AIR QUALITY

MOBILE SOURCE ANALYSIS

Mobile source analyses were run for the three scenarios defined in the chapter. The increments were added, where applicable, to increments from the stationary construction modeling results. The totals included background from monitoring stations as well as local background traffic increments (modeled) that would not be included in background monitored concentrations (e.g. Route 9A).

Road dust was included for all PM_{10} runs, based on the procedure delineated in AP–42 (EPA December, 2003). Silt loading was based on the average daily traffic volumes for Route 9A and Church Street; a silt loading factor of 0.16 g/m^2 was used for the construction site entrance. This is the highest loading factor used in New York City, and assumes that access roads would be cleaned regularly.

All other assumptions and procedures for mobile source modeling were identical to those used in analyses in the Air Quality chapter.

As in the analyses in the Air Quality chapter, predicted neighborhood scale $PM_{2.5}$ concentrations are conservatively high due to the fact that the minimum distance between the roadway and receptors of 15 meter was used for that analyses, rather than a distance of approximately 30 meters based on one meter per 1,000 vehicles ADT.

STATIONARY SOURCE ANALYSIS

All emission factors for on-site engine emissions were calculated using the draft EPA NONROAD2004 model—the most current data available, based on the engine size and including the loading factor for operation of that type of engine, as presented in Table 1 below. These factors, which included the use of ultra low sulfur diesel fuel (ULSD), were then scaled down to represent emissions from engines using emissions reduction technologies, as follows: 26 percent for ULSD and diesel oxidation catalysts (DOC); 90 percent for ULSD and diesel particle filters (DPF—the latter was applied only for average emissions estimates for mitigation. See Table 1 for details.) These reductions are based on actual measurements studied by NESCAUM as detailed in Chapter 9.

All emissions were modeled using hourly emission factors, 10 hours per day, 6 days per week, from 7 am to noon, and from 1 pm to 6 pm, with a usage percent applied depending on the actual daily hours for the equipment (for example, if a certain engine in needed on the peak day only for 4 hours, the emission factor is scaled by 4/10=0.4). Construction emissions of Route 9A were modeled as 20 hour days, 5 days per week.

Emission factors for sources modeled as discrete point sources, such as generators and tower cranes, were calculated based on the above factors, the size of the engine and the daily use percentage as presented above in the construction description, and therefore varied depending on location and construction phase.

Area sources were defined for each phase and zone, which included all sources that do not have a fixed location. Total emission factors for these sources are presented in Table 2 below. Area sources were all given an initial vertical dispersion of five meters, aside from the Freedom Tower, where sources would be vertically distributed on a number of floors, which was conservatively assumed all to occur within a few ground floors and modeled with an initial dispersion of 18 meters.

Cumulative emissions would clearly be the highest in 2006, as can be seen by the activities planned (see Chapter 3, "Construction".) The peak 24-hour model was based on the 2006 January emissions for the scenario with Route 9A At Grade, and April emissions for the scenario with Route 9A Short Bypass. The cumulative PM_{10} and $PM_{2.5}$ emissions with the At Grade scenario were predicted to be in March and June, respectively, and in May for the Short Bypass Scenario; these emissions were therefore used to represent each peak. Peak emissions under both scenarios are presented in Figures 1 and 2 below.

IMPACT ASSESSMENT

The impacts presented in Chapter 9, "Air Quality", include four types of results:

1. *Highest*—these results were usually from locations immediately adjacent to the construction site boundary of the Proposed Action, in the case of Proposed Action results, or of one of the other major reconstruction projects, in the case of cumulative results. Those results were mostly in accessible public spaces, such as sidewalks; some of those results were predicted at residential locations immediately adjacent to the site.
2. *Residential only*—these results were extracted from receptors representing residential or hotel locations where exposure time would be expected to be the longest. The firehouse was included as well since firemen often spend extended living hours in the firehouse.
3. *Other Locations on Access Routes*—these results represent the mobile source impacts only, representing other sites along the access routes that would not be exposed to emissions from the construction site itself, but rather only to increased construction vehicle traffic. Since all construction vehicles converge on the site, this is a conservative estimate for other locations that may experience only part of the traffic increment.
4. *Neighborhood Scale*—This result, used for annual $PM_{2.5}$ only, is the average of a ground level, 25-meter resolution receptor grid centered on the receptor with the highest local result. This represents a measure for the impact in the nearby neighborhood, to be compared to the corresponding threshold level.

For total concentrations, in addition to measured backgrounds, local mobile source background was added from the CAL3QHC model results. All mobile source maximums were extracted for each intersection and added to the ISCST3 construction model results in that area.

Table 1
2006 Emission Factors for Construction Equipment

Equipment Type	Power Output	NONROAD Emission Factor with ULSD		Adjusted Emission Factor with DOCs*		Adjusted Emission Factor with DOCs, DPFs and Tier II Standards**	
	(hp)	(g/hp-hr)		(g/hp-hr)		(g/hp-hr)	
		PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Air Compressor	185	0.107	0.104	0.075	0.073	0.028	0.027
Air Compressor	310,360, 460	0.146	0.141	0.102	0.099	0.038	0.037
Air Compressor	80	0.238	0.231	0.167	0.162	0.057	0.055
Asphalt Compactor	70	0.365	0.354	0.255	0.248	0.078	0.076
Asphalt Paving Machine	153	0.214	0.208	0.150	0.145	0.039	0.038
Backhoe	90	0.274	0.265	0.192	0.186	0.057	0.055
Concrete Pump	300	0.238	0.231	0.167	0.162	0.039	0.038
Crawler Crane	273	0.151	0.146	0.106	0.102	0.039	0.038
Crawler Crane	340,350, 450	0.151	0.146	0.106	0.102	0.039	0.038
Diesel Generator	100	0.360	0.349	0.252	0.244	0.057	0.055
Diesel Generator	500	0.331	0.322	0.232	0.225	0.039	0.038
Diesel Generator	750	0.333	0.323	0.233	0.226	0.039	0.038
Dozer	100	0.331	0.321	0.231	0.225	0.057	0.055
Dozer	150	0.178	0.173	0.125	0.121	0.039	0.038
Drill	204	0.195	0.189	0.136	0.132	0.039	0.038
Excavator	143	0.172	0.167	0.120	0.117	0.045	0.043
Gas Generator	10	0.078	0.076	0.078	0.076	0.078	0.076
Gas Pump for Dewatering	16	0.077	0.074	0.077	0.074	0.077	0.074
Grader	185	0.150	0.146	0.105	0.102	0.039	0.038
Hi-Lift (Forklift)	120	0.206	0.200	0.144	0.140	0.054	0.052
Hydraulic All Terrain Crane	165	0.111	0.108	0.078	0.075	0.029	0.028
Hydraulic Drill Rig	150	0.206	0.200	0.144	0.140	0.039	0.038
Hydraulic Excavator	300	0.144	0.140	0.101	0.098	0.037	0.036
Hydraulic Excavator	320,321, 428	0.131	0.127	0.092	0.089	0.034	0.033
Paving Box	158	0.214	0.208	0.150	0.145	0.039	0.038
Pump	150	0.248	0.241	0.174	0.168	0.039	0.038
Pump	350	0.310	0.301	0.217	0.211	0.039	0.038
Roadheader for tunneling	120	0.172	0.167	0.120	0.117	0.045	0.043
Rubber tire backhoe/loader	88	0.365	0.354	0.255	0.248	0.057	0.055
Rubber tire loader	196	0.163	0.158	0.114	0.111	0.039	0.038
Slurry mixing or desanding plant or grout plant	50	0.354	0.343	0.354	0.343	0.300	0.291
Tower Crane	273	0.092	0.089	0.064	0.062	0.024	0.023
Track Dozer	338	0.151	0.146	0.106	0.102	0.039	0.038

Table 1 (cont.)
2006 Emission Factors for Construction Equipment

Equipment Type	Power Output	NONROAD Emission Factor with ULSD		Adjusted Emission Factor with DOCs*		Adjusted Emission Factor with DOCs, DPFs and Tier II Standards**	
	(hp)	(g/hp-hr)		(g/hp-hr)		(g/hp-hr)	
		PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Track Loader	160	0.161	0.156	0.113	0.109	0.039	0.038
Track Loader	229	0.150	0.145	0.105	0.102	0.039	0.038
Vibratory Roller	150	0.190	0.184	0.133	0.129	0.039	0.038
Welding Machines	33,35	0.299	0.290	0.299	0.290	0.299	0.290
Wheel Loader	260	0.150	0.145	0.105	0.102	0.039	0.038

Notes: * 30% reduction for DOCs on engines > 50 hp

** Mitigation Scenario – Tier II standards and an average 74% reduction for DPFs on 75% engines and DOCs on 25% of engines > 50 hp. Based on DPF reduction of 90% and DOC reduction of 40% including an average of 14% reduction due to ULSD—

{ 25% * (1–40%) + 75% * (1–90%) } / (1–14%) = 26% →74% reduction

For engines where the mitigated emission factor exceeded the Tier II standard, the Tier II emission cap was used.

Sources: NONROAD2004 model, New York

Table 2
Area Source Emission Factors

Zone	Area [m^2]	Emission Factor [g/s-m^2]			
		$PM_{2.5}$		PM_{10}	
		Peak Day Average	Annual Average	Peak Day Average	Annual Average
LMDC					
Tunneling Under 1/9 Line	4,600	6.76E-06	2.02E-06	7.37E-06	2.21E-06
Northwest Quadrant below grade Retail	11,705	3.65E-06	2.50E-06	4.06E-06	2.74E-06
Memorial, Open Space, Cultural Space (Zones 1 & 2)	30,500	—	1.23E-07	—	1.36E-07
Southeast Quadrant blow grade - Towers 3 & 4 (Zone 4)	12,090	3.82E-06	3.43E-06	4.63E-06	3.78E-06
Northeast Quadrant blow grade - Tower 2 (Zone 5)	8,665	5.32E-06	4.78E-06	6.12E-06	5.22E-06
East Bathtub Above Grade Fit-out	28,935	—	1.26E-07	—	1.48E-07
Freedom Tower Structural Framing, Curtain Wall & Fit-out	5,150	2.38E-05	1.56E-05	2.65E-05	1.7E-05
Southern Expansion - Excavation & Construction	12,075	7.96E-06	7.58E-06	9.14E-06	8.41E-06
PATH					
Platform/Mezzanine Conversion - Demolition & Construction	8,390	1.11E-05	5.72E-06	1.35E-05	6.41E-06
1/9 Tunnel Underpinning, Excavation, Lining Operation	2,670	2.04E-05	5.55E-06	2.23E-05	6.06E-06
West St Tunnel Underpinning, Excavation, Lining Operation	965	5.65E-05	1.86E-05	6.18E-05	2.03E-05
Church St Tunnel Underpinning, Excavation, Lining Operation	400	1.36E-04	4.50E-05	1.49E-04	4.90E-05
Demolition Temporary PATH Concourse	8,210	—	1.92E-06	—	2.32E-06
Route 9A					
Stage II Slurry Wall, Excavation, Concrete Box, Road Deck	9,245	4.92E-06	6.26E-06	8.55E-06	8.38E-06
Notes: All factors were applied to 10 hours per day only					

Figure 1
Peak $PM_{2.5}$ Emissions by Project -- 2006
with Route 9A At Grade

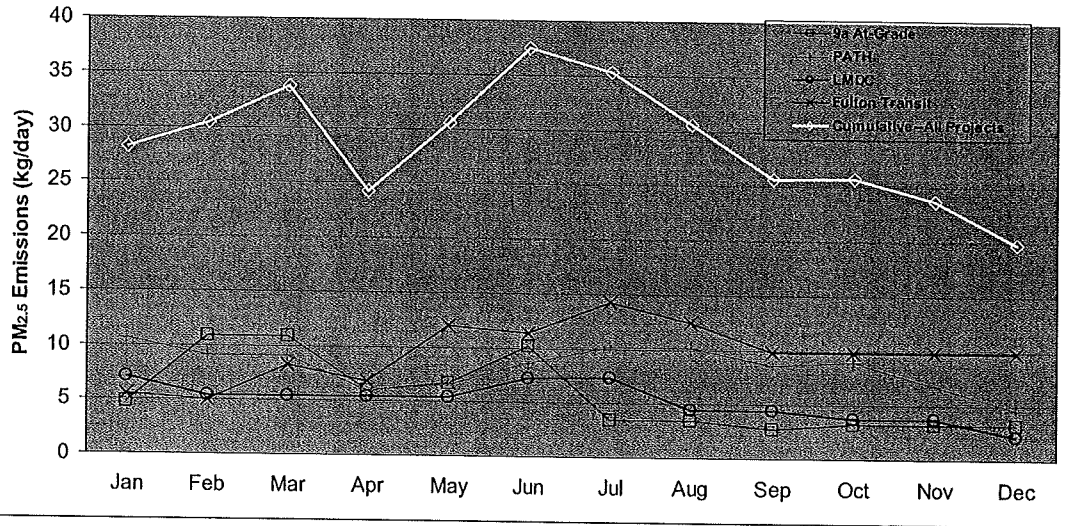
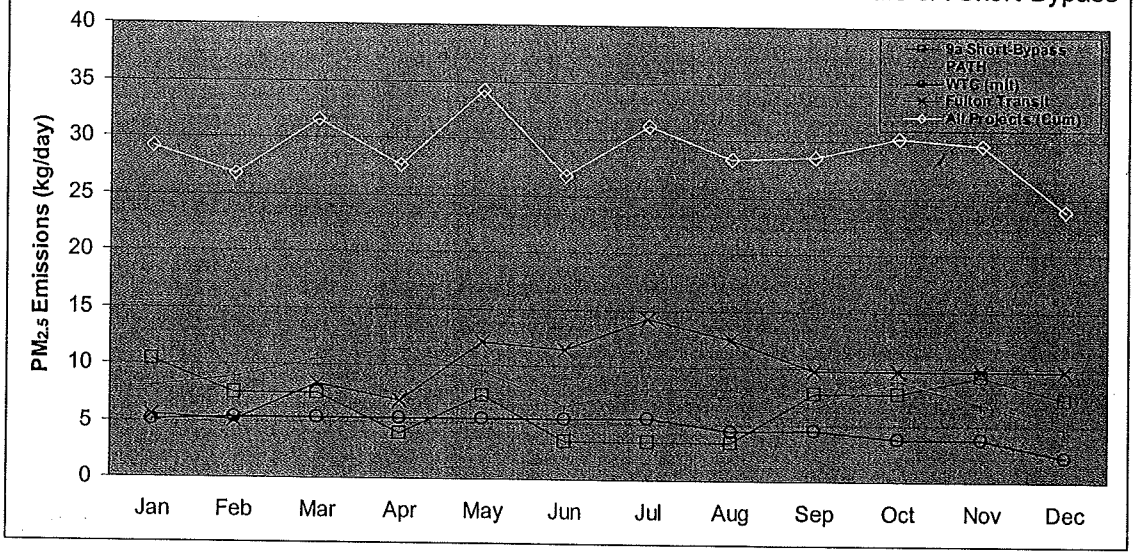


Figure 2
Peak $PM_{2.5}$ Emissions by Project-- 2006
with Route 9A Short Bypass



Appendix E

Noise and Vibration

A. INTRODUCTION

This appendix provides further detail on the methodologies used to estimate construction period and operational period noise impacts from the Permanent WTC PATH Terminal. Following a description of these methodologies are detailed calculations spreadsheets that support the summary tables shown in Chapter 10, "Noise and Vibration."

