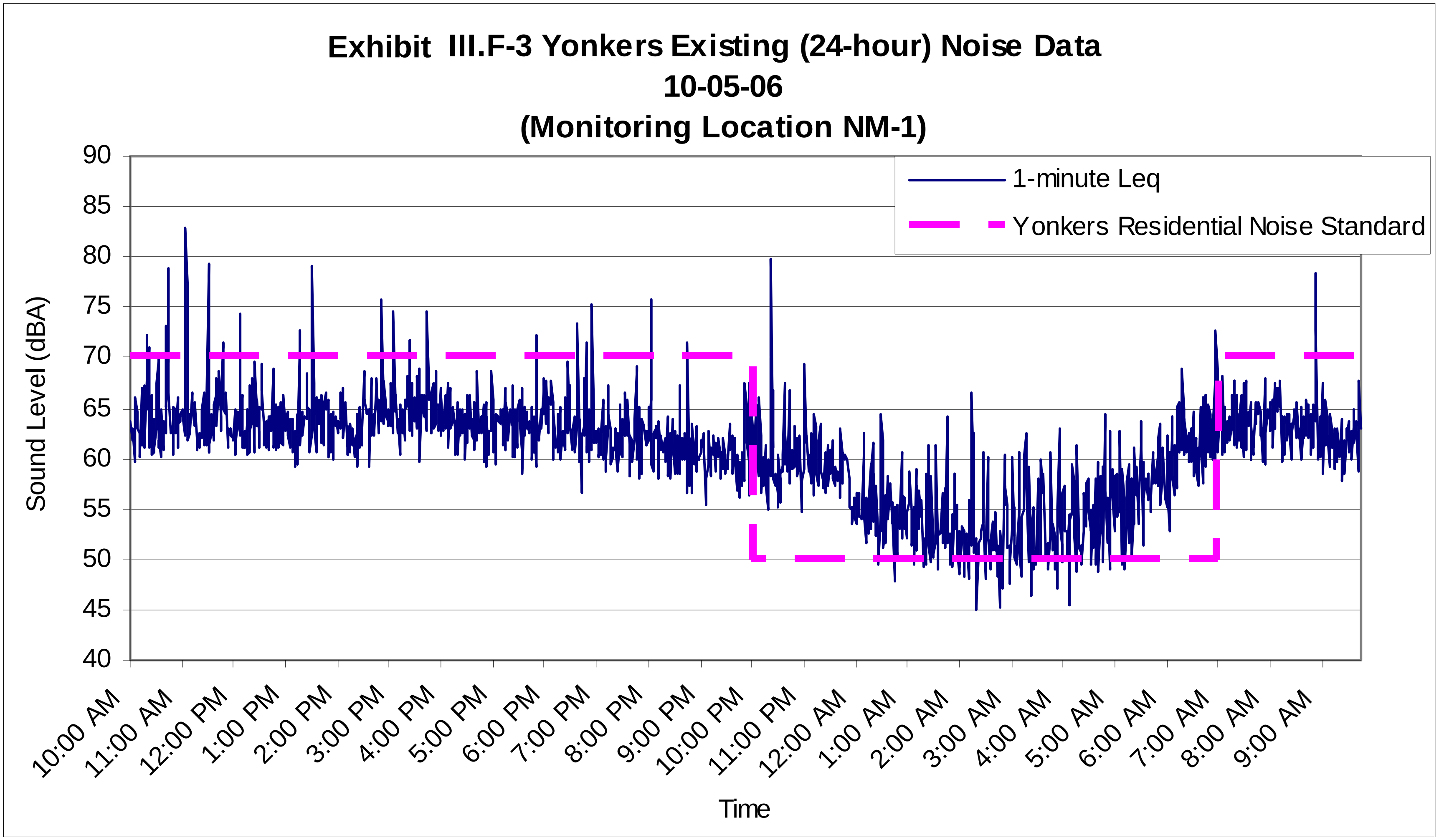


Exhibit III.F-3 Yonkers Existing (24-hour) Noise Data
10-05-06
(Monitoring Location NM-1)
1-minute Leq
Yonkers Residential Noise Standard
Sound Level (dBA)
90
85
80
75
70
65
60
55
50
45
40
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
Time

3. Anticipated Impacts

Estimated potential impacts were based on the projected changes that would occur between the "No-Build" and "Build" conditions identified in the traffic impact study for the Project.

a. River Park Center Noise

(1) Noise Screening

A traffic analysis was performed using an established procedure (NY CEQR, 2001). This approach summarizes a framework for an initial screening procedure based on the estimated traffic volumes. This screening procedure uses the concept of Passenger Car Equivalents (PCEs) to apply an adjustment factor to trucks and buses, since they generate more noise than automobiles. This method adjusts the traffic volume of trucks and buses (the louder vehicles) to the equivalent number of passenger cars. If the existing passenger car equivalent values are increased by more than 100% due to a proposed project, a detailed analysis may be needed for that location. An increase in traffic volume of 100% or greater is considered the equivalent of an approximate 3 dBA increase in sound level, the level at which is perceptible to humans.

(2) Methodology

Traffic volumes for the existing, "No-Build," "Build without Ballpark" and "Build with Ballpark" conditions have been reviewed for the sixty (60) intersections studied by the traffic engineer for the Project, to assess the potential traffic generated noise due to projected increases in traffic volumes. The Build without Ballpark and Build with Ballpark increase in intersection traffic volumes are shown below (Table III.F-6). Table III.F-6 shows each intersection and the greatest percent traffic increase of the three peak scenarios (AM, PM, and Saturday) provided by the traffic engineer for both the Build without Ballpark and Build with Ballpark traffic scenarios. Three (3) of the sixty (60) intersections have a projected traffic volume increase that will be greater than 100% over the No-Build traffic volumes. These intersections (Nos. 5, 7, and 8) warrant further study.

Table III.F-6 Intersection Traffic Volume Increase for Build (without Ballpark) and Build (with Ballpark)

Key	Intersection	2012 Build Volume (w/out Ballpark) % Traffic Increase	2012 Build Volume (w/ Ballpark) % Traffic Increase
1	Nepperhan Ave & Elm St	<40	<65
2	Nepperhan Ave & School St/New School St	<20	<40
3	Nepperhan Ave & New Main St	<45	<70
4	So Broadway & Prospect St/Nepperhan Ave	<30	<30
5	**So Broadway & Hudson St (nobuild unsig.)**	<85	**>100**
6	So Broadway & Main St	<85	<85
7	**Palisade Ave & Main St**	**>100**	**>100**
8	**Palisade Ave & Locust Hill Ave (all-way stop)**	**>100**	**>100**
9	Palisade Ave & Elm St/School St/Site Access	<75	<80
10	Ashburton Ave & Warburton Ave	<30	<40
11	Ashburton Ave & No Broadway	<30	<35
12	Ashburton Ave & Locust Hill Rd (unsig.)	<30	<30
13	Ashburton Ave & Palisade Ave	<25	<30
14	Ashburton Ave & Nepperhan Ave	<30	<40
15	Ashburton Ave & NYS Rt 9A/Walnut St	<20	<25
16	Yonkers Ave & Walnut St	<35	<60
17	Yonkers Ave & Prescott St	<30	<50
18	Yonkers Ave & Ashburton Ave (SIP)	<20	<35
19	Yonkers Ave & SMRP SB Ramps (nb unsig.)	<20	<35
20	Yonkers Ave & SMRP NB Ramps	<20	<30
21	Buena Vista Ave & Dock St (all-way stop)	0	0
22	Buena Vista Ave & Main St	<30	<30
23	Buena Vista Ave & Hudson St (unsig.)	<25	<25
24	Warburton St & Dock St/Nepperhan St	<25	<35
25	Riverdale Ave/Warburton Ave & Main St	<25	<30
26	Riverdale Ave & Hudson St	<35	<50
27	Riverdale Ave & Prospect St	<30	<35
28	Riverdale Ave & Vark St	<35	<35
29	Riverdale Ave & Herriot St	<45	<50
30	Riverdale Ave & Ludlow St	<35	<40
31	Riverdale Ave & Radford St	<50	<55
32	Riverdale Ave & Valentine Ln	<50	<55
33	So Broadway & Vark St	<35	<45
34	So Broadway & Herriot St	<35	<50
35	So Broadway & Bright Place	<30	<40
36	So Broadway & Ludlow St	<25	<35
37	So Broadway & McLean Ave	<25	<30
38	So Broadway & Radford St	<20	<20
39	So Broadway & Valentine Ln	<20	<20
40	Yonkers Ave & Midland Ave - West	<20	<20
41	Yonkers Ave & Midland Ave - East	<20	<25
42	Yonkers Ave & Seminary Ave	<20	<30
43	Yonkers Ave & Central Park SB	<20	<25
44	Yonkers Ave & Central Park NB	<10	<15
45	Warburton Ave & Glenwood Ave	<45	<50
46	Warburton Ave & Lamartine Ave	<40	<45
47	North Broadway & Glenwood Ave	<45	<50
48	North Broadway & Lamartine Ave	<50	<60
49	Nepperhan Ave & Lake St	<30	<35
50	Prospect St & Buena Vista Ave (all way stop)	<20	<20
51	Prospect St & Hawthorne Ave	<20	<20
52	Rumsey Rd & SMRP/CCP Ramps	<15	<20
53	Rumsey Rd & Spruce St	<20	<25
54	Van Cortlandt Park Ave & Spruce St (AWS)	<60	<80
55	Elm St & Van Cortlandt Park Ave (unsig)	<65	<90
56	Elm St & Walnut St	<40	<55
57	Elm St & Linden St (all way stop)	<50	<70
58	Lockwood Ave & SMRP SB Ramp (unsig)	<40	<50
59	Palmer Rd & SMRP NB Ramp (unsig)	<30	<40
60	Nepperhan Ave & Executive Blvd	<10	<10

The intersection of Palisade Avenue and Locust Hill Avenue during AM, PM and Saturday Peak hour and the intersection of Palisade Avenue and New Main Street during PM and Saturday Peak hour have projected traffic increases greater than 100% under the Build without Ballpark condition.