B. CONSTRUCTION PERIOD

CONSTRUCTION NOISE METHODOLOGY

Noise from construction activities was estimated following the methodologies set forth in the April 1995 FTA guidance manual. The detailed noise assessment procedures were followed. The procedure uses the following equation to calculate noise levels from operation of a single piece of construction equipment.

$L_{eq} = E.L. + 10 \log (U.F.) - 20 \log (D/50) - 10\ G \log (D/50)$

where:

L_{eq} is the noise level at a receiver of the equipment over a specified time period;
E.L. is the noise emission level of the equipment at a reference distance of 50 feet;
G is a constant that accounts for topography and ground effects (which would be 0 for hard ground);
D is the distance from the receiver to the piece of equipment; and
U.F. is a usage factor that accounts for the fraction of time that the equipment is in use over the specified time period.

The combination of noise from all pieces of equipment operating during the same time period is obtained from adding the L_{eq} values for each piece of equipment. For the detailed assessment, 8-hour L_{eq} values and 30-day average L_{dn} values were calculated assuming all appropriate usage factors for the specified time periods for each element of construction as discussed in Chapter 3, "Construction Methods and Materials."

CONSTRUCTION VIBRATION METHODOLOGY

The FTA guidance manual provides some simple screening methodologies for determining where there is a significant potential for impact from construction activities. Such activities include pile driving, demolition, drilling, excavation, or blasting in close proximity to sensitive structures. The procedure includes: (1) selecting the equipment and determining the vibratory levels at a reference distance of 25 feet; (2) determining peak particle velocity at a receptor location using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where:

PPV_{equip} is the peak particle velocity of the equipment adjusted for distance;
PPV_{ref} is the reference vibration level in in/sec at 25 feet; and
D is the distance in feet from the equipment to the receiver,

C. TRAIN OPERATIONS

OPERATIONAL TRANSIT NOISE METHODOLOGY

Noise from the PATH train operations was analyzed using the methodologies set forth in the FTA guidance manual. The analysis considered two major noise sources associated with the PATH train operations: noise from fixed-rail operations (i.e., noise from the PATH train operations emanating from stations, air ventilation openings, and train/subway gratings), and noise from mechanical equipment operations (i.e., substations, HVAC equipment, etc.).

The Permanent WTC PATH Terminal would not directly affect the operation of PATH trains (throughput or number of cars) as compared to future conditions, which were anticipated before September 11, 2001. Thus, the Project Alternatives would not result in significant adverse noise impacts to existing land uses along PATH's right-of-way. However, with the development of a memorial at the WTC site, there would be a change in land use from FTA Category 3 to FTA Category 1 adjacent to the location of the Permanent WTC PATH Terminal. Thus a general noise assessment was performed per FTA guidance to determine operational-period noise levels and to examine potential impacts to the WTC Memorial (see Table E-1).

Table E-1
Computation of L_{eq} and L_{dn} at 50 feet: Fixed-Guideway Sources

Hourly L_{eq} at 50 ft:	$LeqC(h) = SEL_{ref} + 10\log(Ncars) + 20\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$
COMBINED Daytime L_{eq} at 50 ft:	$Leq(day) = Leq(h)\|_{v=vd}$
Nighttime L_{eq} at 50 ft:	$Leq(night) = Leq(h)\|_{v=vn}$
L_{dn} at 50 ft:	$Ldn = 10\log\left[(15)\cdot 10^{\left(Leq(day)/10\right)} + (9)\cdot 10^{\left(Leq(night)+10/10\right)}\right] - 13.8$

Notes:
N_{cars} = average number of cars per train
S = train speed, in miles per hour
V = average hourly daytime volume of train traffic, in trains per hour
V_d = average hourly daytime volume, in trains per hour; (number of trains, 7 AM to 10 PM) / 15
V_n = average hourly nighttime volume, in trains per hour; (number of trains, 10 PM to 7 AM) / 15
SEL_{ref} = 82 dBA for rail

Levels located at 50 feet from the equations above were corrected for distance as follows:

$$Ldn \text{ or } Leq(1) = (Ldn \text{ or } Leq(1))\Big|_{at\ 50\ feet} - 10 * \log\left(\frac{D}{50}\right)$$

where:

D = the distance from the source to the receptor in feet

At the memorial site, noise from rail vehicle operations would reverberate in the enclosed space of the underground tunnels and station. Calculations using the above equation predict noise from this source, but does not account for reverberation from the enclosed spaces nor does it account

for attenuation effects of the ventilation shafts and station entrances. Reverberation effects of the tunnel and terminal would cause significantly higher noise levels resulting from source noise and reflected noise. To account for this phenomenon, noise levels were adjusted by calculating a noise level caused by the reflected portion of the fixed railway noise (which was assumed to bounce off acoustically reflective surfaces in the tunnels and terminal), and adding the noise level calculated for free-field conditions through logarithmic summation. For a conservative analysis, this analysis assumes that all surfaces of the tunnel or terminal are hard reflective surfaces, with little or no sound absorption.

$$L_{eq(1)}^{reflect} = L_{eq(1)} - 10 * \log_{10}(\alpha S) + 42.4$$

Based on the methods of sound propagation in enclosed spaces, i.e., the reflected effect, approximately 6dB was added to the free-field predicted noise levels and adjusted for noise receptor locations based on distance and acoustical attenuation through the terminal entrance or ventilation shaft. The analysis assumes that the design of these system elements would provide approximately 25 dBA attenuation.

D. CALCULATION TABLES

The following tables present the detailed calculation of noise and vibration levels that were presented in Chapter 10, "Noise and Vibration." Construction period tables are presented first followed by the calculation tables for train operations.

Table E-2

2006 Construction Period Noise Levels for the Preferred Alternative Without Mitigation (in dBA)

Receptor Site	Existing Noise Level			Calculated Noise Level				FTA Criteria			
	Leq(1)	L10(1)	Ldn	Leq(1)	Leq(8)	Leq(30ds)	Ldn(30ds)	Land Use	Leq(8)	Leq(30ds)	*Ldn(30ds)
									80/85 (Res/Com)	80.0	75.0
1	72.9	77.8	74	81	80	74	74	Residential	Impact		No Impact
								Commercial	No Impact	No Impact	
2	70.5	69.6	71	82	80	74	74	Residential	Impact		No Impact
								Commercial	No Impact	No Impact	
3	67.3	69.5	72	89	88	81	81	Residential	Impact		No Impact
								Commercial	Impact	Impact	
4	72.5	73.5	70	70	69	62	62	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	
5	76.0	NA	79	67	66	60	60	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	

* If existing Ldn noise levels are greater than 65, the FTA Ldn impact criterion = existing Ldn + 10 dBA.

Table E-3

2006 Construction Period Noise Calculations for the Preferred Alternative Without Mitigation - Site 1

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/dav
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	
	Element 1																						
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	628	22.0	0	0	62	62	55	
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	59	59	55	
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	628	22.0	0	0	60	60	51	
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	628	22.0	0	0	66	66	64	
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	64	64	60	
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	628	22.0	0	0	61	61	60	
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	58	58	54	
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	63	63	59	
9	Impact Wrenches	Yes	No	85	20	98	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	628	22.0	0	0	76	76	73	
10	Pavement Breakers	Yes	No	88	4	94	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	72	72	68	
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	628	22.0	0	0	51	51	49	
12	80 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	55	46	40	
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	61	51	45	
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	71	62	56	
	Sum Element Noise Level																			79	78	75	71
	Element 2a																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	684	22.7	0	0	64	64	59	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	65	65	65	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	63	63	63	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	684	22.7	0	0	60	60	55	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	47	47	47	
6	26 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	50	40	40	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	54	44	44	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	63	53	53	
	Sum Element Noise Level																			71	69	68	64
	Element 2b																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	519	20.3	0	0	66	66	61	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	68	67	67	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	66	65	65	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	519	20.3	0	0	63	62	58	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	50	49	49	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	52	43	43	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	56	47	47	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	65	56	56	
	Sum Element Noise Level																			73	72	70	66
	Element 2c																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	619	21.9	0	0	65	64	60	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	66	66	66	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	64	64	64	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	619	21.9	0	0	61	61	56	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	48	48	48	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	51	41	41	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	55	45	45	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	64	54	54	
	Sum Element Noise Level																			71	70	69	65
	Element 3																						
1	Air Operated Grout Drills***	Yes	No	90	3	95	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	67	66	62	
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1266	28.1	0	0	54	53	49	
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	60	59	59	
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	58	57	57	
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	60	59	55	
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	52	51	47	
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	45	44	44	
8	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	45	35	35	
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	48	39	39	
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	57	47	47	
	Sum Element Noise Level																			69	68	65	61
	Element 4 (eliminated)																						
	Total Noise Level																			81	80		74
																				81.4	80.2		73.5

Notes:

* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. Is the noise emission level of the particular piece of equipment

U.F. Is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-4

2006 Construction Period Noise Calculations for the Preferred Alternative Without Mitigation - Site 2

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/day
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	
	Element 1																						
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	767	23.7	0	0	60	60	53	
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	57	57	53	
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	767	23.7	0	0	58	58	49	
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	767	23.7	0	0	64	64	63	
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	62	62	58	
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	767	23.7	0	0	59	59	58	
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	56	56	52	
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	61	61	57	
9	Impact Wrenches	Yes	No	85	20	98	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	767	23.7	0	0	74	74	71	
10	Pavement Breakers	Yes	No	88	4	94	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	70	70	66	
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	767	23.7	0	0	49	49	48	
12	80 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	54	44	38	
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	59	49	44	
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	69	60	54	
	Sum Element Noise Level																			78	76	73	69
	Element 2a																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1003	26.0	0	0	61	60	55	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	62	61	61	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	60	59	60	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1003	26.0	0	0	57	56	52	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	44	43	43	
6	26 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	46	37	37	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	50	41	41	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	59	50	50	
	Sum Element Noise Level																			67	66	65	60
	Element 2b																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	693	22.8	0	0	64	63	59	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	65	65	65	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	63	63	63	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	693	22.8	0	0	60	60	55	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	47	47	47	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	50	40	40	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	54	44	44	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	63	53	53	
	Sum Element Noise Level																			70	69	68	64
	Element 2c																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	298	15.5	0	0	71	71	66	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	72	72	72	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	71	70	70	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	298	15.5	0	0	68	67	63	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	54	54	54	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	57	48	48	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	61	51	51	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	70	60	60	
	Sum Element Noise Level																			78	76	75	71
	Element 3																						
1	Air Operated Grout Drills***	Yes	No	90	3	95	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	67	66	62	
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1261	28.0	0	0	54	53	49	
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	60	59	60	
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	58	57	58	
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	60	59	55	
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	52	51	47	
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	45	44	45	
8	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	45	35	35	
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	48	39	39	
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	57	47	47	
	Sum Element Noise Level																			69	68	66	61
	Element 4 (eliminated)																						
	Total Noise Level																			82	80		74
																				81.5	80.3		74.0

Notes:
* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).
Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding
E.L. is the noise emission level of the particular piece of equipment
U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period
D is the distance from the receiver to the piece of equipment, and
G is a constant that for topography and ground effects.
U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-5

2006 Construction Period Noise Calculations for the Preferred Alternative Without Mitigation - Site 3

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/day
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	
	Element 1																						
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	714	23.1	0	0	61	60	54	
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	58	57	54	
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	714	23.1	0	0	59	58	50	
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	714	23.1	0	0	65	64	63	
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	63	62	59	
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	714	23.1	0	0	60	59	59	
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	57	56	53	
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	62	61	58	
9	Impact Wrenches	Yes	No	85	20	98	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	714	23.1	0	0	75	74	72	
10	Pavement Breakers	Yes	No	88	4	94	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	71	70	67	
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	714	23.1	0	0	50	49	48	
12	80 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	54	45	39	
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	60	50	44	
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	70	61	55	
	Sum Element Noise Level																			78	77	74	70
	Element 2a																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	768	23.7	0	0	63	63	58	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	64	64	64	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	62	62	62	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	768	23.7	0	0	59	59	54	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	46	46	46	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	49	39	39	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	53	43	43	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	62	52	52	
	Sum Element Noise Level																			70	68	67	63
	Element 2b																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	823	24.3	0	0	62	62	57	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	64	63	63	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	62	61	61	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	823	24.3	0	0	59	58	54	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	46	45	45	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	48	39	39	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	52	43	43	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	61	52	52	
	Sum Element Noise Level																			69	68	66	62
	Element 2c																						
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	992	26.0	0	0	61	60	56	
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	62	62	62	
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	60	60	60	
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	992	26.0	0	0	57	57	52	
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	44	44	44	
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	47	37	37	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	50	41	41	
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	59	50	50	
	Sum Element Noise Level																			67	66	65	61
	Element 3																						
1	Air Operated Grout Drills***	Yes	No	90	3	95	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	86	85	81	
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	138	8.8	0	0	73	73	68	
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	79	79	79	
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	77	77	77	
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	79	79	74	
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	71	71	66	
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	64	64	64	
8	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	64	54	54	
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	68	58	58	
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	76	67	67	
	Sum Element Noise Level																			88	88	85	80
	Element 4 (eliminated)																						
	Total Noise Level																			89	88		81
																				89.0	88.1		81.0

Notes: * values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. is the noise emission level of the particular piece of equipment

U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-6

2006 Construction Period Noise Calculations for the Preferred Alternative Without Mitigation - Site 4

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/day
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	
	Element 1																						
1	Air Compressor for Impact Wrenches	Yes	Building	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	793	24.0	10	0	50	49	43	
2	Air Compressor for Pavement Breakers	Yes	Building	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	47	46	43	
3	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	793	24.0	10	0	48	47	39	
4	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	793	24.0	10	0	54	53	52	
5	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	52	51	48	
6	Hydraulic All-terrain Crane	Yes	Building	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	793	24.0	10	0	49	48	48	
7	Hydraulic Excavator with Hoe Ram	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	46	45	42	
8	Hydraulic Excavator with Thumb*	Yes	Building	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	51	50	47	
9	Impact Wrenches	Yes	Building	85	20	98	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	793	24.0	10	0	64	63	61	
10	Pavement Breakers	Yes	Building	88	4	94	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	60	60	56	
11	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	793	24.0	10	0	39	38	37	
12	80 Cars per day (1 HT = 47 Cars)	Yes	Building	68	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	43	34	28	
13	21 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	49	39	33	
14	66 Heavy Trucks per day	Yes	Building	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	59	50	44	
	Sum Element Noise Level																			67	66	63	59
	Element 2a																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	559	21.0	10	0	56	55	51	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	57	57	57	
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	55	55	55	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	559	21.0	10	0	52	52	47	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	39	39	39	
6	26 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	41	32	32	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	45	36	36	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	54	45	45	
	Sum Element Noise Level																			62	61	60	56
	Element 2b																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	863	24.7	10	0	52	52	47	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	53	53	53	
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	51	51	51	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	863	24.7	10	0	48	48	43	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	35	35	35	
6	26 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	38	28	28	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	42	32	32	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	51	41	41	
	Sum Element Noise Level																			59	57	56	52
	Element 2c																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1272	28.1	10	0	49	48	43	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	50	49	49	
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	48	47	47	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1272	28.1	10	0	45	44	40	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	32	31	31	
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	35	25	25	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	38	29	29	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	47	38	38	
	Sum Element Noise Level																			55	54	53	48
	Element 3																						
1	Air Operated Grout Drills***	Yes	Building	90	3	95	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	61	61	57	
2	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	741	23.4	10	0	49	48	43	
3	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	55	54	54	
4	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	53	52	52	
5	Pavement Breakers	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	55	54	50	
6	Backhoe	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	47	46	42	
7	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	40	39	39	
8	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	39	30	30	
9	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	43	33	33	
10	10 Heavy Trucks per day	Yes	Building	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	52	42	42	
	Sum Element Noise Level																			64	63	60	58
	Element 4 (eliminated)																						
	Total Noise Level																			70	69		62
																				70.2	69.1		62.3

Notes:
* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).
Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding
E.L. is the noise emission level of the particular piece of equipment
U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period
D is the distance from the receiver to the piece of equipment, and
G is a constant that for topography and ground effects.
U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-7

2006 Construction Period Noise Calculations for the Preferred Alternative Without Mitigation - Site 5

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/day
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	
	Element 1																						
1	Air Compressor for Impact Wrenches	Yes	Building	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	1034	26.3	10	0	48	47	40	
2	Air Compressor for Pavement Breakers	Yes	Building	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	45	44	40	
3	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	1034	26.3	10	0	46	45	37	
4	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	1034	26.3	10	0	52	51	50	
5	HI-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	50	49	45	
6	Hydraulic All-terrain Crane	Yes	Building	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	47	46	45	
7	Hydraulic Excavator with Hoe Ram	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	1034	26.3	10	0	44	43	39	
8	Hydraulic Excavator with Thumb*	Yes	Building	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	49	48	44	
9	Impact Wrenches	Yes	Building	85	20	98	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	1034	26.3	10	0	62	61	58	
10	Pavement Breakers	Yes	Building	88	4	94	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	58	57	53	
11	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	1034	26.3	10	0	37	36	35	
12	80 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	41	31	26	
13	21 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	46	37	31	
14	66 Heavy Trucks per day	Yes	Building	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	57	47	41	
	Sum Element Noise Level																			65	64	61	56
	Element 2a																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1138	27.1	10	0	50	49	44	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	51	50	50	
3	HI-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	49	48	48	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1138	27.1	10	0	46	45	41	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	33	32	32	
6	26 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	35	26	26	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	39	30	30	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	48	39	39	
	Sum Element Noise Level																			56	55	54	49
	Element 2b																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	921	25.3	10	0	51	51	46	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	53	52	52	
3	HI-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	51	50	50	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	921	25.3	10	0	48	47	43	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	35	34	34	
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	37	28	28	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	41	32	32	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	50	41	41	
	Sum Element Noise Level																			58	57	55	51
	Element 2c																						
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	814	24.2	10	0	53	52	47	
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	54	53	53	
3	HI-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	52	51	51	
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	814	24.2	10	0	49	48	44	
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	36	35	35	
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	39	29	29	
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	42	33	33	
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	51	42	42	
	Sum Element Noise Level																			59	58	57	52
	Element 3																						
1	Air Operated Grout Drills***	Yes	Building	90	3	95	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1665	30.4	10	0	54	54	50	
2	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1665	30.4	10	0	42	41	36	
3	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1665	30.4	10	0	48	47	47	
4	HI-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1665	30.4	10	0	46	45	45	
5	Pavement Breakers	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1665	30.4	10	0	48	47	43	
6	Backhoe	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1665	30.4	10	0	40	39	35	
7	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1665	30.4	10	0	33	32	32	
8	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1665	30.4	10	0	32	23	23	
9	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1665	30.4	10	0	36	26	26	
10	10 Heavy Trucks per day	Yes	Building	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1665	30.4	10	0	45	35	35	
	Sum Element Noise Level																			57	56	53	49
	Element 4 (elliminated)																						
	Total Noise Level																			67	66		60
																				67.4	66.1		59.5

Notes:

* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. is the noise emission level of the particular piece of equipment

U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-8

2006 Construction Period Noise Levels for the Preferred Alternative With Mitigation (in dBA)

Receptor Site	Existing Noise Level			Calculated Noise Level				FTA Criteria			
	Leq(1)	L10(1)	Ldn	Leq(1)	Leq(8)	Leq(30ds)	Ldn(30ds)	Land Use	Leq(8)	Leq(30ds)	*Ldn(30ds)
									80/85 (Res/Com)	80.0	75.0
1	72.9	77.8	74	80	78	72	72	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	
2	70.5	69.6	71	81	79	73	73	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	
3	67.3	69.5	72	86	84	79	79	Residential	Impact		No Impact
								Commercial	No Impact	No Impact	
4	72.5	73.5	70	68	67	61	61	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	
5	76.0	NA	79	66	64	58	58	Residential	No Impact		No Impact
								Commercial	No Impact	No Impact	

* If existing Ldn noise levels are greater than 65, the FTA Ldn impact criterion = existing Ldn + 10 dBA.

Table E-9

2006 Construction Period Noise Calculations for the Preferred Alternative With Mitigation - Site 1

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft			Usage factor for 1h			Usage factor for 8hs			Usage factor for 30ds			Distance Attenuation		Shielding Attenuation	Ground Factor	Leq (dBA)			Ldn/Leq (30d) Operating 9hs/day	Mitigation Method	Source
				dBA / Unit	Qty. / 1hr	Total dBA	1h	U.F.	10log (UF)	Hs / Day	U.F.	10log (UF)	Days / Year	U.F	10log (UF)	D (ft)	20log (D/50)			Leq(1)	Leq(8)	Leq(30) Operating 24hs/day			
	Element 1																								
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	628	22.0	0	0	62	62	55			
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	59	59	55			
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	628	22.0	0	0	60	60	51			
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	628	22.0	0	0	66	66	64			
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	64	64	60			
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	628	22.0	0	0	61	61	60			
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	58	58	54			
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	63	63	59			
9	Impact Wrenches	Yes	No	82	20	95	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	628	22.0	0	0	73	73	70		Use quieter wrenches (82 dBA at 50 feet)	Goodson Tools & Suppliers for Engine Builders, www.goodson.com, 1-800-533-8010
10	Pavement Breakers	Yes	No	75	4	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	628	22.0	0	0	59	59	55		Strap-on muffler enclosing the cylinder (13 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	628	22.0	0	0	51	51	49			
12	80 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	55	46	40			
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	61	51	45			
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	628	22.0	0	0	71	62	56			
	Sum Element Noise Level																			77	75	72	68		
	Element 2a																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	684	22.7	0	0	64	64	59			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	65	65	65			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	63	63	63			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	684	22.7	0	0	60	60	55			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	684	22.7	0	0	47	47	47			
6	26 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	50	40	40			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	54	44	44			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	684	22.7	0	0	63	53	53			
	Sum Element Noise Level																			71	69	68	64		
	Element 2b																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	519	20.3	0	0	66	66	61			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	68	67	67			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	66	65	65			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	519	20.3	0	0	63	62	58			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	519	20.3	0	0	50	49	49			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	52	43	43			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	58	47	47			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	519	20.3	0	0	65	56	56			
	Sum Element Noise Level																			73	72	70	66		
	Element 2c																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	619	21.9	0	0	65	64	60			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	66	66	66			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	64	64	64			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	619	21.9	0	0	61	61	56			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	619	21.9	0	0	48	48	48			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	51	41	41			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	55	45	45			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	619	21.9	0	0	64	54	54			
	Sum Element Noise Level																			71	70	69	65		
	Element 3																								
1	Air Operated Grout Drills***	Yes	No	72	3	77	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	48	48	44		Acoustical enclosure for the drill (18 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1266	28.1	0	0	54	53	49			
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	60	59	59			
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	58	57	57			
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	60	59	55			
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1266	28.1	0	0	52	51	47			
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1266	28.1	0	0	45	44	44			
8	26 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	45	35	35			
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	48	39	39			
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1266	28.1	0	0	57	47	47			
	Sum Element Noise Level																			66	65	63	59		
	Element 4 (eliminated)																								
	Total Noise Level																			80	78		72		
																				78.9	78.4		72.1		

Notes: * values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. is the noise emission level of the particular piece of equipment

U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-10

2006 Construction Period Noise Calculations for the Preferred Alternative With Mitigation - Site 2

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft dBA / Unit	Qty. / 1hr	Total dBA	Usage factor for 1h 1h	U.F.	10log (UF)	Usage factor for 8hs Hs / Day	U.F.	10log (UF)	Usage factor for 30ds Days / Year	U.F	10log (UF)	Distance Attenuation D (ft)	20log (D/50)	Shielding Attenuation	Ground Factor	Leq (dBA) Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	Ldn/Leq (30d) Operating 8hs/day	Mitigation Method	Source
	Element 1																								
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	767	23.7	0	0	60	60	53			
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	57	57	53			
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	767	23.7	0	0	58	58	49			
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	767	23.7	0	0	64	64	63			
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	62	62	58			
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	767	23.7	0	0	59	59	58			
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	56	56	52			
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	61	61	57			
9	Impact Wrenches	Yes	No	82	20	95	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	767	23.7	0	0	71	71	68		Use quieter wrenches (82 dBA at 50 feet)	Goodson Tools & Suppliers for Engine Builders, www.goodson.com, 1-800-533-8010
10	Pavement Breakers	Yes	No	75	4	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	767	23.7	0	0	57	57	53		Strap-on muffler enclosing the cylinder (13 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	767	23.7	0	0	49	49	48			
12	60 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	54	44	36			
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.6	88	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	59	49	44			
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	767	23.7	0	0	89	60	54			
	Sum Element Noise Level																			75	73	70	66		
	Element 2a																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1003	26.0	0	0	61	60	55			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	62	61	61			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	60	59	60			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1003	26.0	0	0	57	56	52			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1003	26.0	0	0	44	43	43			
6	26 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	46	37	37			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	50	41	41			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1003	26.0	0	0	58	50	50			
	Sum Element Noise Level																			67	66	65	60		
	Element 2b																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	693	22.8	0	0	64	63	59			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	65	65	65			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	63	63	63			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	693	22.8	0	0	60	60	55			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	693	22.8	0	0	47	47	47			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	50	40	40			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	54	44	44			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	693	22.8	0	0	63	53	53			
	Sum Element Noise Level																			70	69	68	64		
	Element 2c																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	298	15.5	0	0	71	71	66			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	72	72	72			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	71	70	70			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	298	15.5	0	0	68	67	63			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	298	15.5	0	0	54	54	54			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	57	46	46			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	61	51	51			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	298	15.5	0	0	70	60	60			
	Sum Element Noise Level																			78	78	75	71		
	Element 3																								
1	Air Operated Grout Drills***	Yes	No	72	3	77	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	49	48	44		Acoustical enclosure for the drill (18 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1261	28.0	0	0	54	53	49			
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	60	59	60			
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	58	57	58			
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	60	59	55			
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1261	28.0	0	0	52	51	47			
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1261	28.0	0	0	45	44	45			
8	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	45	35	35			
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	48	39	39			
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1261	28.0	0	0	57	47	47			
	Sum Element Noise Level																			66	65	63	59		
	Element 4 (eliminated)																								
	Total Noise Level																			81	79		73		
																				80.5	79.1		73.2		

Notes:
* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).
Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding
E.L. is the noise emission level of the particular piece of equipment
U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period
D is the distance from the receiver to the piece of equipment, and
G is a constant that for topography and ground effects.
U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-11
2006 Construction Period Noise Calculations for the Preferred Alternative With Mitigation - Site 3

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft dBA / Unit	Emission Level at 50 ft Qty. / 1hr	Emission Level at 50 ft Total dBA	Usage factor for 1h 1h	Usage factor for 1h U.F.	Usage factor for 1h 10log (UF)	Usage factor for 8hs Hs / Day	Usage factor for 8hs U.F.	Usage factor for 8hs 10log (UF)	Usage factor for 30ds Days / Year	Usage factor for 30ds U.F	Usage factor for 30ds 10log (UF)	Distance Attenuation D (ft)	Distance Attenuation 20log (D/50)	Shielding Attenuation	Ground Factor	Leq (dBA) Leq(1)	Leq (dBA) Leq(8)	Leq(30) Operating 24hs/day	Ldn/Leq (30d) Operating 9hs/day	Mitigation Method	Source
	Element 1																								
1	Air Compressor for Impact Wrenches	Yes	No	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	714	23.1	0	0	61	60	54			
2	Air Compressor for Pavement Breakers	Yes	No	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	58	57	54			
3	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	714	23.1	0	0	59	58	50			
4	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	714	23.1	0	0	65	64	63			
5	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	63	62	59			
6	Hydraulic All-terrain Crane	Yes	No	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	714	23.1	0	0	60	59	59			
7	Hydraulic Excavator with Hoe Ram	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	57	56	53			
8	Hydraulic Excavator with Thumb*	Yes	No	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	62	61	58			
9	Impact Wrenches	Yes	No	82	20	95	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	714	23.1	0	0	72	71	69		Use quieter wrenches (82 dBA at 50 feet)	Goodson Tools & Suppliers for Engine Builders, www.goodson.com, 1-800-533-8010
10	Pavement Breakers	Yes	No	75	4	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	714	23.1	0	0	58	57	54		Strap-on muffler enclosing the cylinder (13 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
11	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	714	23.1	0	0	50	49	48			
12	80 Cars per day (1 HT = 47 Cars)	Yes	No	86	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	54	45	39			
13	21 Light Trucks per day (1LH =13 Cars)	Yes	No	86	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	60	50	44			
14	66 Heavy Trucks per day	Yes	No	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	714	23.1	0	0	70	61	55			
	Sum Element Noise Level																			76	74	71	67		
	Element 2a																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	768	23.7	0	0	63	63	58			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	64	64	64			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	62	62	62			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	768	23.7	0	0	59	59	54			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	768	23.7	0	0	46	46	46			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	49	39	39			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	53	43	43			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	768	23.7	0	0	62	52	52			
	Sum Element Noise Level																			70	68	67	63		
	Element 2b																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	823	24.3	0	0	62	62	57			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	64	63	63			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	62	61	61			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	823	24.3	0	0	59	58	54			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	823	24.3	0	0	46	45	45			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	48	38	38			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	52	43	43			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	823	24.3	0	0	61	52	52			
	Sum Element Noise Level																			69	66	66	62		
	Element 2c																								
1	Concrete Pump	Yes	No	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	992	26.0	0	0	61	60	56			
2	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	62	62	62			
3	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	60	60	60			
4	Backhoe	Yes	No	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	992	26.0	0	0	57	57	52			
5	Welding Machines**	Yes	No	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	992	26.0	0	0	44	44	44			
6	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	47	37	37			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	50	41	41			
8	11 Heavy Trucks per day	Yes	No	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	992	26.0	0	0	59	50	50			
	Sum Element Noise Level																			67	66	65	61		
	Element 3																								
1	Air Operated Grout Drills***	Yes	No	72	3	77	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	68	67	63		Acoustical enclosure for the drill (18 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
2	Concrete Pump	Yes	No	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	138	8.8	0	0	73	73	68			
3	Crawler Crane	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	79	79	79			
4	Hi-Lift (Forklift)	Yes	No	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	77	77	77			
5	Pavement Breakers	Yes	No	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	79	79	74			
6	Backhoe	Yes	No	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	138	8.8	0	0	71	71	66			
7	Welding Machines**	Yes	No	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	138	8.8	0	0	64	64	64			
8	28 Cars per day (1 HT = 47 Cars)	Yes	No	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	64	54	54			
9	5 Light Trucks per day (1LH =13 Cars)	Yes	No	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	68	58	58			
10	10 Heavy Trucks per day	Yes	No	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	138	8.8	0	0	76	67	67			
	Sum Element Noise Level																			85	84	82	78		
	Element 4 (eliminated)																								
	Total Noise Level																			86	84		79		
																				85.7	84.5		78.6		