The intersection of South Broadway and Hudson Street during Saturday peak hour has a projected traffic increase greater than 100% under the Build with Ballpark condition.

The intersection of Palisade Avenue and Locust Hill Avenue and the intersection of Palisade Avenue and New Main Street during PM and Saturday peak hour have projected traffic increases greater than 100% under the Build with Ballpark condition.

Three (3) out of sixty (60) intersections have projected increases in traffic volumes greater than 100% under the Build with Ballpark or Build without Ballpark condition. Therefore a more detailed modeling analysis is required for these three intersections. Noise modeling of these intersections was performed using a set of logarithmic equations that calculate the No-Build noise levels and the Build noise levels.

The PCE's calculated for the No-Build traffic were used to calculate the No-Build noise levels with the following logarithmic equation (NY CEQR, 2001):

FNA NL = 10 log (NA PCE / E PCE) + E NL

where:

FNA NL = Future No Action (No-Build) Noise Level

NA PCE = No Action PCEs

E PCE = Existing PCEs

E NL = Existing Noise Level

Similarly the PCEs were calculated for the Build scenario. The projected Build traffic was used to calculate the Build noise levels using the above equation, substituting the Build PCEs for the No-Build PCEs (NY CEQR, 2001).

This process was performed on the three intersections of concern for Saturday Peak Hour ballpark traffic, the worst-case traffic scenario for each intersection. Traffic data used in the equations were obtained from the traffic impact study for the Project.

(3) Traffic Noise Impact Analysis Results

The estimated traffic related noise levels associated with three intersections that have the greatest estimated increases in traffic volume in the Project area are shown in Table III.F-7. The existing, projected No-Build noise level, and projected Build with Ballpark noise level for Palisade Avenue and New Main

Street (the worst-case) and the projected Build with Ballpark noise level for Saturday Peak Hour traffic are shown in Table III.F-7. The existing and projected No-Build noise levels are just at or above the City of Yonkers' applicable daytime residential criteria of 70 dBA. The projected noise increase for the Build with Ballpark condition over the No-Build condition is less than 3 dBA, the incremental significant impact threshold.

Results of noise modeling indicate that traffic associated with the proposed Project will increase noise at the three worst intersections by an approximate 1 to 2.5 dBA above the projected No-Build condition sound levels. Projected Build with Ballpark condition sound levels will range from approximately 72 to 74 dBA at these intersections during peak hour event traffic. The estimated noise level increase at the three worst case roadway segments are less than the 3 dBA threshold (detectable by the human ear). Therefore, the projected traffic noise increase due to Project related traffic is not expected to represent a significant increase in the ambient noise levels. Changes in noise level of this magnitude would be barely perceptible.

Table III.F-7 Projected Vehicular Noise Levels

Saturday Peak	**Palisade Ave & New Main St**	**Palisade Ave & Locust Hill Ave**	**South Broadway & Hudson St**
Existing Noise Level is 70.5 dBA Leq (a)	Future Projected Noise Levels (dBA Leq)	Future Projected Noise Levels (dBA Leq)	Future Projected Noise Levels (dBA Leq)
No Build	71.6	71.6	71.6
Build with Ballpark (b)	73.9	73.7	72.7
Noise increase in Build with Ballpark condition above No Build condition	**2.3**	**2.1**	**1.1**

Notes:
(a) Existing Noise Level obtained from measurements at Palisade Avenue.
(b) The incremental significant impact threshold, based on existing measurement data, is an increase of at least 3 dB(A) Leq for the projected Build condition over the projected No Build condition.

b.Stadium Event Noise

(1) Baseball Games

During baseball game events at the proposed stadium, potential exists for noise to be generated by stadium noise sources that include the sounds of the crowd cheering, the public address systems (distributed system of speakers), music and firework displays.

Baseball game noise can be characterized as having three major components that include crowd cheering noise, public address announcer sounds, and amplified music in the form of short sound bites or sound clips that often go along with big screen video clips. The contributions from these major components of baseball game noise can vary greatly in loudness, time intervals, and duration throughout the game event. Baseball events typically will last approximately 3 to 4 hours and would occur most frequently during the afternoon and evening hours (i.e., 6 to 10 PM).

The closest sensitive receptors (residential) are located at a distance of approximately 100 feet from the northern boundary of the stadium site, or approximately 450 feet from the center of the baseball diamond. Spectator noise would tend to be projected toward these residential uses given stadium seating placement, however these receptors will be located at a 'lower' elevation than the stadium and therefore will not have a direct line-of-sight due to the stadium geometry.

Two (2) residential towers are to be located, to the east (near right field) and west (near left field), adjacent to the ballpark. Many of the upper floors of the two residential towers will have outdoor balconies, and those units facing the ballpark will have direct line-of-sight to the stadium. It is assumed that those people, who will live in the towers facing the ballpark, will be aware that there would be noise from events at the ballpark.

The proposed stadium will be relatively open toward the outfield portion of the site. Seating will tend to be along the first and third baselines around home plate, with a viewing area (for residential patrons) in the northwest corner (behind left field) of the ballpark. The stadium seating area will extend well above the field and tend to serve as a barrier to sound in the south, southeast, and southwest directions.

The P.A. system design for the stadium will include a distributed system of speakers, located around each section of the park to focus sound into the park and minimize the need for extra-loud and high-mounted units. The potential noise from baseball game events would be primarily from crowd noise from within the proposed stadium. Therefore, crowd noise is expected to result in the greatest source of noise from baseball events. P.A. system noise will contribute to peak noise levels as will crowd roar, and music sound bytes. Stadium noise is most appropriately measured, reported, and assessed in terms of dBA (L_{max} and L_{eq}).

The L_{eq} for a game event has been estimated at approximately 65 dBA which roughly represents the average noise during a baseball game event. Highlights during the game can bring about the roar of the crowd and sound bites at the same time resulting in short periods of high noise levels; peak levels or L_{max}. The peak, or L_{max}, noise levels during baseball events at the proposed stadium are estimated to be approximately 73 dBA (L_{max}) at approximately 300 feet from the center of the baseball diamond. It is anticipated that peak noise levels occur approximately 10 percent of the time, with the remaining 90 percent of the event generating substantially less noise which will be conservatively estimated to be at an L_{eq}(game event) level of 65 dBA (at approximately 300 feet from the center of the diamond).

This assessment of baseball stadium event noise is based in part on previous noise analyses that were performed for similar baseball stadium event noise. Specific noise estimates for the new ballpark are based on measurements taken at Qualcomm Stadium, a much larger stadium (40,000 seating capacity) than the proposed stadium seating capacity of 6,500. In addition, information from previous noise analyses for 3Com Park (San Francisco, CA) and PETCO Stadium (San Diego, CA), were adapted for this study (LSA Associates, 2006).

Noise level contributions due to a particular noise source can be estimated using quantitative techniques (noise modeling). Projected noise levels can be estimated using a noise modeling technique, based on a relationship that expresses noise attenuation as a logarithmic function of receptor distance from the noise source. Noise contribution levels from a noise source can be estimated at selected receptor locations (i.e., noise monitoring locations, residential areas, etc.). Exhibit III.F-4 shows a layout of the ballpark and receptors used in the sound modeling analysis.

Table III.F-8 presents a summary of projected ballpark noise levels. The maximum noise levels from a ballpark event at the residential receptors located just beyond the outfield (around 450 feet from the center of the diamond) are projected to be approximately 62 dBA L_{eq}(game event) and 70 dBA L_{max}. For the residential tower receptors east and west of the stadium, the L_{max} is estimated at 73 dBA (L_{max}; east tower) and 76 dBA (L_{max}; west tower). It is reasonable to consider the outdoor balconies on the two residential towers as an extension of the stadium to some extent.

The existing sound levels ($L_{eq(1)}$) range from 65 dBA to 72 dBA in the Project area, including River Park Center, during the daytime. Projections at residential locations to the north of the ballpark (outside the ballpark) indicate that ballpark noise levels are approximately 62 dBA $L_{eq(\text{game event})}$ and projections at the east and west residential towers indicate that noise levels are approximately 65 and 69 dBA $L_{eq(\text{game event})}$, respectively (shown in Table III.F-8). Projections indicate that there will not be an increase in sound levels of 3 dBA or greater. Therefore the contribution from the ballgame to existing noise levels is not expected to be significant. As shown in monitoring results from the surrounding residential uses, existing noise at residential uses adjacent to the River Park Center site currently range from approximately 80 dBA (L_{max}) to 93 dBA (L_{max}) due to existing noise sources such as vehicular noise and overhead aircraft. Projections at residential locations to the north of the ballpark (outside the ballpark) indicate that projected ballpark noise levels are approximately 70 dBA L_{max} and projections at the east and west residential towers are approximately 73 and 77 dBA L_{max}, respectively (shown in Table III.F-8). The Project estimated peak noise levels during baseball game events are lower than the existing peak noise levels from other existing sources.

(2) Building Materials and Sound Transmission Loss

The interior noise level established by the EPA required to protect public health is 45 dBA L_{dn} for residential uses. Typical residential structures in southern New York provide an exterior-to-interior noise reduction of approximately 25 dBA with windows closed and 15 dBA with windows open. Based on the analysis, several residential sites in the area would be exposed to noise levels that would exceed the criteria with windows open. The greatest potential for noise impacts are anticipated to be upon the two proposed residential towers overlooking the stadium. The residents of these buildings would likely expect that there would be noise from events at the ballpark. It is not clear at this time if the residential tower design will incorporate fixed-glass windows or operable windows. However, each unit will have air conditioning and alternate ventilation so that windows can remain closed, especially if noise is a consideration during events.

The anticipated materials and construction to be used will provide a level of sound attenuation to mitigate most outdoor to indoor noise and especially as related to ballpark events. Building designs and materials of construction have not been finalized at this time. However, the exterior design and construction of the residential buildings of River Park Center will include typical materials such as brick exterior facing, concrete block, pre-cast concrete panels, with insulation and interior skin on the outer walls of sheetrock wall board (i.e., 1/2 thick) or equivalent. The specific designs and construction may vary but will be of materials to achieve equivalent or similar sound attenuation (sound reduction of outside noise to the interior of these residential units facing the stadium).

Windows will likely include a variety of configurations such as fixed view glass, view glass sliders, non-vision spandrel glass, etc. Typical double pane 1" thick windows consist of fixed vision glass of double-pane 1/4" glass panes and a 1/2" spacing between. Spandrel glass is a non-vision, double-pane glass both 1/4" thick with 1/2" thick spacing between panes.

Both high sound transmission loss and good low frequency performance can be achieved with masonry walls **(**masonry cavity wall**)** concrete blocks, or pre-cast or cast-in-place concrete of the same weight give similar performance. Masonry walls commonly have wallboard applied to the interior face as a finishing material.

Estimated sound transmission loss of a typical double-pane 1" thick non-vision and/or vision glass is approximately 30 to 35 dB. This assumes a generous application of sound-absorbent material on the reveal, or wall space between the panes be applied, and the use of elastic glazing compound such as polybutene mastic, polysulfide elastomer, etc. The attenuation of outside sound by windows can vary from standard windows to more acoustically efficient windows. Windows will be selected that will achieve an appropriate attenuation of sound from the train pass bys and ballpark events. Masonry cavity walls with 4" of brick for the outer walls and 6" of inner masonry with 2" of air space (plus 4" of insulation and wallboard) can achieve a conservative 50 dB sound transmission loss from exterior sound to interior. It is anticipated that with construction and materials such as these with sound transmission loss of 30 to 50 dB, that estimated noise from the ballpark of an approximate Lmax of 73 to 77 dBA will easily be attenuated to less than 45 dBA and in most cases much less likely than 35 dBA. Similarly, ballpark Leq levels are expected for the most part to be attenuated to 20 to 30 dBA inside residential tower units facing the ballpark. Some of the residential units facing the ballpark may have outdoor balconies that may be subject to unabated noise from ballpark events.

(3) Concert Event Noise

It is anticipated that the stadium will have alternate event seating configurations. An alternate configuration from ballgames is for concerts. Concert configuration would not necessarily increase the number of seats as seating in the grandstands may be eliminated due to the limited views of the stage. The stage would potentially be located in the field with speakers oriented towards home plate and the stands. It is assumed that twelve concert events would occur at the stadium each year. Anticipated crowd levels would vary with event. Some concerts would be held using less than the stadium's full seating capacity, while others could potentially use the maximum seating capacity. The noise effects of amplified music would be noticeably different from that of baseball game events. The sounds from concerts would likely not be as variable as baseball games depending on the type of music.

For outdoor concerts for which the attraction is rock or other popular music, typical noise levels for a sound mixing board usually located approximately 100 feet from the stage is 95 dB. Amplifiers for concerts are usually located at field level facing the stadium seating. Concerts at the stadium would be unique for outdoor music in that the stadium would provide a barrier behind the audience that would reduce the speaker volume needed to achieve the same sound effect in a completely open outdoor environment and would reduce off-site sound propagation, since the sound would be directed toward the seats. Under this concert configuration the stadium stands and the people in them would absorb a substantial amount of the acoustic energy. However, some noise could spill over to the surrounding areas.

Using a distance divergence factor (the reduction in noise due to loss of energy from the source with distance) of 9 dB, music at the nearest residence with a direct line-of-sight (proposed east and west towers) could experience levels on the order of 86 dB L_{max}, potentially higher than the maximum outdoor noise level for a baseball game.

Unlike baseball events, concert noise typically would have higher overall L_{eq} because music from the speaker system is more continuous at a louder level than crowd cheers. The hourly L_{eq} is estimated to be 6 dB less than the L_{max} for concert noise (based on results of the Environmental Noise Model (ENM) for the San Francisco Giants Ballpark which proposed open air concerts with similar crowd capacity).

A significant impact would exist if the Project increases the ambient noise levels in the project vicinity more than 6 dBA over levels existing without the project. Existing noise during evening hours in the project area as documented by field surveys ranges from an L_{eq} of 65 dBA to 70 dBA. Baseball games at the proposed stadium are not anticipated to significantly increase the L_{eq} in the surrounding neighborhoods of the project site. However, there is potential for noise from concerts at the stadium to significantly increase the ambient sound levels in the area, especially to the north, during concert hours.

Concert events have the potential for noise impact at nearby residences and can be quite varied depending on the type of concert. Because of the uncertainty with regards to the type of concerts and significant differences in sound character, sound systems and physical layout, it is recommended that a Noise Management Plan be prepared prior to proposed concerts. The Noise Management Plan will consider residential tower building design, accounting for outdoor to indoor sound attenuation due to building materials, and will limit sound levels from concert events so that a 45 dBA Ldn interior sound level is not exceeded, and any potential noise impacts are avoided.

Development of a Noise Management Plan is recommended to minimize disturbance of nearby residents from concert events with sound amplification at the stadium that addresses the specifics related to any proposed concerts, and should be approved by the City of Yonkers. The plan would assess the concert and specify appropriate mitigation measures such as line array speaker systems, optimum speaker aiming, etc.

Stadium sound systems are usually suited for music such as is needed for concerts. Concert speaker systems are often located in speaker clusters near the stage and directed at the audience. These speaker clusters usually are fairly directional in contrast to public address type sound systems. Since the speaker clusters are usually farther away from the audience than public address system speakers, the concert noise from central speaker clusters will tend to be louder at the same distance.

(4) Fireworks Display Noise Impact

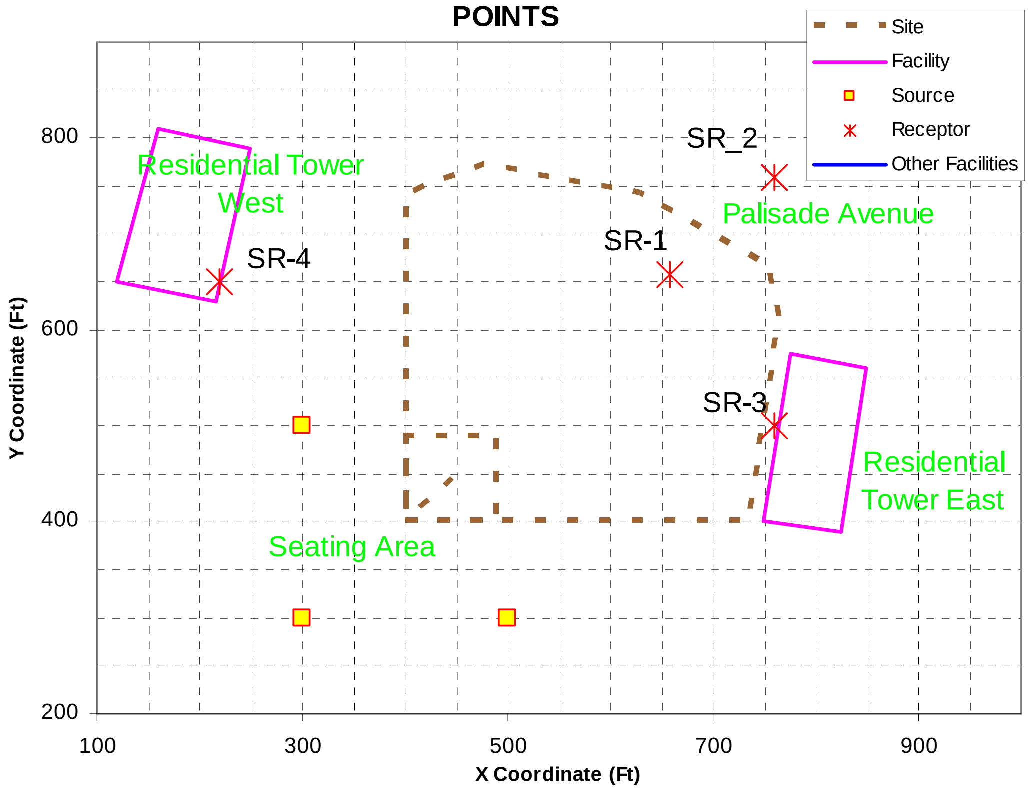
Sound from a municipally sponsored or approved celebration or event are exempt from the City of Yonkers noise code. Fireworks require a City permit and would have to be approved by the municipality. An approved fireworks display would be exempt from noise ordinance standards. However, explosive noise sources such as fireworks can be disturbing to residents. Because the explosions associated with firework displays occur high in the air, explosions can be heard from five to ten miles from the source, depending on the type of fireworks. In general, explosions from fireworks would be of a short duration, however, they would be louder than other sources of noise from the stadium such as concert noise or crowd noise.