Notes: * values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. is the noise emission level of the particular piece of equipment

U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 8hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-12

2006 Construction Period Noise Calculations for the Preferred Alternative With Mitigation - Site 4

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft dBA / Unit	Qty. / 1hr	Total dBA	Usage factor for 1h 1h	U.F.	10log (UF)	Usage factor for 8hs Hs / Day	U.F.	10log (UF)	Usage factor for 30ds Days / Year	U.F	10log (UF)	Distance Attenuation D (ft)	20log (D/50)	Shielding Attenuation	Ground Factor	Leq (dBA) Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	Ldn/Leq (30d) Operating 9hs/day	Mitigation Method	Source
	Element 1																								
1	Air Compressor for Impact Wrenches	Yes	Building	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	793	24.0	10	0	50	49	43			
2	Air Compressor for Pavement Breakers	Yes	Building	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	47	46	40			
3	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	793	24.0	10	0	48	47	39			
4	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	793	24.0	10	0	54	53	52			
5	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	52	51	48			
6	Hydraulic All-terrain Crane	Yes	Building	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	793	24.0	10	0	49	48	48			
7	Hydraulic Excavator with Hoe Ram	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	46	45	42			
8	Hydraulic Excavator with Thumb*	Yes	Building	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	51	50	47			
9	Impact Wrenches	Yes	Building	82	20	95	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	793	24.0	10	0	61	60	58		Use quieter wrenches (82 dBA at 50 feet)	Goodson Tools & Suppliers for Engine Builders, www.goodson.com, 1-800-533-8010
10	Pavement Breakers	Yes	Building	75	4	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	793	24.0	10	0	47	47	43		Strap-on muffler enclosing the cylinder (13 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
11	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	793	24.0	10	0	39	38	37			
12	80 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	43	34	28			
13	21 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	49	39	33			
14	66 Heavy Trucks per day	Yes	Building	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	793	24.0	10	0	59	50	44			
	Sum Element Noise Level																			65	63	60	56		
	Element 2a																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	559	21.0	10	0	56	55	51			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	57	57	57			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	55	55	55			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	559	21.0	10	0	52	52	47			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	559	21.0	10	0	39	39	39			
6	26 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	41	32	32			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	45	36	36			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	559	21.0	10	0	54	45	45			
	Sum Element Noise Level																			62	61	60	56		
	Element 2b																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	863	24.7	10	0	52	52	47			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	53	53	53			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	51	51	51			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	863	24.7	10	0	48	48	43			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	863	24.7	10	0	35	35	35			
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	38	28	28			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	42	32	32			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	863	24.7	10	0	51	41	41			
	Sum Element Noise Level																			59	57	56	52		
	Element 2c																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1272	28.1	10	0	49	48	43			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	50	49	49			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	48	47	47			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1272	28.1	10	0	45	44	40			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1272	28.1	10	0	32	31	31			
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	35	25	25			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	38	29	29			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1272	28.1	10	0	47	38	38			
	Sum Element Noise Level																			55	54	53	48		
	Element 3																								
1	Air Operated Grout Drills***	Yes	Building	72	3	77	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	43	43	39		Acoustical enclosure for the drill (18 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
2	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	741	23.4	10	0	49	48	43			
3	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	55	54	54			
4	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	53	52	52			
5	Pavement Breakers	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	55	54	50			
6	Backhoe	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	741	23.4	10	0	47	46	42			
7	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	741	23.4	10	0	40	39	39			
8	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	39	30	30			
9	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	43	33	33			
10	10 Heavy Trucks per day	Yes	Building	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	741	23.4	10	0	52	42	42			
	Sum Element Noise Level																			60	59	58	53		
	Element 4 (eliminated)																								
	Total Noise Level																			68	67		61		
																				68.4	66.9		60.7		

Notes: * values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).

Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding

E.L. is the noise emission level of the particular piece of equipment

U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period

D is the distance from the receiver to the piece of equipment, and

G is a constant that for topography and ground effects.

U.F.: Equipment runs 9hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-13

2006 Construction Period Noise Calculations for the Preferred Alternative With Mitigation - Site 5

Noise Source	Equipment	Hard Ground	Shielding	Emission Level at 50 ft: dBA / Unit	Qty. / 1hr	Total dBA	Usage factor for 1h: 1h	U.F.	10log (UF)	Usage factor for 8hs: Hs / Day	U.F.	10log (UF)	Usage factor for 30d: Days / Year	U.F	10log (UF)	Distance Attenuation: D (ft)	20log (D/50)	Shielding Attenuation	Ground Factor	Leq (dBA): Leq(1)	Leq(8)	Leq(30) Operating 24hs/day	Ldn/Leq (30d) Operating 9hs/day	Mitigation Method	Source
	Element 1																								
1	Air Compressor for Impact Wrenches	Yes	Building	81	2	84	1.0	1.0	0.0	8.0	0.9	-0.5	54	0.2	-7.3	1034	26.3	10	0	48	47	40			
2	Air Compressor for Pavement Breakers	Yes	Building	81	1	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	45	44	40			
3	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	36	0.1	-9.0	1034	26.3	10	0	46	45	37			
4	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	1034	26.3	10	0	52	51	50			
5	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	50	49	45			
6	Hydraulic All-terrain Crane	Yes	Building	83	1	83	1.0	1.0	0.0	8.0	0.9	-0.5	211	0.7	-1.4	1034	26.3	10	0	47	46	45			
7	Hydraulic Excavator with Hoe Ram	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	44	43	39			
8	Hydraulic Excavator with Thumb*	Yes	Building	85	1	85	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	49	48	44			
9	Impact Wrenches	Yes	Building	82	20	95	1.0	1.0	0.0	8.0	0.9	-0.5	134	0.5	-3.3	1034	26.3	10	0	59	58	55		Use quietor wrenches (82 dBA at 50 feet)	Goodson Tools & Suppliers for Engine Builders, www.goodson.com, 1-800-533-8010
10	Pavement Breakers	Yes	Building	75	4	81	1.0	1.0	0.0	8.0	0.9	-0.5	108	0.4	-4.3	1034	26.3	10	0	45	44	40		Strap-on muffler enclosing the cylinder (13 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
11	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	194	0.7	-1.7	1034	26.3	10	0	37	36	35			
12	80 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.2	80	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	41	31	26			
13	21 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.6	86	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	46	37	31			
14	66 Heavy Trucks per day	Yes	Building	88	6.6	96	0.5	0.5	-3.0	0.5	0.1	-12.6	75	0.0	-18.4	1034	26.3	10	0	57	47	41			
	Sum Element Noise Level																			63	61	58	54		
	Element 2a																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1138	27.1	10	0	50	49	44			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	51	50	50			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	49	48	48			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1138	27.1	10	0	46	45	41			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1138	27.1	10	0	33	32	32			
6	26 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	75	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	35	26	26			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	39	30	30			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1138	27.1	10	0	48	39	39			
	Sum Element Noise Level																			56	55	54	49		
	Element 2b																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	921	25.3	10	0	51	51	46			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	53	52	52			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	51	50	50			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	921	25.3	10	0	48	47	43			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	921	25.3	10	0	35	34	34			
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	37	28	28			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	41	32	32			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	921	25.3	10	0	50	41	41			
	Sum Element Noise Level																			58	57	55	51		
	Element 2c																								
1	Concrete Pump	Yes	Building	82	3	87	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	814	24.2	10	0	53	52	47			
2	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	54	53	53			
3	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	52	51	51			
4	Backhoe	Yes	Building	80	2	83	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	814	24.2	10	0	49	48	44			
5	Welding Machines**	Yes	Building	70	1	70	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	814	24.2	10	0	36	35	35			
6	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	39	29	29			
7	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	42	33	33			
8	11 Heavy Trucks per day	Yes	Building	88	1.1	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	814	24.2	10	0	51	42	42			
	Sum Element Noise Level																			59	58	57	52		
	Element 3																								
1	Air Operated Grout Drills***	Yes	Building	72	3	77	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1685	30.4	10	0	36	36	32		Acoustical enclosure for the drill (18 dBA reduction)	Worker's Compensation Board of BC, Engineering Section Report
2	Concrete Pump	Yes	Building	82	1	82	1.0	1.0	0.0	8.0	0.9	-0.5	86	0.3	-5.2	1685	30.4	10	0	42	41	36			
3	Crawler Crane	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1685	30.4	10	0	48	47	47			
4	Hi-Lift (Forklift)	Yes	Building	83	2	86	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1685	30.4	10	0	46	45	45			
5	Pavement Breakers	Yes	Building	88	1	88	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1685	30.4	10	0	48	47	43			
6	Backhoe	Yes	Building	80	1	80	1.0	1.0	0.0	8.0	0.9	-0.5	95	0.3	-4.8	1685	30.4	10	0	40	39	35			
7	Welding Machines**	Yes	Building	70	2	73	1.0	1.0	0.0	8.0	0.9	-0.5	259	0.9	-0.5	1685	30.4	10	0	33	32	32			
8	28 Cars per day (1 HT = 47 Cars)	Yes	Building	88	0.1	76	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1685	30.4	10	0	32	23	23			
9	5 Light Trucks per day (1LH =13 Cars)	Yes	Building	88	0.1	79	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1685	30.4	10	0	36	28	28			
10	10 Heavy Trucks per day	Yes	Building	88	1.0	88	0.5	0.5	-3.0	0.5	0.1	-12.6	288	0.1	-12.6	1685	30.4	10	0	45	35	35			
	Sum Element Noise Level																			53	52	51	46		
	Element 4 (eliminated)																								
	Total Noise Level																			66	64		58		
																				65.9	64.4		58.2		

Notes:
* values from Louis Berger Group, ** values from estimated, and *** values from Swedish National Road and Transport Research Institute (VTI).
Sound Pressure Level Leq = E.L. + 10log(U.F) - 20log(D/50) - 10Glog(D/50) - Shielding
E.L. is the noise emission level of the particular piece of equipment
U.F. is an usage factor that accounts for the fraction of time that the equipment is in use over the specified time period
D is the distance from the receiver to the piece of equipment, and
G is a constant that for topography and ground effects.
U.F.: Equipment runs 8hs during 10hs daytime, and x days per year (see Chapter 3). The vehicle runs 0.5h per day, and 288 days per year.

Table E-8
Operational Transit Noise Calculations

Existing Noise Exposures	
Category 1 and 2	
Impact	65.30
Severe Impact	65.30
Category 3	
Impact	65.30
Severe Impact	65.30

Threshold of Impact - Land Use Categories 1 and 2

L_E<42	Lp=	11.450+0.953LE		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	61.0
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Categories 1 and 2

L_E<44	Lp=	17.322+0.940LE		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	66.4
L_E >77	Lp=	75		

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	66.0
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043xx10^{-4}L_E^3$	=	71.4
L_E >77	Lp=	80		

where: L_E is the existing noise exposure
Lp is the project-generated noise exposure

Table E-8 (Continued)
Operational Transit Noise Calculations

EXISTING CONDITION

Computation of Noise Exposure at 50 feet - Peak Hour[1]

LOCOMOTIVES

$L_{eqL\ (peak)}$	=	*SEL ref*	+	*10log(N_{locos})*	-	*10log(S/50)*	+	*10log(Vp)*	-	*35.6*
	=	90.0	+	0.0	-	-7.0	+	14.8	-	35.6
	=	0.0								

CARS (SEL ref for Rail Cars)

$L_{eqC\ (Peak)}$	=	*SEL ref*	+	*10log(N_{cars})*	+	*20log(S/50)*	+	*10log(Vp)*	-	*35.6*
	=	82.0		13.0	+	-14.0	+	14.8	-	35.6
	=	60.2								

COMBINED

WITHOUT WARNING HORNS

$L_{eq\ (Peak)}$	=	*10log*	[	*10^($L_{eqL(day)}$/10)*	+	*0^($L_{eqC(day)}$/1(*	]
	=	60.2					

Existing Noise Monitoring at Parks

Park	Leq	Year	Performed by
Vietnam Veteran Plaza	66.9	2000	AKRF
A park on Water St. btw Fulton & Beek Streets	68.8	1997	AKRF
Seward Park	66:9	1997	AKRF
Battery Park	68.0	1995	AKRF
Hudson River Park	66.1	1996	AKRF
Battery Park City	65.3	1996	AKRF

where:			
	SELref (Electric)	=	90.0
	SELref Warning Horn(Transit Car)	=	93.0
	SELref (Cars)	=	82.0
	Nlocos = average number of locomotives per train	=	0.0
	Ncars = average number of cars per train	=	20.0
	S = train speed, in miles per hour	=	10.0
	Vp = number of trains	=	30.0

ON SITE

Leq (Train)[1]	=	L_{eq}	+	Reflection	-	Attenuation
	=	60.2		6.0		25.0
	=	41.2				

Existing Measured = 65.3 (estimated existing noise level)

Note:

1. Estimated a distance between the ground level and the PATH tracks would be 50 feet.

Table E-8 (Continued)
Operational Transit Noise Calculations

BUILD CONDITION

Computation of Noise Exposure at 50 feet - Peak Hour[1]

LOCOMOTIVES

$L_{eqL\ (peak)}$	=	*SEL ref*	+	*10log(N_{locos})*	-	*10log(S/50)*	+	*10log(Vp)*	-	*35.6*
	=	90.0	+	0.0	-	-7.0	+	14.8	-	35.6
	=	0.0								

CARS (SEL ref for Rail Cars)

$L_{eqC\ (Peak)}$	=	*SEL ref*	+	*10log(N_{cars})*	+	*20log(S/50)*	+	*10log(Vp)*	-	*35.6*
	=	82.0		13.0	+	-14.0	+	14.8	-	35.6
	=	60.2								

COMBINED

WITHOUT WARNING HORNS

$L_{eq\ (Peak)}$	=	*10log*	[	*10^($L_{eqL(day)}$/10)*	+	*10^($L_{eqC(day)}$/10)*	]	
	=	60.2						

where:

SELref (Electric)	=	90.0
SELref Warning Horn(Transit Car)	=	93.0
SELref (Cars)	=	82.0
Nlocos = average number of locomotives per train	=	0.0
Ncars = average number of cars per train	=	20.0
S = train speed, in miles per hour	=	10.0
Vp = number of trains	=	30.0

ON SITE

Leq (Train)[1]	=	L_{eq}	+	Reflection	-	Attenuation
	=	60.2		6.0		25.0
	=	41.2				
Leq (Equipment)[2]	=	50.0				
Total	=	50.5				

Note:
1. Estimated a distance between the ground level and the PATH tracks would be 50 feet.
2. Noise from mechanical equipment operations, i.e., substations, HVAC equipment, etc. (estimated no exceed 50 dBA)

Table E-8 (Continued)
Operational Transit Noise Calculations

TRAIN NOISE ANALYSIS RESULTS

	Descriptor	Existing (dBA)	Build Increment (dBA)	FTA Impact Criterion (dBA)	Impact?	Total Build (dBA)
Memorial Site (Category 1)	Leq	65.3	50.5	61.0	No	65.4

TRAIN INPUT (Existing & Build)

Location	Peak Hour	Number of Trains			Locomotive	Number of Cars		Speed
	# of Trains	# of Cars	7am-10pm	10pm-7am	per train	7am-10pm	10pm-7am	(mph)
Memorial Site	30	20	0	0	0	0	0	10

15

Table E-9

Operational Period: Train Vibration Impact Calculations

WTC Memorial receptor located 50 feet from PATH tracks									Vibration			Ground-Borne Noise		
Equivalent Land Use	Reference Vibration Level Lv, at 10 feet	Distance Adjustment 20log(10/50)	Tunnel Founded In Rock	Track Crossover	Foundation Coupling (Founded in Rock)	Resonance Amplification	Floor to floor Attenuation -2 dB/floor	Radiated Sound Adjustment	Vibration Level (VdB)	Lowest Impact Criterion (VdB)	Impact?	Noise Level dB	Lowest Impact Criterion (dBA)	Impact?
Concert Halls TV Studios Recording Studios	81.0	-14.0	-15.0	10.0	0.0	6.0	-8.0	-20.0	60.0	65.0	No	40.0	25.0	Yes

Appendix F

Contaminated Materials

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

WORLD TRADE CENTER
NEW YORK, NY 10007

COORDINATES

Latitude (North):	40.711500 - 40° 42' 41.4"
Longitude (West):	74.012450 - 74° 0' 44.8"
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	583418.4
UTM Y (Meters):	4506989.0
Elevation:	11 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2440074-F1 JERSEY CITY, NJ NY
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
CORRACTS ..... Corrective Action Report
RCRIS-TSD ..... Resource Conservation and Recovery Information System

STATE ASTM STANDARD

SHWS ..... Inactive Hazardous Waste Disposal Sites in New York State
CBS UST ..... Chemical Bulk Storage Database
MOSF UST ..... Major Oil Storage Facilities Database

EXECUTIVE SUMMARY

SWTIRE..... Registered Waste Tire Storage & Facility List
SWRCY..... Registered Recycling Facility List

FEDERAL ASTM SUPPLEMENTAL

CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
HMIRS..... Hazardous Materials Information Reporting System
MLTS..... Material Licensing Tracking System
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens
PADS..... PCB Activity Database System
US BROWNFIELDS..... A Listing of Brownfields Sites
DOD..... Department of Defense Sites
RAATS..... RCRA Administrative Action Tracking System
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
SSTS..... Section 7 Tracking Systems
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

HSWDS..... Hazardous Substance Waste Disposal Site Inventory

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

BROWNFIELDS DATABASES

US BROWNFIELDS..... A Listing of Brownfields Sites
Brownfields..... Brownfields Site List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Done

FEDERAL ASTM STANDARD

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).
CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 06/16/2003 has revealed that there is 1 CERCLIS site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
EPA BUILDING	290 BROADWAY	1/4 - 1/2 ENE	AP217	254

CERCLIS-NFRAP: As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund Action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

A review of the CERC-NFRAP list, as provided by EDR, and dated 06/11/2003 has revealed that there is 1 CERC-NFRAP site within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
RADIUM LUMINOUS MATERIALS CO	55 LIBERTY STREET	1/4 - 1/2 SE	AD162	202

Done

RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRIS-LQG list, as provided by EDR, and dated 07/11/2003 has revealed that there are 8 RCRIS-LQG sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MTA NYCT - WORLD TRADE CENTER	*PARK PL & CHURCH ST*	*1/8 - 1/4 NE*	*M121*	*158*
222 BROADWAY LLC	*222 BROADWAY*	*1/8 - 1/4 E*	*R129*	*170*
MTA NYCT - RECTOR STREET STATI	*RECTOR & GREENWICH ST*	*1/4 - 1/2 SSW*	*AA154*	*195*
MTA NYCT - CITY HALL STATION	*BROADWAY & MURRAY ST*	*1/4 - 1/2 ENE*	*AE171*	*208*
TRIBECA CONDOMINIUM THE	*303 GREENWICH ST*	*1/4 - 1/2 NNE*	*AI185*	*225*
ANACOMP INC	*157 CHAMBERS ST - 2ND F*	*1/4 - 1/2 NNE*	*AN198*	*240*

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
CUSHMAN & WAKEFIELD - AMER	*200 VESEY ST*	*1/8 - 1/4 NNW*	*J87*	*113*
BLACK DIAMOND LLC	*19 RECTOR ST*	*1/4 - 1/2 SSW*	*T153*	*195*

RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRIS-SQG list, as provided by EDR, and dated 07/11/2003 has revealed that there are 62 RCRIS-SQG sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
US CUSTOMS LABORATORY	*6 WORLD TRADE CENTER RM*	*0 - 1/8 E*	*A7*	*15*
FUJI PHOTO FILM USA INC	*3 WORLD TRADE CTR - HH*	*0 - 1/8 E*	*A8*	*16*
US CUSTOMS HOUSE	*6 WORLD TRADE CENTER-BA*	*0 - 1/8 E*	*A9*	*16*
METROPOLITAN LIFE INSURANCE CO	*22 CORTLANDT ST*	*0 - 1/8 SE*	*F27*	*39*
130 LIBERTY STREET LLC	*130 LIBERTY ST*	*0 - 1/8 SSE*	*G39*	*57*
CON EDISON - BARCLAY STREET SU	*66 BARCLAY ST*	*1/8 - 1/4 NNE*	*I56*	*79*
CON EDISON - DEY STREET SERVIC	*2 DEY ST*	*1/8 - 1/4 ESE*	*O96*	*121*
195 PROPERTY ASSOCIATES	*195 BROADWAY*	*1/8 - 1/4 ESE*	*O98*	*123*
NYCTA - FULTON STREET STATION	*BROADWAY & FULTON ST*	*1/8 - 1/4 ESE*	*O104*	*138*
CONTRACT APPLICATIONS INC	*75 PARK PL*	*1/8 - 1/4 NNE*	*K109*	*143*
NYCTA - SPECIAL EQUIP LUBRICAT	*400 CHURCH ST & PARK PL*	*1/8 - 1/4 NE*	*Y136*	*181*
68 TRINITY PLACE MEZZANINE	*68 TRINITY PL*	*1/8 - 1/4 S*	*AA139*	*184*
120 CHURCH STREET IRS SERVICE	*120 CHURCH STEET*	*1/8 - 1/4 NE*	*Y140*	*184*
140 BROADWAY MSDW PROPERTIES L	*140 BROADWAY*	*1/8 - 1/4 SSE*	*S141*	*185*
EQUITABLE TOWER SILVERSTEIN LL	*120 BROADWAY*	*1/8 - 1/4 SSE*	*X144*	*187*
NEW YORK CITY SPORTSMANS CLUB	*24 MURRAY ST*	*1/4 - 1/2 ENE*	*Y151*	*194*
MTA NYCT - JOHN STREET PUMP RO	*JOHN & NASSAU ST*	*1/4 - 1/2 ESE*	*W152*	*195*
MTA NYCT - RECTOR STREET PUMP	*RECTOR ST & TRINITY PL*	*1/4 - 1/2 S*	*AA156*	*197*
KOSHERS HARRY	*93 NASSAU ST*	*1/4 - 1/2 ESE*	*AB158*	*199*
NYCTA	*WALL ST & BROADWAY*	*1/4 - 1/2 S*	*AC159*	*200*
FEDERAL RESERVE BANK	*33 LIBERTY ST*	*1/4 - 1/2 SE*	*AD161*	*201*
CON EDISON - 1 WALL ST	*1 WALL ST*	*1/4 - 1/2 SSE*	*AC164*	*203*
CITY OF NEW YORK THE	*253 BROADWAY 6TH FLOOR*	*1/4 - 1/2 ENE*	*AE167*	*205*
NYC DEPT OF GENERAL SERVICE	*253 BROADWAY - ROOM 130*	*1/4 - 1/2 ENE*	*AE168*	*206*
EQUITABLE BLUEPRINT & PHOTOPRI	*116 NASSAU ST*	*1/4 - 1/2 E*	*170*	*207*
NYCHA - CENTRAL OFFICE	*250 BROADWAY*	*1/4 - 1/2 ENE*	*AE172*	*208*
NEW YORK STOCK EXCHANGE	*11 WALL ST*	*1/4 - 1/2 SSE*	*AG177*	*215*
FIRST TECHNOLOGIES INC	*14 WALL ST*	*1/4 - 1/2 SSE*	*AG179*	*216*
MORGAN GUARANTY TRUST CO	*15 BROAD ST*	*1/4 - 1/2 SSE*	*AG180*	*216*
WINTOR PRESS DBA MINUTEMAN PRE	*157 CHAMBERS ST*	*1/4 - 1/2 NNE*	*AI183*	*223*
CHASE MANHATTAN BANK	*1 CHASE MANHATTAN PLZ*	*1/4 - 1/2 SE*	*AJ187*	*227*
CHASE MANHATTAN BANK	*1 CHASE PLZ BASEMENT 2*	*1/4 - 1/2 SE*	*AJ188*	*228*
CON EDISON - CHASE PLAZA	*1 CHASE PL*	*1/4 - 1/2 SE*	*AJ189*	*228*
MC WALTERS J P INC	*106 FULTON ST*	*1/4 - 1/2 ESE*	*AK191*	*230*
PACE UNIVERSITY HASKINS LAB	*41 PARK ROW*	*1/4 - 1/2 E*	*AH192*	*230*

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NATIONAL PARK SERVICE	*26 WALL ST - FEDERAL HA*	*1/4 - 1/2 SSE*	*AG193*	*231*
SEA-PATH MEDICAL LABORATORY	*150 NASSAU ST*	*1/4 - 1/2 E*	*AH195*	*232*
270 BROADWAY ASSOCIATES LLC	*270 BROADWAY*	*1/4 - 1/2 ENE*	*AO201*	*242*
ALMARK HOLDING CO - EMPTY LOT	*121 READE ST*	*1/4 - 1/2 NE*	*206*	*246*
CON EDISON - 65TH FLOOR VAULT	*40 WALL ST*	*1/4 - 1/2 SSE*	*208*	*248*
MRC MGMT LLC - 20 BROAD STREET	20 BROAD ST	1/4 - 1/2 SSE	209	248
NEW YORK CITY PUBLIC DEVELOPME	*161 WILLIAMS ST*	*1/4 - 1/2 ESE*	*AK210*	*248*
NYC TWEED COURTHOUSE	*52 CHAMBERS ST*	*1/4 - 1/2 ENE*	*AO212*	*250*
NEW YORK DOWNTOWN HOSPITAL	*170 WILLIAM ST*	*1/4 - 1/2 ESE*	*213*	*250*

Lower Elevation	Address	Dist / Dir	Map ID	Page
EBASCO SERVICES INC	*TWO WORLD TRADE CENTER*	*0 - 1/8 WNW*	*C13*	*20*
NYNEX MATERIEL ENTERPRISES CO	*2 WORLD TRADE CENTER*	*0 - 1/8 WNW*	*C14*	*21*
ZIM-AMERICAN ISRAELI SHIPPING	*1 WORLD TRADE CTR STE 2*	*0 - 1/8 WSW*	*E29*	*41*
WPIX FM & TV TRANSMITTER	*#1 WORLD TRADE CENTER*	*0 - 1/8 WSW*	*E30*	*41*
EVERGREEN MARINE CORP	*1 WORLD TRADE CENTER RM*	*0 - 1/8 WSW*	*E34*	*53*
MERRILL LYNCH & CO	*225 LIBERTY ST*	*0 - 1/8 WSW*	*E35*	*53*
FITCH GRAPHICS	*130 CEDAR ST*	*0 - 1/8 SSW*	*H43*	*66*
REALISTIC PRINTING CORP	*130 CEDAR ST7TH FLOOR*	*0 - 1/8 SSW*	*H46*	*70*
CON EDISON AT BELL ATLANTIC	*140 WEST ST*	*1/8 - 1/4 NNW*	*J83*	*110*
NEW YORK TELEPHONE CO	*140 WEST ST*	*1/8 - 1/4 NNW*	*J86*	*113*
BATTERY PARK CC TOWERA	*200 LIBERTY ST*	*1/8 - 1/4 WSW*	*N88*	*114*
BROOKFIELD PROPERTIES LLC	*1 LIBERTY PLAZA*	*1/8 - 1/4 WSW*	*N89*	*114*
OLYMPIA & YORK PROPERTIES	*200 LIBERTY ST*	*1/8 - 1/4 WSW*	*N90*	*115*
75 WEST CONSTRUCTION CORP	*110 WASHINGTON ST*	*1/8 - 1/4 SSW*	*T127*	*169*
MERRILL LYNCH WORLD FINANCIAL	*250 VESEY ST*	*1/4 - 1/2 NW*	*166*	*205*
BATTERY PARK CITY PARKS CORP	*2 S END AVE 1ST FLOOR W*	*1/4 - 1/2 SW*	*AL194*	*231*
FOUR SEASONS DRY CLEANERS	*21 SOUTH END AVE*	*1/4 - 1/2 SW*	*AL204*	*245*
SOUTH COVE CLEANER	*2 S END AVE*	*1/4 - 1/2 SW*	*AL211*	*249*

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 12/31/2002 has revealed that there are 2 ERNS sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
HUDSON RIVER CLOSE TO WORLD TR	HUDSON RIVER CLOSE TO W	0 - 1/8 ENE	A1	6
72 S 1 WORLD TRADE CENTER	72 S 1 WORLD TRADE CENT	0 - 1/8 ENE	A2	6

STATE ASTM STANDARD

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the list.