The proposed stadium currently does not have a proposed schedule for firework displays. However, ballparks occasionally have a short-duration fireworks display at the end of a ballgame, and the occasional major display on holidays such as the 4th of July. Isolated explosive noise associated with fireworks displays could occur and could constitute potential for significant noise impact.

Table III.F-8 Summary of Projected Ballpark Noise Levels

Receptor Number	Receptor Name	Projected Faclity Noise Contribution	
		Lmax dBA	Leq dBA
1	SR-1 @ 300 ft	73.2	65.2
2	SR-2 @ 450 ft	70.2	62.2
3	SR-3 @ Residential Tower East	73.4	65.4
4	SR-4 @ Residential Tower West	77.4	69.4

Exhibit III.F-4 SFC Yonkers Stadium - SOUND RECEPTOR POINTS



c. Noise from Building Systems

Potential noise impacts from the River Park Center proposed development would be from mechanical systems such as those that provide heating, ventilating, and/or cooling (HVAC) within the proposed buildings. Sources of noise include air handlers, chillers, and any emergency generator systems that may be planned. Detailed specifications and placement information on these mechanical systems is not available at this time. The design, layout/placement, specification, and sound mitigation will be considered for these mechanical systems to minimize potential noise impacts on nearby residences in the area and on the proposed east and west residential towers from these systems. Conceptual design information for the two residential towers includes two (2) 600 hp boilers in each residential tower with discharge at the top of the buildings, one (1) 500 kW generator per building located within an interior space, and cooling towers on the roof of each residential tower. Conceptual design information for the River Park Center retail component includes two (2) 1000 kW generators located within an interior space and several rooftop air handlers with furnaces (i.e., packaged equipment). These air handlers will be smaller units distributed at roof level to service commercial spaces below. These systems will be shielded by barrier panels to mitigate potential noise effects. Potential noise impacts from these mechanical systems will be minimized by a combination of design considerations, sound attenuation due to distance from the residences and mitigation measures as may be needed. Building design will include a low sound transmission class (STC) rating on each building envelope. Mitigation measures such as mechanical equipment placement within an acoustically treated area (i.e., screening around HVAC systems, generators in enclosures, etc.), use of smaller HVAC units and design considerations such as mechanical systems "sunken" into the roof level of the towers will minimize noise impacts. The River Park Center mechanical systems will be designed to avoid causing any significant noise impacts and will comply with the City Noise Code.

d. No-Build

Existing noise during evening hours in the River Park Center area as documented by field surveys ranges from an L_{eq} of 65 dBA to 70 dBA. If the ballpark is not constructed, the existing noise in the area is not anticipated to change significantly from the measured levels.

e. Palisades Point Noise

(1) Traffic

Results indicate that increases in traffic noise at surrounding roadways would not be significant. The noise screening procedure used for analysis of River Park Center described above was used to evaluate traffic-related noise conditions in the vicinity of Palisades Point. Traffic volumes for the existing, No-Build, Build without Ballpark and Build with Ballpark conditions have been reviewed, for the intersections of concern near the Palisades Point development to assess traffic generated noise. The estimated Build without Ballpark and Build with Ballpark traffic volumes near the Palisades Point development are not expected to increase over the No-Build traffic volumes by 100% or greater and consequently would result in less than a 3 dBA increase in traffic noise levels. Thus incremental noise associated with Palisades Point related traffic is not expected to be significant. Therefore, a more detailed traffic noise analysis is not required.

(2) Noise from Mechanical Systems

The Palisades Point proposed development will include the construction of two (2) 25-story residential towers with 436 dwelling units, along with structured and on-street parking and publicly accessible open space along the Hudson River. Mechanical systems such as those that provide heating, ventilating, and/or cooling (HVAC) for the proposed buildings have potential to generate noise. Sources of noise include air handlers, cooling towers and emergency generator systems. Emergency generator systems will be located in enclosures in interior spaces. Noise associated with this equipment would be for short periods of time to routinely test the stand-by readiness of the generators and during the actual electrical outage emergencies. These operations are not anticipated to cause significant noise impacts due to short operating cycles, enclosures and equipment layout. Cooling towers are mechanical equipment that have potential for generating noise and will be located on building tower rooftops. Cooling towers usually operate continuously, mostly during the daytime, at various load conditions depending on a variety of factors including system demand, season, and time of day. Sound associated with operation of this equipment is generated by various complex sources that operate both continuously and intermittently. Major equipment components that can generate noise associated with operation of this equipment include: compressors, motors, fans, pumps, etc. Mechanical systems would be located on the roof or top floor of the towers and will be shielded by a parapet like design, such as screening barriers. Layout/placement, specification, and sound mitigation will be considered in the design of mechanical systems to minimize potential noise impacts on nearby residences in the area from these systems.

Conceptual design information for the two residential towers includes two (2) 400 hp boilers in each residential tower with discharge at the top of the buildings, one (1) 500 kW generator per building located in enclosures in interior spaces, and cooling towers on the roof of each residential tower. Potential noise impacts from these mechanical systems will be minimized by a combination of design considerations, equipment layout and enclosures, sound attenuation due to distance from the residences, and mitigation measures as may be needed. Building design will include a low STC rating on each building envelope. Mitigation measures such as mechanical equipment placement within an acoustically treated area (i.e., screening around HVAC systems, generators in enclosures, etc.) are proposed to minimize impacts. Palisades Point mechanical systems will be designed to avoid causing any significant noise impacts and will comply with the City Noise Code.

(3) Trains

The Metro-North Hudson Line has approximately 100 commuter train pass-bys per day. The number of commuter train pass-bys is not expected to increase significantly. The contribution of sound levels from commuter train pass-bys to sound levels in the immediate area are not expected to have a significant impact. Train pass-bys last seconds in duration and no horn is sounded along the length of rail adjacent to Palisades Point. Noise monitoring at location NM-5, near the rail corridor included train pass-bys. This noise monitoring location is east of the Metro-North Hudson Line at a similar distance (approximate) to the proposed Palisades Point development. The noise levels monitored at this location are 65 dBA $L_{eq(1)}$ during the daytime and 60 dBA $L_{eq(1)}$ at night, typical of downtown Yonkers. The train noise is momentary during pass-bys and was a minor contributor to the measured noise levels. No significant change to these background sound levels is expected in the future.

Sound measurements indicate that at an equivalent distance to the Palisades Point residential towers, monitored noise levels during a momentary train pass-by typically peak at 72 dBA L_{eq}(10 sec). Indoor noise levels are generally accepted to be approximately 45 dBA or less. Typical construction techniques (including typical double paned view glass windows) provide approximately 30 to 35 dBA of noise transmission loss, from "outdoors to indoors". The two residential towers proposed for the Palisades Point development will use modern construction techniques and materials that are expected to provide sound attenuation such that indoor noise impacts from train pass-bys at Palisades Point residential tower units are not anticipated to be significant. Proposed construction techniques/materials are expected to provide sufficient noise attenuation (outdoors to indoors), thus noise impacts due to train pass-bys will be insignificant.

(4) Building Materials and Sound Transmission Loss

The anticipated materials and construction to be used will provide a level of sound attenuation to mitigate most outdoor to indoor noise and especially as related to train pass bys. Building designs and materials of construction have not been finalized at this time. However, the exterior design and construction of Palisades Point will include typical materials such as brick exterior facing, concrete block, pre-cast concrete panels, with insulation and interior skin on the outer walls of sheetrock wall board (i.e., 1/2 thick) or equivalent. The specific designs and construction may vary but will be of materials to achieve equivalent or similar sound attenuation.

Windows will likely include a variety of configurations such as fixed view glass, view glass sliders, non-vision spandrel glass, etc. Typical double pane 1" thick windows consist of fixed vision glass of double-pane 1/4" glass panes and a 1/2" spacing between. Spandrel glass is a non-vision, double-pane glass both 1/4" thick with 1/2" thick spacing between panes. It is not clear at this time if the residential tower design will incorporate fixed-glass windows or operable windows. However, each unit will have air conditioning and alternate ventilation so that windows can remain closed.

Both high sound transmission loss and good low frequency performance can be achieved with masonry walls **(**masonry cavity wall**)** concrete blocks, or pre-cast or cast-in-place concrete of the same weight give similar performance. Masonry walls commonly have wallboard applied to the interior face as a finishing material.

Estimated sound transmission loss of a typical double-pane 1" thick non-vision and/or vision glass is approximately 30 to 35 dB. This assumes a generous application of sound-absorbent material on the reveal, or wall space between the panes be applied, and the use of elastic glazing compound such as polybutene mastic, polysulfide elastomer, etc. The attenuation of outside sound by windows can vary from standard windows to more acoustically efficient windows. Windows will be selected that will achieve an appropriate attenuation of sound from the train pass bys. Masonry cavity walls with 4" of brick for the outer walls and 6" of inner masonry with 2" of air space (plus 4" of insulation and wallboard) can achieve a conservative 50 dB sound transmission loss from exterior sound to interior. It is anticipated that with construction and materials such as these with sound transmission loss of 30 to 50 dB, that estimated noise from train pass bys of approximately 70 dBA will easily be attenuated to 45 dBA or less.

(5) No-Build

Existing noise during evening hours in the Palisades Point area as documented by field surveys is approximately 65 dBA (L_{eq}). In the event that Palisades Point is not constructed, the existing noise in the area is not anticipated to change.

4. Construction Noise

a. Evaluation Criteria

Three approaches are used to assess significant noise impact from construction. The first approach uses absolute noise level limits (such as FTA Construction Noise Guidelines) and the second approach assesses the incremental change from existing noise conditions (relative impact criteria).

The Federal Transit Administration has established a one-hour residential construction noise guideline daytime noise level of 90 dBA L_{eq}.

The second approach for incremental change in noise levels due to construction noise involves comparing the proposed construction L_{eq} noise level to the existing noise level. The threshold for vehicular noise is based upon a 65 dBA criteria. If existing sound levels are less than this criterion then an allowable increase is determined based on the degree of difference. The following criteria summarize a significant noise impact at sensitive receptors:

- During daytime with No-Build levels less than 60 dB(A) L_{eq}, a significant impact would be an increase equal to or greater than 5 dB(A) L_{eq} for the Build condition.
- During daytime with No-Build levels that are 61 dB(A) L_{eq}, a significant impact would be an increase equal to or greater than 4 dB(A) L_{eq} for the Build condition.
- During daytime with No-Build levels equal to or greater than 62 dB(A) L_{eq}, a significant impact would be an increase equal to or greater than 3 dB(A) L_{eq} for the Build condition.
- During nighttime, a significant impact would be an increase equal to or greater than 3 dB(A) L_{eq} for the Build condition.

If the potential for significant noise impact at a sensitive receptor is identified, the feasibility and effectiveness of implementing mitigation should be examined.

The third approach follows the NYSDOT noise analysis procedures for construction related noise. These procedures state that a significant impact will occur if noise levels exceed 80 dBA Leq.

b.Construction Noise

Noise associated with construction activities will be generated primarily by equipment such as heavy equipment operation (i.e., bulldozers, trucks, pile driving, etc.), generators, compressors, cranes, vibratory/impact hammer, welding equipment, water pumps, trucks on-site and other construction-related vehicles and equipment.

Other potential project related noise during Project construction would be associated with travel to and from the Site by the construction workforce, transport of construction equipment, and deliveries of construction materials (i.e., sheet piles, hammers). These noises would be of a temporary duration, relatively intermittent, and are not anticipated to be significant relative to existing noise in the vicinity of the actual construction site and actual construction activities.

Noise from construction activities associated with implementation of the proposed Project will be temporary in duration, vary between the types of construction and the types of equipment used for the different stages of construction and vary with the location of the construction activity on each site. Because construction activities would be carried out at various locations and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources). Construction activities for the Project would be expected to result in an increase of existing noise levels and may have the potential to create nuisance conditions at some nearby sensitive receptors. Construction operations will be limited to the daytime hours in compliance with the City of Yonkers Noise Code.

Areas or receptors that are considered potentially sensitive to noise include residences, schools, hospitals, and recreational facilities (U.S. EPA 1974). The area surrounding the River Park Center site is a mix of residential (ranging from single family residential to apartment complexes), commercial and social and community service. The area surrounding the Palisades Point site is predominantly residential (ranging from single family residential to apartment complexes), with some social and community service and industrial to the south. Exhibit III.F-5 shows land use and sensitive receptors in the area surrounding the Site. Sensitive receptors can be identified through a numbering key included as Table III.F-9. Several sensitive receptors are located in proximity (within 100 to 200 feet) to the River Park Center site boundary including residential dwellings, a hospital (St. Joseph's Hospital), a school (Our Lady of Mt. Carmel–St. Anthony School) and several churches (Latin American Pentecostal Church, Mt. Carmel Baptist Church, St. Johns Church, and the Immaculate Conception Church). Several sensitive receptors are located in proximity (within 100 to 200 feet) to the Palisades Point site boundary including residential dwellings and a church (St. Mary's/Holy Apostolic Catholic Church).

Table III.F-10 shows a preliminary quarterly construction schedule for the River Park Center site, Cacace Center site, Government Center, and Palisades Point site for each phase of construction. River Park Center construction is projected to last 10 quarters (30 months) with building erection/construction to be completed by the end of the sixth quarter (12 to 18 months). Clearing is expected to last approximately 3 to 6 months and overlap with some excavation. The foundation stage is scheduled to last 12 months, the erection stage is scheduled to overlap and last 12 to 15 months, and finishing is scheduled to be completed within a 12 month period.

Cacace Center site construction is projected to last 5 quarters (15 months) with building erection/construction to be completed by the end of the third quarter (6 to 9 months). Clearing and Rock Removal (blasting) is expected to last approximately 3 to 6 months and overlap with some excavation. The foundation stage is scheduled to last 3 months, the erection stage is scheduled to overlap and last 6 months, and finishing is scheduled to be completed within 6 months.

Construction of the Government Center parking garage is expected to last 4 quarters (12 months) with ground clearing and foundation work lasting 6 to 9 months, the erection stage is scheduled to last 3 months and overlap with finishing which is scheduled to last approximately 6 months.

Palisades Point construction is projected to last 6 quarters (18 months) with building erection/construction scheduled to be completed by the end of the fifth quarter (15 months). Clearing (and pile driving) is expected to last approximately 3 months. The foundation and erection stages are scheduled to overlap, with foundation work scheduled to be completed within 6 months and erection scheduled to last approximately 12 months. Finishing is scheduled to be completed within 12 months.

c. Sensitive Receptors along the Site Boundaries

Noise associated with construction along the various Project site boundaries is estimated to range from 77 to 89 dBA, depending on the construction phase/activity as noted in Table III.F-11. The most sensitive receptor at the River Park Center site boundary is 'Our lady of Mt Carmel' Church, located adjacent to Nepperhan Avenue, which is anticipated to experience significant noise impacts due to its close proximity to the site. Noise mitigation such as temporary sound barrier panels should be considered for this and other sensitive receptors along the site boundaries.

Distance contours in the area surrounding the River Park Center site, shown in Table III.F-11 and Exhibit III.F-5, were developed by projecting typical construction sound levels at the site boundary to various distances from the site boundary. No adjustments were made to account for shielding from intervening structures, therefore projected noise levels are considered conservative. Typical sound levels associated with construction are compared to existing sound levels at various distances from River Park Center and Palisades Point in Tables III.F-12 and III.F-13.

It is expected that noise levels from construction will not exceed 80 dBA beyond 100 feet from the Site boundary with the exception of pile driving. Construction activities associated with pile driving will be noisy and intrusive at times. Mitigation will not be necessary for construction related noise with the exception of 'Our lady of Mt Carmel Church' located within 100 feet of the Site boundary. Pile driving has the ability to create noise levels greater than 80 dBA within 600 feet of the Site boundary depending upon the type of pile driver, depth of the piles, subsurface conditions and location of pile driving activity on the Site. A noise management plan will be prepared for pile driving activities.

Noise associated with the construction phases of the River Park Center, Government Center, and Cacace Center sites is estimated to range from 62 to 83 dBA within 300 feet of the construction Site boundaries; noise levels will depend upon receptor distance from the Site boundary. The most sensitive receptors located within 300 feet of the proposed Site include schools (Our Lady of Mt. Carmel–St. Anthony School, St. Mary's-Church of the Immaculate Conception School), churches (Latin American Pentecostal Church, 'Our lady of Mt Carmel' Church, Philippi Pentecostal Church, Corp of St. Johns Church, St. Mary's-Church of the Immaculate Conception), other social and community services and residential dwellings. Sensitive receptors located within 300 feet of the site boundaries are anticipated to experience significant noise impacts greater than 3 dBA at times during construction.

Noise associated with the construction phase of the Palisades Point site is estimated to range from 62 dBA to 77 dBA within 300 feet of the construction site boundary; noise levels will depend upon receptor distance from the site boundary. The most sensitive receptors located within 300 feet of the proposed site include a church (St. Mary's/Holy Apostolic Catholic Church) and residential dwellings. Sensitive receptors located within 300 feet of the site boundary are anticipated to experience significant noise impacts greater than 3 dBA at times through the duration of construction.