A review of the SWF/LF list, as provided by EDR, has revealed that there are 6 SWF/LF sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
EDGEMERE SLF	125 WORTH STREET	1/2 - 1 NE	AU231	280

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
PENNSYLVANIA AVE DEMO SLF	125 WORTH STREET	1/2 - 1 NE	AU232	280
FERRY POINT SLF	125 WORTH STREET	1/2 - 1 NE	AU234	282
FOUNTAIN AVENUE SLF	125 WORTH STREET	1/2 - 1 NE	AU235	282
BROOKFIELD AVENUE SLF	125 WORTH STREET	1/2 - 1 NE	AU236	283
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
BERGEN BASIN FUEL	1 WORLD TRADE CENTER	0 - 1/8 WSW	E32	45

LTANKS: Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills

A review of the LTANKS list, as provided by EDR, and dated 01/01/2002 has revealed that there are 33 LTANKS sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NEW YORK CITY FD ENG 10	124 LIBERTY ST	0 - 1/8 SSE	G42	65
82-23 BROADWAY/QUNS/NYTEL	82-23 BROADWAY	1/4 - 1/2 S	AC165	204
75 WARREN ST	75 WARREN ST	1/4 - 1/2 NE	169	206
1 NASSAU PL/S.I/ATNT NASS	1 NASSAU PLACE	1/4 - 1/2 SSE	AG182	222
63=07 BROADWAY/QUNS/EXXON	63-07 BROADWAY	1/4 - 1/2 S	AM196	232
55-02 BROADWAY	55-02 BROADWAY	1/4 - 1/2 S	AM207	247
READE-CHURCH EQUITIES	78 - 82 READE ST	1/4 - 1/2 NE	214	250
49-60 BROADWAY	49-60 BROADWAY	1/4 - 1/2 S	AM215	251
32-12 BROADWAY/CHASE MANH	32-12 BROADWAY	1/4 - 1/2 S	216	252
OVERFILL ON NEW ST&BEAVER	50 NEW ST.BY BEAVER ST.	1/4 - 1/2 S	AQ218	254
62 THOMAS STREET	***62 THOMAS STREET***	***1/4 - 1/2 NE***	***219***	***255***
305 BROADWAY/MANHATTAN	305 BROADWAY	1/4 - 1/2 NE	AP220	257
60 BROAD ST/MANH/MCI BLDG	60 BROAD STREET	1/4 - 1/2 S	AQ221	258
60 BROAD ST/NEW YORK/RCA	60 BROAD ST.	1/4 - 1/2 S	AQ222	259
AT & T	33 THOMAS ST	1/4 - 1/2 NE	AR224	265
Not reported	16 LAFAYETTE ST	1/2 - 1 ENE	AS227	276
NYC PD HEADQUATERS	1 POLICE PLAZA	1/2 - 1 E	AT228	277
51 LEONARD STREET	51 LEONARD STREET	1/2 - 1 NE	229	278
NYPD	109 PARK ROW	1/2 - 1 E	AT230	279
Not reported	125 WORTH ST	1/2 - 1 NE	AU233	281
60 CENTRE ST	60 CENTRE ST	1/2 - 1 ENE	AV237	283
250 CHURCH ST	250 CHURCH ST	1/2 - 1 NE	239	284
Not reported	211 WEST BROADWAY	1/2 - 1 NNE	242	288
SMITH	***7 ST JAMES PLACE***	***1/2 - 1 E***	***AW243***	***289***
SMITH HOUSES	***3 ST. JAMES PLACE***	***1/2 - 1 E***	***AW244***	***291***
358 BROADWAY	59 FRANKLIN ST	1/2 - 1 NE	AX245	302
54 FRANKLIN ST/BKLYN	54 FRANKLIN ST	1/2 - 1 NE	AX246	303
80 CENTRE ST/STATE OFFICE	80 CENTRE ST	1/2 - 1 ENE	247	304
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
CHECKER SERVICE STA. INC	165-25 LIBERTY AVE	0 - 1/8 SSW	B12	19
90 WEST ST	90 WEST ST	1/8 - 1/4 SW	L79	106
BARCLAYS BANK BUILDING	***75 WALL ST***	***1/4 - 1/2 SSE***	***226***	***273***
38 PEARL ST/MANHATTAN	38 PEARL STREET	1/2 - 1 S	240	286
34 STATE RD./BREEZY PT./S	34 STATE RD.	1/2 - 1 S	241	287

EXECUTIVE SUMMARY

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 37 UST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
ENGINE 10 / LADDER 10	***124 LIBERTY STREET***	***0 - 1/8 SSE***	***G41***	***59***
THE BANK OF NEW YORK	101 BARCLAY ST	1/8 - 1/4 NNE	I70	94
176 BWAY OWNERS	176 BROADWAY	1/8 - 1/4 SE	Q95	120
195 BROADWAY	195 BROADWAY(BETWEEN DE	1/8 - 1/4 ESE	O99	123
170 BROADWAY	***170 BROADWAY***	***1/8 - 1/4 SE***	***Q100***	***131***
WFP ONE LIBERTY PLAZA CO., L.P	***165 BROADWAY***	***1/8 - 1/4 SE***	***Q103***	***136***
COLLEGIATE CHURCH CORPORATION	198 BROADWAY	1/8 - 1/4 ESE	O107	140
160 BROADWAY	160 BROADWAY	1/8 - 1/4 SE	Q111	144
15 PARK ROW	15 PARK ROW	1/8 - 1/4 E	R125	162
225 BROADWAY	225 BROADWAY	1/8 - 1/4 E	V133	178
INSURANCE SOCIETY OF NY	101 MURRAY STREET	1/8 - 1/4 NNE	Z142	185
87 NASSAU STREET	87 NASSAU STREET	1/4 - 1/2 ESE	AB155	196
THE FRANKLIN BUILDING CONDOMIN	9-15 MURRAY STREET	1/4 - 1/2 ENE	AE163	202
HIGHLAND DEVELOPMENT LLC	71 BROADWAY	1/4 - 1/2 S	AC173	209
31 PARK ROW	31 PARK ROW	1/4 - 1/2 E	AH178	215
BATTERY PARKING GARAGE	***70 GREENWICH STREET***	***1/4 - 1/2 SSW***	***181***	***217***
HUDSON-CHAMBERS CO	157 CHAMBERS ST	1/4 - 1/2 NNE	AI184	223
CHASE MANHATTAN BANK	ONE CHASE MANHATTAN PLA	1/4 - 1/2 SE	AJ186	225
38 PARK ROW RESIDENCE CORP	145 NASSAU ST	1/4 - 1/2 E	AH190	229
SHANGHAI COMMERCIAL BANK BLDG	135 WILLIAM STREET	1/4 - 1/2 ESE	AK199	240
KEVIN J STEPHEN CORP	13 HUDSON ST	1/4 - 1/2 NNE	AN200	241
ARTHUR LEVITT SOB	270 BROADWAY	1/4 - 1/2 ENE	AO202	243
ONE HUDSON PARK	16 HUDSON STREET	1/4 - 1/2 NNE	AN205	245

Lower Elevation	Address	Dist / Dir	Map ID	Page
SEVEN WORLD TRADE CENTER	7 WORLD TRADE CENTER	0 - 1/8 WSW	E20	26
SALOMON SMITH BARNEY	7 WORLD TRADE CENTER	0 - 1/8 WSW	E21	28
PORT AUTHORITY OF NEW YORK / N	***1 WORLD TRADE CENTER 88***	***0 - 1/8 WSW***	***E33***	***46***
130 CEDAR STREET	130 CEDAR STREET	0 - 1/8 SSW	H45	68
J. HILL ASSOCIATES/POST TOWERS	75 WEST STREET	1/8 - 1/4 SW	L113	146
BANK OF NEW YORK	***110 WASHINGTON ST***	***1/8 - 1/4 SSW***	***T126***	***163***
111 PKG. CORP.	111 WASHINGTON STREET	1/8 - 1/4 SSW	T130	174
RESIDENTIAL APARTMENT BLD	350 ALBANY ST	1/4 - 1/2 WSW	U150	193
40 RECTOR STREET	***40 RECTOR STREET***	***1/4 - 1/2 SSW***	***157***	***197***
PARC PLACE	225 RECTOR PLACE	1/4 - 1/2 SW	160	200
LIBERTY TERRACE	380 RECTOR PLACE	1/4 - 1/2 WSW	AF174	210
RIVER ROSE	333 RECTOR PLACE	1/4 - 1/2 WSW	AF175	212
LIBERTY HOUSE	377 RECTOR PLACE	1/4 - 1/2 WSW	AF176	213
THE REGATTA CONDOMINIOM	21 SOUTH END AVE	1/4 - 1/2 SW	AL203	244

NY VCP: Voluntary Cleanup Agreements. The voluntary remedial program uses private monies to get contaminated sites remediated to levels allowing for the sites' productive use. The program covers virtually any kind of site and contamination.

A review of the VCP list, as provided by EDR, and dated 06/17/2003 has revealed that there is 1 VCP

site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CON EDISON - CROSS/LITTLE WATE	60 CENTRE ST	1/2 - 1 ENE	AV238	284

FEDERAL ASTM SUPPLEMENTAL

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 07/25/2003 has revealed that there are 15 FINDS sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
US CUSTOMS LABORATORY	*6 WORLD TRADE CENTER RM*	*0 - 1/8 E*	*A7*	*15*
FUJI PHOTO FILM USA INC	*3 WORLD TRADE CTR - HH*	*0 - 1/8 E*	*A8*	*16*
US CUSTOMS HOUSE	*6 WORLD TRADE CENTER-BA*	*0 - 1/8 E*	*A9*	*16*
CON ED V 0256	1 W BROADWAY	0 - 1/8 NNE	D16	22
METROPOLITAN LIFE INSURANCE CO	*22 CORTLANDT ST*	*0 - 1/8 SE*	*F27*	*39*
130 LIBERTY STREET LLC	*130 LIBERTY ST*	*0 - 1/8 SSE*	*G39*	*57*

Lower Elevation	Address	Dist / Dir	Map ID	Page
EBASCO SERVICES INC	*TWO WORLD TRADE CENTER*	*0 - 1/8 WNW*	*C13*	*20*
NYNEX MATERIEL ENTERPRISES CO	*2 WORLD TRADE CENTER*	*0 - 1/8 WNW*	*C14*	*21*
ZIM-AMERICAN ISRAELI SHIPPING	*1 WORLD TRADE CTR STE 2*	*0 - 1/8 WSW*	*E29*	*41*
WPIX FM & TV TRANSMITTER	*#1 WORLD TRADE CENTER*	*0 - 1/8 WSW*	*E30*	*41*
EVERGREEN MARINE CORP	*1 WORLD TRADE CENTER RM*	*0 - 1/8 WSW*	*E34*	*53*
MERRILL LYNCH & CO	*225 LIBERTY ST*	*0 - 1/8 WSW*	*E35*	*53*
FITCH GRAPHICS	*130 CEDAR ST*	*0 - 1/8 SSW*	*H43*	*66*
REALISTIC PRINTING CORP	*130 CEDAR ST7TH FLOOR*	*0 - 1/8 SSW*	*H46*	*70*
STAR BRITE PRESS INCORPORATED	130 CEDAR STREET 10TH F	0 - 1/8 SSW	H52	76

STATE OR LOCAL ASTM SUPPLEMENTAL

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the AST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 5 AST sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
ENGINE 10 / LADDER 10	*124 LIBERTY STREET*	*0 - 1/8 SSE*	*G41*	*59*
114 LIBERTY CONDO C/O A.S. WAR	114 LIBERTY STREET	0 - 1/8 SSE	G48	71

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
BELL ATLANTIC	2 WORLD TRADE CENTER	0 - 1/8 SSW	B6	10
ONE WORLD TRADE CENTER	1 WORLD TRADE CENTER	0 - 1/8 WSW	E31	42
PORT AUTHORITY OF NEW YORK / N	***1 WORLD TRADE CENTER 88***	***0 - 1/8 WSW***	***E33***	***46***

CBS AST: Chemical Bulk Storage Database. Registration data collected as required by 6 NYCRR Part 596. It includes facilities storing hazardous substances listed in 6 NYCRR Part 597, in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size. Includes facilities registered (and closed) since effective date of CBS regulations (July 15, 1988) through the date request is processed.

A review of the CBS AST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 2 CBS AST sites within approximately 0.375 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
WORLD TRADE CENTER	RIVER WATER PUMP STATIO	0 - 1/8 WNW	C24	33
OLYMPIA AND YORK PROPERTIES	4 WORLD FINANCIAL CENTE	0 - 1/8 WNW	C26	38

MOSF AST: Major Oil Storage Facilities Database. Facilities are licensed pursuant to Article 12 of the Navigation Law, 6 NYCRR Part 610 and 17 NYCRR Part 30. These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater. Includes MOSF's licensed or closed since April 1, 1986, (responsibility was transferred from DOT on October 13, 1985) plus available data obtained from DOT facilities licensed since Article 12 became law on April 1, 1978.