Noise associated with the construction phases of the River Park Center, Government Center, Cacace Center and Palisades Point sites is estimated to range from 59 dBA to 71 dBA within 400 to 600 feet of the construction site boundary, up to 6 dBA above existing levels. The most sensitive receptors at this distance include residential dwellings, churches and religious centers (Calvary Center, Soul Saving Station, Church of the Immaculate Conception, Convent of Mary the Queen), schools (St. Mary's-Church of the Immaculate Conception, Church of St. Casimir School, and City Harvest Pre-School: School 10) and a hospital (St. Josephs Hospital). Sensitive receptors located within 600 feet of the site boundaries are anticipated to experience significant noise impacts greater than 3 dBA at times during the finishing phase of construction and excavation activities.

Blasting during the excavation phase of construction at the Cacace Center is anticipated to result in potentially significant noise impacts at sensitive receptors within 2,500 feet of the activity. Once blasting is complete, no significant noise impacts during construction are anticipated beyond 600 feet from the site boundary. No significant noise impacts during construction are anticipated beyond 600 feet from the River Park Center and Government Center site boundaries.

Pile driving during the foundation phase at Palisades Point is anticipated to result in potentially significant noise impacts at sensitive receptors within 2,000 feet of the activity. Once pile driving is complete, no significant noise impacts during construction are anticipated beyond 600 feet from the site boundary as shown in Table III.F-13.

d.Construction Mitigation

Our lady of Mt Carmel Church is estimated to have the greatest noise impacts associated with construction noise at the River Park Center site. Acoustic barriers should be designed with a 10 to 15 dB transmission class to attenuate sound levels at this location. The use of acoustic barriers (a minimum height of 6 feet and sound transmission class of 10 dB) should be implemented along the perimeter of the River Park Center site.

Most construction equipment today comes equipped with engine noise control devices, such as exhaust mufflers and acoustic casing enclosures, in accordance with Federal and State regulations. In addition to proper maintenance and operation of construction machinery, several means of controlling construction noise impacts would be employed as needed and as may be practical include:

- Prepare a noise and vibration mitigation work-plan addressing construction activities, with a focus on potential pile driving and blasting impacts, prior to the start of construction activities;
- Implement “quiet” pile-driving technology, where feasible, in consideration of geotechnical and structural requirements and conditions;
- Route heavily loaded truck traffic and heavy equipment movements to minimize impacts on sensitive uses (i.e., away from residential streets);
- Operate stationary noise generating construction equipment (i.e., air compressors and portable generators) along with earthmoving equipment on the construction lot as far away from noise-sensitive receptors as possible (i.e., keep equipment as far from site boundaries as possible);
- Avoid nighttime activity - operate equipment during weekday afternoons to limit any potential disturbance during the nighttime (sleep interference) periods to the extent possible;
- Combine noisy operations to occur in the same time period;
- Conduct monitoring where pile driving, drilling, or blasting is being carried out,

particularly if sensitive structures are within 100 feet;

- Utilize walled enclosures around especially noisy activities, or clusters of noisy equipment (i.e., compressors, generators, etc.);
- Install temporary noise barriers (where practical) to minimize noise impacts on nearby sensitive uses;
- Select demolition methods not involving impact, where possible (i.e., use of concrete cutters (where practical), instead of pavement breakers, to minimize noise associated with the removal of existing paved or concrete surfaces);
- Utilize smaller equipment instead of large equipment where applicable (i.e., small bulldozers instead of large bulldozers);
- Equip construction vehicles or equipment, fixed or mobile with properly operating and maintained mufflers; and
- Unnecessary idling of internal combustion engines will be prohibited.

Table III.F-9
Key to Sensitive Receptors (refer to Exhibit III.F-5)

NUMBER	Property Address	Type	Current Owner Name	Owner Mailing Address
1	77 PARK HILL AVE	SCHOOL	BOARD OF EDUCATION	SCHOLASTIC ACADEMY FOR
2	35 JACKSON ST	RELIGIOUS	DEEPER TRUTH MIRACLE	C/O RUTH BYRD
3	42 PARK HILL AVE	RELIGIOUS	UNITED METHODIST CITY SOC	
4	70 PARK HILL AVE	RELIGIOUS	CHURCH OUR LADY MT CARMEL	% REV TERZO VINCI
5	84 SCHOOL ST	RELIGIOUS	SOUL SAVING STATION 2	C/O JOHNYE SMASH
6	82 SCHOOL ST	RELIGIOUS	SOUL SAVING STATION	
7	35 VARK ST	RELIGIOUS	CONVENT OF MARY THE QUEEN	
8	127 S BWAY	HOSPITAL	ST JOSEPH'S HOSPITAL	
9	18 ST MARYS ST	SCHOOL	CHURCH OF THE IMMACULATE	
10	14 ST MARYS ST	RELIGIOUS	IMMACULATE CONCEPTION CH	ST MARY'S
11	6 ST MARYS ST	RELIGIOUS	IMMACULATE CONCEPTION CH	ST MARY'S
12	18 ST MARYS ST	SCHOOL	IMMACULATE CONCEPTION CH	ST MARY'S
13	56 VAN CORT PK AVE	SCHOOL	BOARD OF EDUCATION	SCHOOL 23
14	7 ST MARYS ST	SCHOOL	IMMACULATE CONCEPTION CH	ST MARY'S
15	105 S BWAY	RELIGIOUS	IMMACULATE CONCEPTION CH	ST MARY'S
16	235 NEW MAIN ST	VACANT COMM	ARIZA JAIRO	
17	95 S BWAY	RELIGIOUS	IMMACULATE CONCEPTION CH	ST MARY'S
18	233 NEW MAIN ST	RELIGIOUS	DIXON, A.M.E. ZION	
19	7 ST MARYS ST	SCHOOL	IMMACULATE CONCEPTION CH	ST MARY'S
20	129 BUENA VISTA AVE	RELIGIOUS	HOLY APOSTOLIC CATHOLIC	ASSYRIAN CHURCH
21	60 HAWTHORNE AVE	SCHOOL	BOARD OF EDUCATION	SCHOOL 10
22	132 WAVERLY ST	RELIGIOUS	COMM MEMORIAL CHURCH	
23	206 NEW MAIN ST	RELIGIOUS	LATIN AMERICAN PENTECOST.	
24	102 LINDEN ST	SCHOOL	BOARD OF EDUCATION	ENRICO FERMI SCHOOL FOR
25	82 ASH ST	RELIGIOUS	ST NICHOLAS OF MYRA CHURC	
26	79 ASH ST	RELIGIOUS	GREEK CATHOLIC CHURCH OF	ST NICHOLAS OF MYRA
27	75 ASH ST	RELIGIOUS	GREEK CATHOLIC CHURCH OF	ST NICHOLAS OF MYRA
28	205 ELM ST	RELIGIOUS	GOOD SHEPARD PRESBYTERIAN CHURCH	
29	72 WAVERLY ST	SCHOOL	MT. CARMEL	ST. ANTHONY'S SCHOOL
30	40 HUDSON ST	RELIGIOUS	CITY HARVEST CHURCH	
31	21 HUDSON ST	RELIGIOUS	CHURCH OF GOD	CENTRAL YONKERS
32	1 HUDSON ST	RELIGIOUS	CORP OF ST JOHNS CHURCH	
33	175 NEPPERHAN AVE	RELIGIOUS	MT CARMEL BAPTIST CHURCH	
34	47 OAK ST	RELIGIOUS	ST THOMAS MALANKARA CHURC	
35	26 RIVERVIEW PL	RELIGIOUS	ST THOMAS MALANKARA	

Table III.F-9
Key to Sensitive Receptors (refer to Exhibit III.F-5) cont.

36	22 RIVERVIEW PL	RELIGIOUS	ST THOMAS MALANKARA	
37	20 RIVERVIEW PL	RELIGIOUS	ST THOMAS MALANKARA	
38	16 RIVERVIEW PL	RELIGIOUS	ST THOMAS MALANKARA	
39	2 RIVERVIEW PL	RELIGIOUS	ST. THOMAS ORTHODOX	SYRIAN CHURCH
40	60 PALISADE AVE	RELIGIOUS	PHILIPPI PENTECOSTAL CHUR	
41	43 CHESTNUT ST	RELIGIOUS	GREATER NEW YORK SEVENTH	ADVENTISTS
42	41 CHESTNUT ST	RELIGIOUS	GREATER NEW YORK SEVENTH	ADVENTISTS
43	29 CHESTNUT ST	SCHOOL	NY SEVENTH-DAY ADVENTISTS	
44	50 N BWAY	RELIGIOUS	FAITH DELIVERNCE TABERNAC	
45	5 MANOR HOUSE SQ	RELIGIOUS	CHRISTIAN LOVE TABERNACLE	
46	11 MANOR HOUSE SQUARE	RELIGIOUS	BRONX BIBLE CHURCH	
47	58 N BWAY	RELIGIOUS	GETHSEMANE HOLINESS CHURC	C/O A.B.CARRUTH
48	255 NEPPERHAN AVE	SCHOOL	CHURCH OF ST CASIMIR	
49	57 LOCUST HILL AVE	RELIGIOUS	CALVARY CENTER, INC.	
50	259 NEPPERHAN AVE	RELIGIOUS	CHURCH OF ST CASIMIR	
51	265 NEPPERHAN AVE	RELIGIOUS	CHURCH OF ST CASIMIR	
52	76 WARBURTON AVE	RELIGIOUS	MESSIAH BAPTIST CHURCH	C/O TRUSTEE BOARD
53	81 LOCUST HILL AVE	RELIGIOUS	RECTOR HOLY CROSS CHURCH	
54	78 WARBURTON AVE	RELIGIOUS	MESSIAH BAPTIST CHURCH	
55	84 WARBURTON AVE	RELIGIOUS	TRUSTEES OF MESSIAH BAPTI	
56	115 LOCUST HILL AVE	SCHOOL	BOARD OF EDUCATION	MARTIN LUTHER KING HIGH
67	156 N BWAY	RELIGIOUS	COMMUNITY BAPTIST CHURCH	
68	164 ASHBURTON AVE	SCHOOL	YONKERS COMMUNITY ACTION	SCHOOL 12
69	9 ASHBURTON PL	RELIGIOUS	ST. PAULS CHURCH OF GOD I	
60	160 N BWAY	RELIGIOUS	COMMUNITY BAPTIST CHURCH	
61	1 JONES PL	RELIGIOUS	CHURCH OF ST JOSEPH LODGE	
62	5 JONES PL	RELIGIOUS	CHURCH OF ST JOSEPH YOUTH	
63	147 ASHBURTON AVE	RELIGIOUS	CHURCH OF ST JOSEPH RECTO	
64	141 ASHBURTON AVE	RELIGIOUS	CHURCH OF ST JOSEPH	

<table>
<tr><th colspan="11">Table III.F-10 Yonkers SFC Redevelopment Project Construction Schedule</th></tr>
<tr><th>Project Phase</th><th>1st Quarter</th><th>2nd Quarter</th><th>3rd Quarter</th><th>4th Quarter</th><th>5th Quarter</th><th>6th Quarter</th><th>7th Quarter</th><th>8th Quarter</th><th>9th Quarter</th><th>10th Quarter</th></tr>
<tr><td rowspan="5">River Park</td><td colspan="2">Ground Clearing</td><td colspan="8"></td></tr>
<tr><td colspan="2">Excavation</td><td colspan="8"></td></tr>
<tr><td colspan="4">Foundation</td><td colspan="6"></td></tr>
<tr><td></td><td colspan="5">Erection</td><td colspan="4"></td></tr>
<tr><td colspan="3"></td><td colspan="5">Finishing</td><td colspan="2"></td></tr>
<tr><td rowspan="6">Cacace Site</td><td>Ground Clearing</td><td colspan="9"></td></tr>
<tr><td>Rock Removal</td><td colspan="9"></td></tr>
<tr><td colspan="2">Excavation</td><td colspan="8"></td></tr>
<tr><td></td><td>Foundation</td><td colspan="8"></td></tr>
<tr><td></td><td colspan="2">Erection</td><td colspan="7"></td></tr>
<tr><td colspan="3"></td><td colspan="2">Finishing</td><td colspan="5"></td></tr>
<tr><td rowspan="4">Government Center Garage</td><td colspan="6"></td><td colspan="3">Ground Clearing</td><td></td></tr>
<tr><td colspan="7"></td><td colspan="2">Foundation</td><td></td></tr>
<tr><td colspan="8"></td><td>Erection</td><td></td></tr>
<tr><td colspan="8"></td><td colspan="2">Finishing</td></tr>
<tr><td rowspan="6">Palisades Point</td><td>Ground Clearing</td><td colspan="9"></td></tr>
<tr><td>Pile Driving</td><td colspan="9"></td></tr>
<tr><td></td><td>Excavation</td><td colspan="8"></td></tr>
<tr><td></td><td colspan="2">Foundation</td><td colspan="7"></td></tr>
<tr><td></td><td colspan="4">Erection</td><td colspan="5"></td></tr>
<tr><td colspan="2"></td><td colspan="4">Finishing</td><td colspan="4"></td></tr>
</table>

Table III.F-11 Estimated Outdoor Construction Noise Levels (dBA)

Construction Phase	Typical Average Outdoor Noise Levels at Construction Site Boundaries (a)	Estimated Outdoor Construction Noise Levels at Distances from Site Boundary (b,c)							
		100 ft	200 ft	300 ft	400 ft	500 ft	600 ft	1000 ft	2000 ft
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Ground Clearing	84	78	72	69	66	64.5	63	58.5	52.5
Excavation	89	83	77	74	71	69.5	68	63.5	57.5
Pile Driving	101	95	89	86	83	81.5	80	75.5	69.5
Foundation	77	71	65	62	59	57.5	56	51.5	45.5
Erection	84	78	72	69	66	64.5	63	58.5	52.5
Finishing	89	83	77	74	71	69.5	68	63.5	57.5

Notes:

(a) Source: US EPA "Noise from Construction Equipment", 1971

(b) Estimated from (a) and approximate distance from site (Greenberg, et al. 1979)

(c) Projected sound levels at the Site boundary will vary with the type and location of the construction activity on the Site. Because construction activities would be carried out at various locations and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources).

Table III.F-12
Difference in Sound Levels Due to Outdoor Construction Noise Levels (dBA) at River Park Center

Construction Phase	Difference in Sound Level Due to Outdoor Noise Levels at Construction Site Boundaries	Difference in Sound Level Due to Outdoor Construction Noise Levels at Distances from Site Boundary							
		100 ft	200 ft	300 ft	400 ft	500 ft	600 ft	1000 ft	2000 ft
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Ground Clearing	14	8	7	4	1	-	-	-	-
Excavation	19	13	12	9	6	4.5	3	-	-
Foundation	7	1	-	-	-	-	-	-	-
Erection	14	8	7	4	1	-	-	-	-
Finishing	19	13	12	9	6	4.5	3	-	-

Notes:

(a) Existing Noise Level within 100 feet of the Site boundary is 70 dBA and beyond 100 feet is 65 dBA based on field measurements

(b) Refer to Appendix F "Noise Report" Table 5-2 for "Estimated Outdoor Construction Noise Levels at Distances from Site Boundary"

(c) Potential max values referenced in Appendix F "Noise Report" Table 5-2 are based on US EPA "Noise from Construction Equipment", 1971

(d) Shaded area indicates no difference in sound level due to outdoor construction noise

(e) Projected sound levels at the Site boundary will vary with the type and location of the construction activity on the Site. Because construction activities would be carried out at various locations and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources).

Table III.F-13
Difference in Sound Levels Due to Outdoor Construction Noise Levels (dBA) at Palisades Point

Construction Phase	Difference in Sound Level Due to Outdoor Noise Levels at Construction Site Boundaries	Difference in Sound Level Due to Outdoor Construction Noise Levels at Distances from Site Boundary							
		100 ft	200 ft	300 ft	400 ft	500 ft	600 ft	1000 ft	2000 ft
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Ground Clearing	19	13	7	4	1	-	-	-	-
Excavation	24	18	12	9	6	4.5	3	-	-
Pile Driving	36	30	24	21	18	16.5	15	10.5	4.5
Foundation	12	6	-	-	-	-	-	-	-
Erection	19	13	7	4	1	-	-	-	-
Finishing	24	18	12	9	6	4.5	3	-	-

Notes:

(a) Existing Noise Level is 65 dBA

(b) Refer to Appendix F "Noise Report" Table 5-2 for "Estimated Outdoor Construction Noise Levels at Distances from Site Boundary"

(c) Potential max values referenced in Appendix F "Noise Report" Table 5-2 are based on US EPA "Noise from Construction Equipment", 1971

(d) Shaded area indicates no difference in sound level due to outdoor construction noise

(e) Projected sound levels at the Site boundary will vary with the type and location of the construction activity on the Site. Because construction activities would be carried out at various locations and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources).