A review of the MOSF AST list, as provided by EDR, and dated 01/01/2002 has revealed that there is 1 MOSF AST site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
AT&T	33 THOMAS STREET	1/4 - 1/2 NE	AR223	260

SPILLS: Data collected on spills reported to NYSDEC. is required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of the NY Spills list, as provided by EDR, has revealed that there are 87 NY Spills sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MANHOLE #TM3387	WEST 3RD 7 WEST BROADWA	0 - 1/8 NE	A11	18
VESSEY ST/WEST BROADWAY	VESSEY ST/WEST BROADWAY	0 - 1/8 NNE	D15	21
WORLD TRADE CENTER	VESEY ST / WEST BROAD	0 - 1/8 NNE	D17	22
WTC	VESEY ST / W BROADWAY	0 - 1/8 NNE	D18	23
MANHOLE #59942	FULTON ST / CHURCH ST	0 - 1/8 E	19	25
VAULE 2522	22 COURTLAND ST	0 - 1/8 SE	F28	40
132-06 LIBERTY AVE/QUEENS	132-06 LIBERTY AVENUE	0 - 1/8 SSE	G36	54
Not reported	130 LIBERTY ST	0 - 1/8 SSE	G37	55
Not reported	130 LIBERTY ST	0 - 1/8 SSE	G38	56
DEUTSCHE BANK	130 LIBERTY	0 - 1/8 SSE	G40	58
Not reported	114 LIBERTY ST	0 - 1/8 SSE	G47	70
111-04 LIBERTY AVE/QUEENS	111-04 LIBERTY AVENUE	0 - 1/8 SSE	G49	73

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BARCLAY ST & W BROADWAY	BARCLAY ST / W BROADW	1/8 - 1/4 NE	I53	76
81 BARCLY ST	81 BARCLY ST	1/8 - 1/4 NE	I54	77
WORLD TRADE CENTER SUB	66 BARCLAY ST	1/8 - 1/4 NNE	I55	78
TRADE CTR SUBSTATION	66 BARCLAY ST	1/8 - 1/4 NNE	I57	80
TRADE CENTER # 1 SUBSTATI	66 BARKLEY ST	1/8 - 1/4 NNE	I58	81
FEEDER 38M13	66 BARCKLEY ST	1/8 - 1/4 NNE	I59	82
TRADE CENTER SUB STATION	66 BARCLAY ST	1/8 - 1/4 NNE	I60	83
TRADE CENTER SUBSTATION	66 BARCLAY ST	1/8 - 1/4 NNE	I61	84
WORLD TRADE CENTER SS	66 BARCLAY ST	1/8 - 1/4 NNE	I62	85
TRADE CENTER #1 SUB STA	66 BARKLEY ST	1/8 - 1/4 NNE	I63	86
FEEDER 38M11	66 BARKLAY ST	1/8 - 1/4 NNE	I64	87
TRADE CENTER	66 BARCLAY STREET	1/8 - 1/4 NNE	I65	88
TRADE CENTER SUB STATION	66 BARKLEY ST	1/8 - 1/4 NNE	I66	89
TRADE CENTER #1	66 BARCLAY ST	1/8 - 1/4 NNE	I67	90
CON ED SUB STATION	66 BARCLAY ST	1/8 - 1/4 NNE	I68	91
TRADE CENTER SUB STATION	66 BARCLAY ST	1/8 - 1/4 NNE	I69	92
Not reported	101 BARKLEY ST	1/8 - 1/4 NNE	I71	97
TRADE CENTER SUBSTATION	65 BARCLAY ST	1/8 - 1/4 NE	I72	98
CENTURY 21	22 CORTLAND	1/8 - 1/4 SE	F80	107
VAULT #4646	46 BARCLAY ST	1/8 - 1/4 ENE	M81	108
VAULT 0581	CHURCH ST/BARCLAY ST	1/8 - 1/4 ENE	M92	116
220 TH ST. BROADWAY	220TH ST. BROADWAY	1/8 - 1/4 ESE	O93	118
137 GREENWICH STREET	137 GREENWICH STREET	1/8 - 1/4 S	P94	119
Not reported	195 BROADWAY	1/8 - 1/4 ESE	O97	122
170 BROADWAY	***170 BROADWAY***	***1/8 - 1/4 SE***	***Q100***	***131***
90 CHURCH ST/US POSTALSVC	90 CHURCH ST	1/8 - 1/4 ENE	M101	133
US POST OFFICE	90 CHURCH ST	1/8 - 1/4 ENE	M102	135
MANHOLE 35350	FULTON ST/BROADWAY	1/8 - 1/4 ESE	O105	138
COLLEGIATE DUTCH REFORM C	198 BROADWAY	1/8 - 1/4 ESE	O106	139
MANHOLE DM27035	160.BROADWAY	1/8 - 1/4 SE	Q110	143
Not reported	43 PARK PLACE	1/8 - 1/4 NE	M112	145
ANN ST AND PARKROW	ANN ST / PARKROW	1/8 - 1/4 E	R114	151
VAULT 359	BROADWAY/ANN ST	1/8 - 1/4 E	R115	152
BARCLAY ST. OF CHURCH ST.	BARCLAY ST. OF CHURCH S	1/8 - 1/4 ENE	M116	153
MAN HOLE DM58173	BROADWAY / LIBERTY ST	1/8 - 1/4 SSE	S117	154
MH 0033	LIBERTY / BROADWAY	1/8 - 1/4 SSE	S118	155
TMR 0033	BRAODWAY/LIBERTY ST	1/8 - 1/4 SSE	S119	156
VAULT #8917 IN FRONT OF	86 TRININTY PL	1/8 - 1/4 S	P120	157
145 BROADWAY	145 BROADWAY	1/8 - 1/4 SSE	S122	159
85 TRINITY PLACE / BROOKL	85 TRINITY PLACE	1/8 - 1/4 S	P123	160
Not reported	25 PARK PLACE	1/8 - 1/4 ENE	M124	161
VAULT 4307	17 JOHN ST	1/8 - 1/4 ESE	Q128	169
MANHOLE 421	225 SO BROADWAY	1/8 - 1/4 E	V132	177
MANHOLE #51070	MAIDEN LN / LIBERTY P	1/8 - 1/4 SE	W134	179
132 BROADWAY	132 BROADWAY	1/8 - 1/4 SSE	X135	180
42-08 MURRAY ST/QUEENS	42-08 MURRAY STREET	1/8 - 1/4 NE	Y137	182
Not reported	MURRAY ST / GREENWICH	1/8 - 1/4 NNE	Z138	183
COLLEGE OF INSURANCE	101 MURRAY ST	1/8 - 1/4 NNE	Z143	186
WEST 36TH ST AND	BROADWAY	1/8 - 1/4 SSE	X145	188
280	BROADWAY	1/8 - 1/4 SSE	X146	189
BROADWAY & LAFAYETTE	BROADWAY / LAFAYETTE ST	1/8 - 1/4 SSE	X147	190
FROM 23 TO 31ST ST	BROADWAY	1/8 - 1/4 SSE	X148	191
116TH ST SUBWAY STATION	BROADWAY	1/8 - 1/4 SSE	X149	192

Lower Elevation	Address	Dist / Dir	Map ID	Page
WORLD TRADE CENTER B-7	7 WORLD TRADE CENTER	0 - 1/8 SSW	B3	6

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
WORLD TRADE CENTER #7	7 WORLD TRADE CENTER	0 - 1/8 SSW	B4	7
WORLD TRADE CENTER #7	7 WORLD TRADE CENTER	0 - 1/8 SSW	B5	8
MH 47895	LIBERTY/WASHINGTON ST	0 - 1/8 SW	B10	17
WEST ST AND LIBERTY ST	WEST ST / LIBERTY ST	0 - 1/8 WSW	E22	31
WEST & LIBERTY AVENUE	WEST / LIBERTY AVE.	0 - 1/8 WSW	E23	32
MANHOLE #61063	VESEY ST / WASHINGTON S	0 - 1/8 N	D25	37
WTC	130 CEDAR STREET	0 - 1/8 SSW	H44	66
ONE WORLD TRANDE CENTER	1 WORLD TRADE CENTER	0 - 1/8 WNW	C50	74
HUDSON RIVER	1 WORLD TRADE CENTER	0 - 1/8 WNW	C51	75
Not reported	VESEY ST/WEST ST	1/8 - 1/4 NNW	J73	99
MANHOLE 60860	WEST ST / VESEY ST	1/8 - 1/4 NNW	J74	100
FDNY	VESEY/WEST	1/8 - 1/4 NNW	J75	102
VERIZON MANHOLE 102	BARCLAY/WASHINGTON ST	1/8 - 1/4 N	K76	103
Not reported	90 BARKLEY ST	1/8 - 1/4 N	K77	104
90 WEST STREET	90 WEST STREET	1/8 - 1/4 SW	L78	105
VERIZON BLDG	140 WEST ST	1/8 - 1/4 NNW	J82	109
VERIZON	140 WEST ST	1/8 - 1/4 NNW	J84	110
Not reported	140 WEST ST	1/8 - 1/4 NNW	J85	112
DOW JONES	200 LIBERTY ST	1/8 - 1/4 WSW	N91	115
Not reported	BARKLEY ST/WEST ST	1/8 - 1/4 NNW	J108	141
Not reported	ALBANY ST/S. END AVE	1/8 - 1/4 WSW	U131	176

BROWNFIELDS DATABASES

NY VCP: Voluntary Cleanup Agreements. The voluntary remedial program uses private monies to get contaminated sites remediated to levels allowing for the sites' productive use. The program covers virtually any kind of site and contamination.

A review of the VCP list, as provided by EDR, and dated 06/17/2003 has revealed that there is 1 VCP site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CON EDISON - CROSS/LITTLE WATE	60 CENTRE ST	1/2 - 1 ENE	AV238	284

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
~~S & T ASSOCIATES~~	SHWS, INST CONTROL
~~BARETTO POINT~~	Brownfields
~~NORTHEAST MARINE TERMINAL~~	SWF/LF
~~VARLOTTA CONSTRUCTION CORP.~~	SWF/LF
~~NHE REALTY~~	LTANKS
~~BARGE E-15/HUDSON RIVER~~	LTANKS
~~LEHMAN COLLEGE CUNY/BX~~	LTANKS
~~HERBERT LEHMAN COLLEGE/BX~~	LTANKS
~~6645 BROADWAY/BX/OMNI~~	LTANKS
~~HENRY HUDSON BRIDGE BLD~~	LTANKS
~~HENRY HUDSON BRIDGE~~	LTANKS
~~HENRY HUDSON BRIDGE~~	LTANKS
~~HENRY HUDSON BRIDGE~~	LTANKS
~~HUDSON RIVER PKWY SO/BX~~	LTANKS
~~398 KINGS H'WAY/ISLAND TR~~	LTANKS
L.I.E. WEST AT 48TH ST	LTANKS
1180 MORRIS PARK AVE/BX	LTANKS
NEW DORP AVE & HYLAND BLV	LTANKS
43 NEW DORP PLAZA NORTH	LTANKS
54 NEW DORP PLAZA/S.I.	LTANKS
STATUE OF LIBERTY	LTANKS
~~THROGS NECK ENTRANCE RAMP~~	LTANKS
CHASE BUILDING SERVICES	UST
313-315 BROADWAY	AST
120 LIBERTY STREET LLC	AST
~~STRATA REALTY~~	RCRIS-SQG, FINDS
20 BROAD STREET CO INC	RCRIS-SQG, FINDS
~~SUNOHIO PCBX UNIT-LONG ISLAND RAIL~~	RCRIS-SQG, FINDS
E C TECHNOLOGIES INC	RCRIS-SQG, FINDS
~~MTA NYCT - 2ND AVE SUBWAY~~	RCRIS-SQG, FINDS
~~NYC BD OF ED - NEW STUYVESANT HIGH~~	RCRIS-SQG, FINDS
UNITED STATES POSTAL SERVICE	RCRIS-SQG, FINDS
MENDIK REALTY - 100 CHURCH STREET	RCRIS-SQG, FINDS
GUARDIAN LIFE INSURANCE CO	RCRIS-SQG, FINDS
~~LYNN ART~~	RCRIS-SQG, FINDS
~~CREST STUDIOS~~	RCRIS-SQG, FINDS
~~HUDSON TELEGRAPH ASSOCIATES~~	RCRIS-SQG, FINDS
~~HUDSON PRINTING CO INC~~	RCRIS-SQG, FINDS
TRINITY CHURCH	RCRIS-SQG, FINDS
~~TRINITY REAL ESTATE - 205 HUDSON S~~	RCRIS-SQG, FINDS
~~MTA NYCT - 2ND AVE SUBWAY~~	RCRIS-SQG, FINDS
~~NATIONAL PARK SERVICE STATUE OF LI~~	RCRIS-SQG, FINDS
KELLARDS	RCRIS-SQG, FINDS
STATE-WHITEHALL CO THE	RCRIS-SQG, FINDS
NYC DEPT OF PARKS & RECREATION	RCRIS-SQG, FINDS
~~CLIPPER DIAMOND TOOL CO INC~~	RCRIS-SQG, FINDS
~~RUBIN BOB~~	RCRIS-SQG, FINDS
MENDIK REALTY - 110 WILLIAM STREET	RCRIS-SQG, FINDS
NYCDOT BATTERY PLACE #2232000	FINDS, RCRIS-LQG
CON ED AT 7 WTC AREA	FINDS, RCRIS-LQG
~~103 ST. & EAST RIVER~~	NY Spills
~~4083 NORTH 0740218 WEST~~	NY Spills
~~43TH ST & HUDSON RIVER~~	NY Spills
~~METHANE ODORS/15 RD. BROA~~	NY Spills
~~HUDSON DEPOT~~	NY Spills
~~CONED CONEY IS OIL IN LOT~~	NY Spills
~~171ST & WEST SIDE HWY~~	NY Spills
~~106 STREET~~	NY Spills
~~ARTHUR KILL RIVER/S.I.~~	NY Spills

EXECUTIVE SUMMARY

160 3RD AV &CROSS BAY BLV	NY Spills
MANHOLE #26166	NY Spills
BATTERY PARK CITY/ NEW YO	NY Spills
BATTERY PARK PIER/STATUE	NY Spills
BAYONNE, NEW JERSEY	NY Spills
SPRAINBROOK SUB-STATION	NY Spills
TUCKAHOE PARK	NY Spills
AMTRAK	NY Spills
1972,74 CEDAR AVENUE. / B	NY Spills
CENTRAL PARK POND	NY Spills
CENTRAL PARK LAKE,WEST	NY Spills
CON/EDISON 20 JAY ST.& JO – 1 mi	NY Spills
GATEWAY NATL/CROSS BAY BL	NY Spills
HARLEM RIVER DRIVE / W.24	NY Spills
HELLGATE EAST RIVER	NY Spills
HENRY HUDSON BRIDGE	NY Spills
HENRY HUSON BRIDGE	NY Spills
SHEEN ON HUDSON BY WTC — 1 mile	NY Spills
HUDSON RIVER/G.W.BRIDGE	NY Spills
37-50 HUDSON MANOR TERRAC	NY Spills
HUDSON RIVER	NY Spills
HUDSON RIVER/HARLEM RIVER	NY Spills
HUDSON RIVER/BATT.PARK CI	NY Spills
HUDSON & HARLEM RIVER/BX	NY Spills
HUDSON RIVER/G.WASH BRIDG	NY Spills
HUDSON RIVER&PIER 59/18TH	NY Spills
HUDSON RIVER/PIER 2632	NY Spills
HUTCHINSON RIVER/BX	NY Spills
JOHN STREET / BROOKLYN	NY Spills
SEWER ODOR	NY Spills
COCAINE CHEMISTS IN PARK	NY Spills
40 W MOSHUL0 PKWY/BX	NY Spills
2 MURRAY HOLBART ST/S.I.	NY Spills
N BND HUTCHINSON RIVER PK	NY Spills
NORTH RIVER BYPASS 5/16	NY Spills
NORTH RIVER STP BYPASS	NY Spills
WEST STREET	NY Spills
MH 1503	NY Spills
NEW LAME RD	NY Spills
NEW DOUGLASTON PUMP STATI	NY Spills
NEW DOUGLASTON P.S./ QUEE	NY Spills
STAPLETON ANCHORAGE	NY Spills
NEW DOUGLASTON PUMP STATI	NY Spills
NEW YORK HARBOR/MANHATTAN	NY Spills
15TH STREET AT PROSPECT	NY Spills
PARK DRIVE EAST PUMPING S	NY Spills
PARK DRIVE EAST / QUEENS	NY Spills
PARK DRIVE EAST PUMP STAT	NY Spills
PARK DRIVE EAST BYPASS	NY Spills
PARK DRIVE E PUMPING STA	NY Spills
PELHAM BAY PARK/RT 95/BX	NY Spills
BUNKERS GO BONKERS,BRONX	NY Spills
PIER 17 EAST RIVER	NY Spills
PIER 6/NEW YORK BAY/S.I.	NY Spills
PIER 90 & WEST 50TH ST	NY Spills
PIER 90 &WEST 50TH ST/MAN	NY Spills
PIER 63/N RIVER RD/MANH	NY Spills
PIER 16 EAST RIVER	NY Spills
URINE IN RANDALLS ISLAND	NY Spills
RANDALLS ISLD/E RAMP STOR	NY Spills
VAN BRUNT ST PUMP STATION	NY Spills
REG M49/E 49TH&E RIVER RD	NY Spills