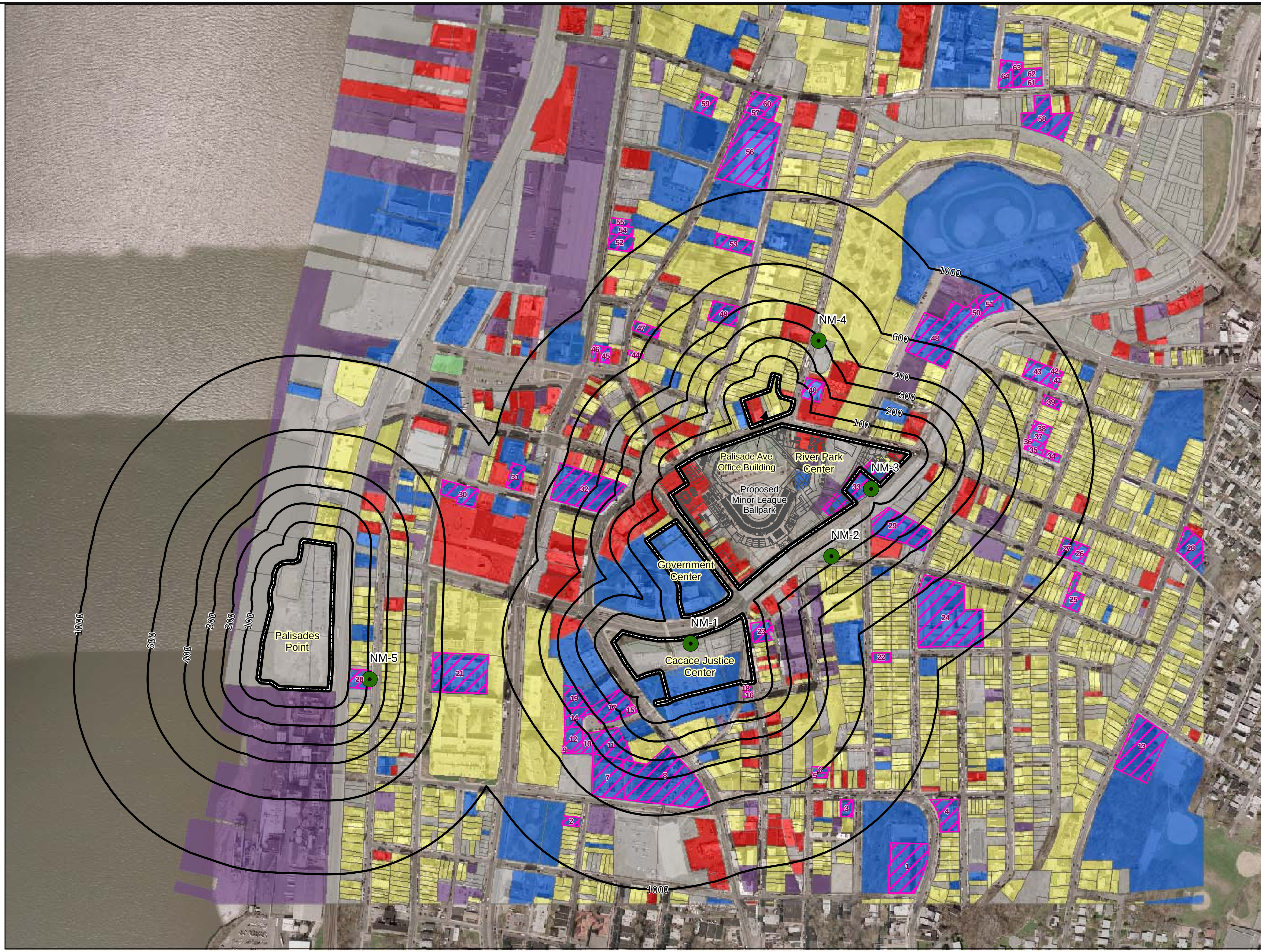


Exhibit III.F-5

CONSTRUCTION NOISE DISTANCE CONTOURS, LAND USE AND SENSITIVE RECEPTORS

SFC PHASE I PROJECTS

STRUEVER FIDELCO CAPPELLI LLC

5. Mitigation Measures

Traffic noise generated by the Project is not expected to result in significant increases in noise levels in the area. No specific noise mitigation measures are warranted. The noise analysis is based on the traffic impact study, which in turn incorporates various traffic improvements that are to made as a part of the Project.

It is anticipated that the stadium public address system will be designed as a distributed speaker system on-site, which would locate speakers around each section of the park to focus sounds toward the park and minimize the need for extra-loud and high-mounted units. A noise management plan for concert events at the ballpark will be developed prior to initial concert event.

A design acoustic study related to the construction of the residential towers should be conducted to select materials and design elements to reduce noise within these residential spaces as may be needed. The study shall be used to determine noise attenuation measures to reduce stadium noise levels at the interior of the nearby tower residences.

River Park Center tower residents will be notified of events and times where stadium sounds can be expected.

Building design will include a low STC rating on each building envelope.

Building mechanical systems will be designed to minimize noise impacts to the maximum extent practicable. Other possible mitigation for noise from building mechanical systems (i.e., air handlers, cooling towers) includes:

- Use of smaller HVAC units and design considerations such as mechanical systems "sunken" into the roof level of the ballpark to minimize impacts.
- Check/improve installation. Since connections and enclosures can cause increased noise levels, make connections with flexible conduits and coupling to prevent transmitting vibration to other equipment.
- Mechanical equipment placement within an acoustically treated area
  - Generators in ground level enclosures.
  - Sound absorption panels/barrier panels and rooftop screening panels around HVAC systems.

A noise and vibration mitigation work-plan will be developed for addressing construction activities, specifically potential pile driving and blasting impacts, prior to the start of construction activities. In addition, a blasting plan is needed for the blasting permit. This plan will comply with all applicable legal requirements.

6. Conclusions

A number of conclusions can be made based on the results of this noise assessment that include the following:

- Sound levels surrounding the Project sites are typical of an urban environment and are influenced by local traffic conditions.
- The ambient sound environment in the area surrounding the proposed River Park Center ranges from 65 dBA to 72 dBA during the daytime, with the higher ambient noise levels being just above the City of Yonkers noise standard of 70 dBA, and ranges from 60 dBA to 72 dBA during the nighttime, above the City of Yonkers noise standard of 50 dBA.
- The ambient sound environment in the area adjacent to the proposed Palisades Point site is approximately 65 dBA during the daytime, below the City of Yonkers noise ordinance of 70 dBA, and 60 dBA during the nighttime, above the City of Yonkers residential noise ordinance of 50 dBA.
- Existing noise levels are not anticipated to change significantly in the future without Project development. Under the No-Build condition, existing vehicular noise tends to dominate the noise exposure at nearby receptors almost everywhere surrounding the Project sites.
- Noise associated with Project related traffic is not expected to be significant.
- Noise from ballgame events at the River Park Center relative to existing noise levels is not expected to be significant.
- Residential units with outdoor balconies facing the ballpark may experience unabated noise from ballpark events.
- There is potential for noise from concert events at the stadium to significantly increase the ambient sound levels in the area, especially to the north and at the nearest residences with a direct line-of-sight (proposed east and west towers), particularly during the hours of 7:00 PM to midnight which are considered noise sensitive hours.
- Isolated explosive noise associated with fireworks displays could occur and could constitute potential for significant noise impact.
- The contribution of sound levels from train pass-bys to background sound levels at the Palisades Point residential towers is not expected to be significant.
- Residential units with outdoor balconies facing the train line may experience momentary unabated noise during train pass bys.
- Indoor noise impacts from train pass-bys at Palisades Point residential tower units are not anticipated to be significant.
- Potential noise from building mechanical systems (i.e., air handlers, cooling towers and emergency generator systems) will be minimized by a combination of design considerations and sound attenuation due to distance from the residences.
- Construction activities associated with the River Park Center, Government Center and Cacace Center sites would be expected to result in an increase of existing noise levels during various construction phases.
- The closest sensitive receptor at the River Park Center site is ‘Our lady of Mt Carmel’ Church, located along the site boundary adjacent to Nepperhan Avenue, which is anticipated to experience significant construction noise levels. Noise mitigation such as temporary sound barrier panels should be considered for this and other sensitive receptors along the site boundary.

- Sensitive receptors located within 300 feet of the River Park Center and Cacace Center sites are anticipated to experience significant noise levels greater than 3 dBA at times during construction. Sensitive receptors within 300 feet include churches ('Our lady of Mt Carmel' Church, Latin American Pentecostal Church, Philippi Pentecostal Church, Corp of St. Johns Church, St. Mary's-Church of the Immaculate Conception), schools (Our Lady of Mt. Carmel-St. Anthony School, St. Mary's-Church of the Immaculate Conception School) and residential dwellings.
- Sensitive receptors located within 600 feet of the River Park Center and Cacace Sites are anticipated to experience significant noise levels greater than 3 dBA at times during the finishing phase of construction and excavation activities. Sensitive receptors within 600 feet include churches and religious centers (Cavalry Center, Soul Saving Station, Church of the Immaculate Conception, Convent of Mary the Queen), schools (St. Mary's-Church of the Immaculate Conception School, Church of St. Casimir School), a hospital (St. Josephs Hospital) and residential dwellings.
- No significant noise impacts during construction are anticipated beyond 600 feet from the River Park Center site boundary.
- Blasting during the excavation phase is anticipated to result in potentially significant noise impacts at sensitive receptors within 2,500 feet of the activity at the Cacace Center site. Blasting operations may be considered intrusive at the closest receptors (such as St. Josephs Hospital, St. Mary's School, Latin American Pentecostal Church, Immaculate Conception Church and local residences).
- Once blasting is complete, no significant noise levels during construction are anticipated beyond 600 feet from the Cacace Center site boundary.
- Construction activities associated with Palisades Point would be expected to result in an increase of existing noise levels.
- Sensitive receptors located within 300 feet of the Palisades Point site are anticipated to experience significant noise levels greater than 3 dBA at times during construction. Sensitive receptors within 300 feet include a church (St. Mary's/Holy Apostolic Catholic Church) and residential dwellings.
- Sensitive receptors located within 600 feet of the Palisades Point site are anticipated to experience significant noise levels greater than 3 dBA at times during the finishing phase of construction and excavation activities. Sensitive receptors within 600 feet include a school (City Harvest Pre-School: School 10) and residential dwellings.
- Pile driving during the foundation phase is anticipated to result in potentially significant noise impacts at sensitive receptors within 2,000 feet of the activity. Once pile driving is completed, no significant noise levels during construction are anticipated beyond 600 feet from the Palisades Point site boundary.
- Noise associated with construction of the parking facilities will be confined to the local area at the Project sites.
- Construction travel associated with worker and material deliveries etc. at both sites is not anticipated to be significant relative to existing traffic related noise in the area.