E RIVER BET 14TH ST & UN	NY Spills
E RIVER N OF MANN. BRIDGE	NY Spills
N RIVER WTP	NY Spills
BRUCKNER BLVD/BX RIVER AV	NY Spills
103RD & FDR DRIVE	NY Spills
EAST RIVER/72ND ST&FDR DR	NY Spills
NY POWER AUTHORITY BLDG	NY Spills
RAW SEWAGE NORTH RIVER WP	NY Spills
NORTH RIVER BETWEEN W.138	NY Spills
EAST RIVER AT HELL'S GATE	NY Spills
HARLEM RIVER DRIVE / NEW	NY Spills
NORTH RIVER PLANT	NY Spills
NORTH RIVER PLANT/MANHATT	NY Spills
W 138TH ST & 145TH ST/NOR	NY Spills
NORTH RIVER INTO THERIVER	NY Spills
E 16TH ST &	NY Spills
NORTH RIVER WWTP / NEW YO	NY Spills
EAST RIVER/QUEENS/TTLI	NY Spills
EAST RIVER/ASTORIA/QUEENS	NY Spills
EAST RIVER/BUOY #28	NY Spills
E RIVER/HELLS GATE TO U N	NY Spills
NO OF TRIBORO BRIDGE/QUNS	NY Spills
NORTH RIVER/NYCDEP	NY Spills
EAST RIVER/R'SEVELT IS. M	NY Spills
EAST RIVER/TRIBOROUGH	NY Spills
SETON FALLS PARK/BX	NY Spills
W SIDE OF SOUTH ST/QUEENS	NY Spills
M52 FEEDER LINE	NY Spills
3808 171ST ST/MANHATTAN	NY Spills
180 1ST ST/FT WASHINGTON	NY Spills
34 STATE RD./BREEZY POINT	NY Spills
WEST STREET / MANHATTEN	NY Spills
1604 BROADWAY & 49TH ST	NY Spills
TEXAS EASTERN/RIVER RD/SI	NY Spills
BARGE HITS PIER AT CASTLE	NY Spills
NO.TOWER/WORLD TRADE CENT	NY Spills
FT TRYON PARK/CORBIN DR	NY Spills
OWLS HEAD BYPASS/REGULATO	NY Spills
STAPLETON ANCHORAGE	NY Spills
VAN CORTLANDT PARK/BX	NY Spills
VAN CORTLAND PARK/PKWY SO	NY Spills
MANHOLE TM6539	NY Spills
955 WASHINGTON AVE	NY Spills
MANHOLE 59896	NY Spills
MANHOLE 829	NY Spills
3RD AND WILLIS AVE. BRIDG	NY Spills
PORT AUTHORITY	NY Spills
1 WORLD TRADE CENTER/MANH	NY Spills
CON EDISON - WEST 18TH ST. GAS WOR	VCP
CON EDISON - ROOSEVELT ST. STATION	VCP
BROOKLYN GAS LIGHT CO.	Coal Gas

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
~~NPL~~		1.125	0	0	0	0	0	0
Proposed NPL		1.125	0	0	0	0	0	0
CERCLIS		0.625	0	0	1	0	NR	1
CERC-NFRAP		0.375	0	0	1	NR	NR	1
CORRACTS		1.125	0	0	0	0	0	0
RCRIS-TSD		0.625	0	0	0	0	NR	0
RCRIS Lg. Quan. Gen.		0.375	0	3	5	NR	NR	8
RCRIS Sm. Quan. Gen.		0.375	13	16	33	NR	NR	62
ERNS		0.125	2	NR	NR	NR	NR	2
STATE ASTM STANDARD								
State Haz. Waste		1.125	0	0	0	0	0	0
State Landfill		0.625	1	0	0	5	NR	6
LTANKS		0.625	2	1	15	15	NR	33
UST		0.375	5	13	19	NR	NR	37
CBS UST		0.375	0	0	0	NR	NR	0
MOSF UST		0.625	0	0	0	0	NR	0
VCP		0.625	0	0	0	1	NR	1
SWTIRE		0.625	0	0	0	0	NR	0
SWRCY		0.625	0	0	0	0	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.125	0	0	0	0	0	0
ROD		1.125	0	0	0	0	0	0
Delisted NPL		1.125	0	0	0	0	0	0
FINDS		0.125	15	NR	NR	NR	NR	15
HMIRS		0.125	0	NR	NR	NR	NR	0
MLTS		0.125	0	NR	NR	NR	NR	0
MINES		0.375	0	0	0	NR	NR	0
NPL Liens		0.125	0	NR	NR	NR	NR	0
PADS		0.125	0	NR	NR	NR	NR	0
US BROWNFIELDS		0.625	0	0	0	0	NR	0
DOD		1.125	0	0	0	0	0	0
RAATS		0.125	0	NR	NR	NR	NR	0
TRIS		0.125	0	NR	NR	NR	NR	0
TSCA		0.125	0	NR	NR	NR	NR	0
SSTS		0.125	0	NR	NR	NR	NR	0
FTTS		0.125	0	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
HSWDS		0.625	0	0	0	0	NR	0
AST		0.125	5	NR	NR	NR	NR	5
CBS AST		0.375	2	0	0	NR	NR	2

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MOSF AST		0.625	0	0	1	0	NR	1
NY Spills		0.250	22	65	NR	NR	NR	87
EDR PROPRIETARY HISTORICAL DATABASES								
Coal Gas		1.125	0	0	0	0	0	0
BROWNFIELDS DATABASES								
US BROWNFIELDS		0.625	0	0	0	0	NR	0
Brownfields		0.625	0	0	0	0	NR	0
VCP		0.625	0	0	0	1	NR	1

NOTES:

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

OVERVIEW MAP - 01052696.1r - Hatch Mott McDonald

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

TARGET PROPERTY:	WTC E15	CUSTOMER:	Hatch Mott McDonald
ADDRESS:	World Trade Center	CONTACT:	Brian Kennedy
CITY/STATE/ZIP:	New York NY 10007	INQUIRY #:	01052696.1r
LAT/LONG:	40.7115 / 74.0125	DATE:	September 24, 2003 11:13 am

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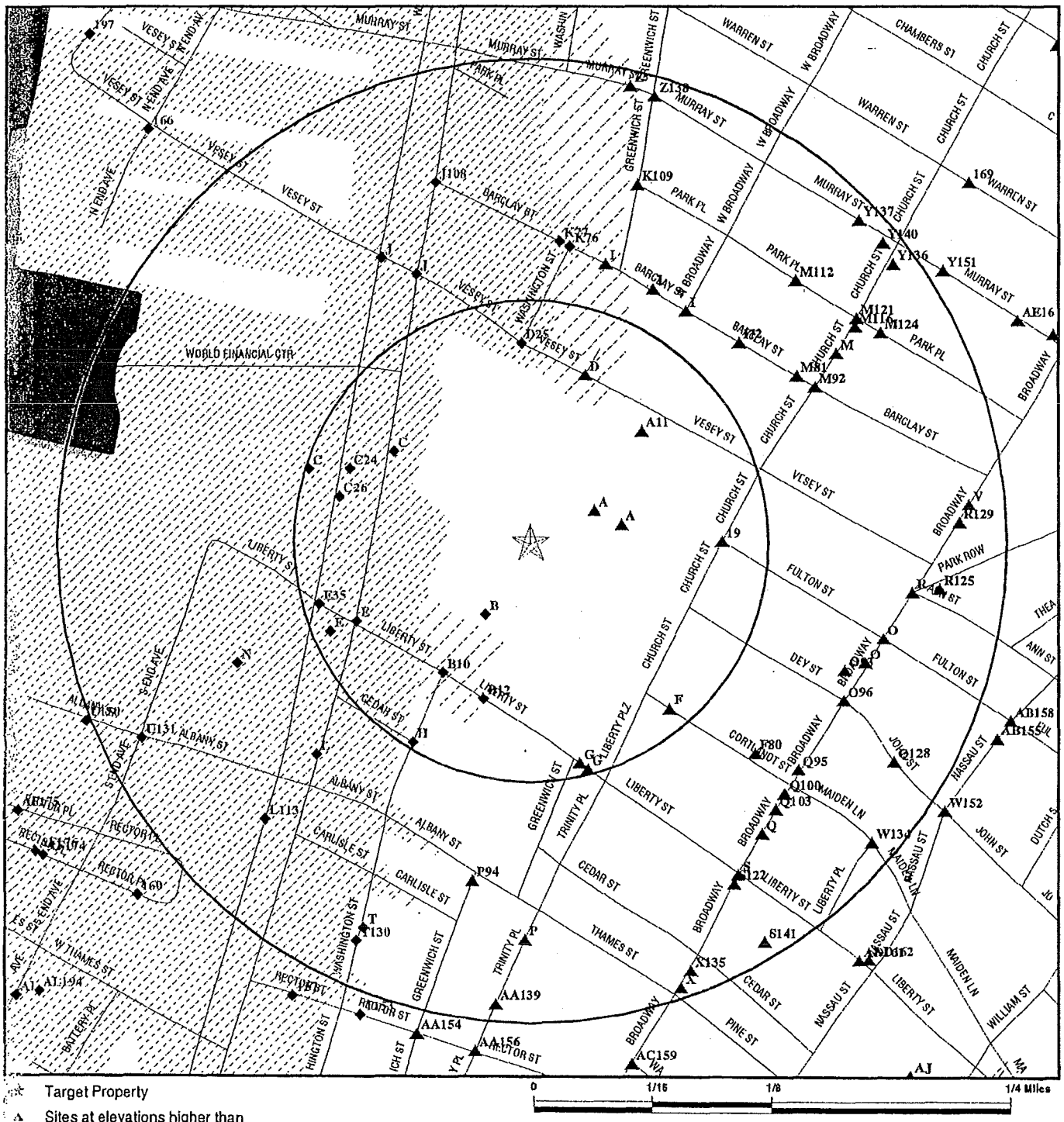
DETAIL MAP - 01052696.1r - Hatch Mott McDonald



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- County Boundary
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

TARGET PROPERTY:	WTC E15	CUSTOMER:	Hatch Mott McDonald
ADDRESS:	World Trade Center	CONTACT:	Brian Kennedy
CITY/STATE/ZIP:	New York NY 10007	INQUIRY #:	01052696.1r
LAT/LONG:	40.7115 / 74.0125	DATE:	September 24, 2003 11:14 am

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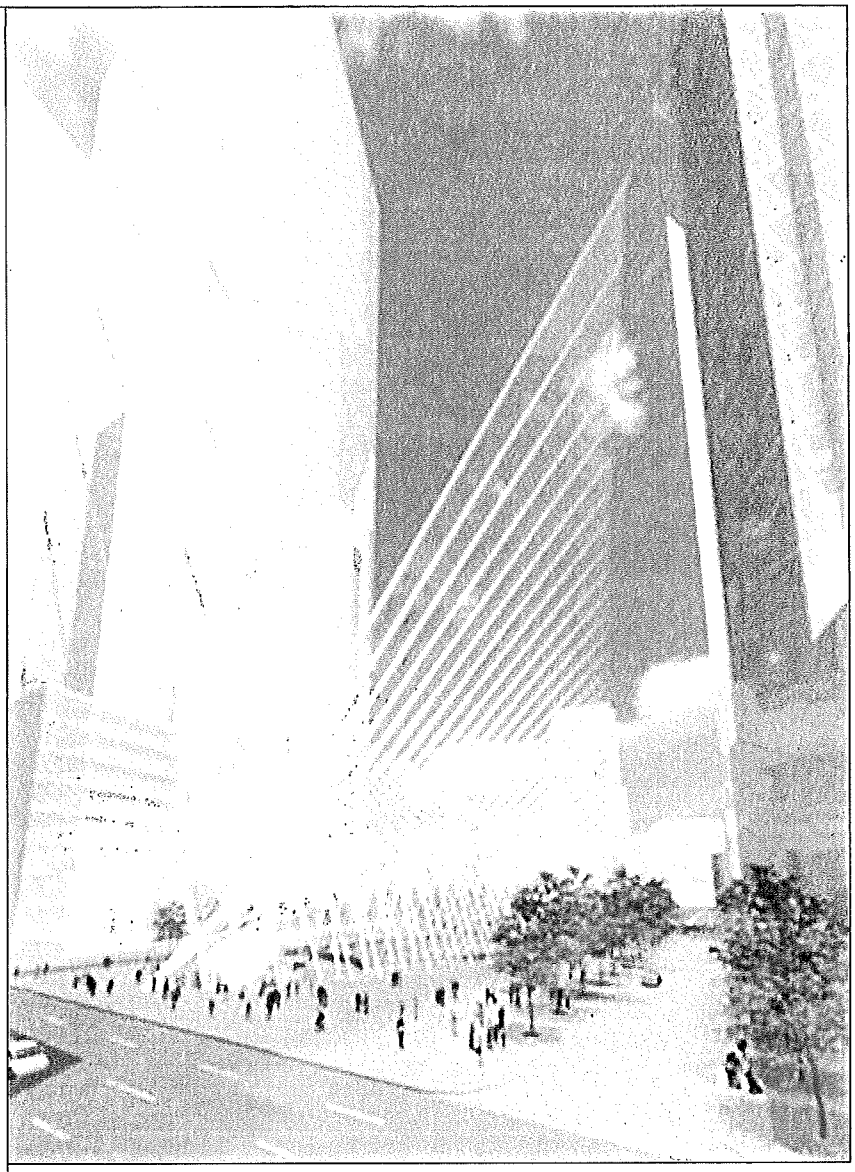
PERMANENT WTC PATH TERMINAL

FINAL ENVIRONMENTAL IMPACT STATEMENT



VOLUME II

APPENDICES

Part 2 of 2
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United States Department of Transportation
Federal Transit Administration

THE PORT AUTHORITY OF NY & NJ

PATH

MAY 2005

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Appendix G

Natural and Water Resources

National Marine Fisheries Service
Habitat Conservation Division
Milford Field Office, 212 Rogers Avenue
Milford, Connecticut 06460

TO: Ms. Sandra Collins
Sr. Scientist
AKRF, Inc.
7250 Parkway Drive, Suite 210
Hanover, MD 21076

DATE: 26 August 2003

SUBJECT: **FTA Information request for Replacement PATH Terminal Development at the World Trade Center, Manhattan, New York**

Diane Rusanowsky
(Reviewing Biologist)

We have reviewed the information provided to us regarding the above subject project. We offer the following preliminary comments pursuant to the Endangered Species Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

Endangered and Threatened Species

There are no endangered or threatened species in the immediate project area.

__XX__ The following endangered or threatened species may be present in the project area

__XX__ shortnose sturgeon (*Acipenser brevirostrum*) [In Hudson River]

sea turtles: __XX__ loggerhead (*Caretta caretta*) __XX__ Kemp's ridley (*Lepidochelys kempii*)
__XX__ green (*Chelonia mydas*) __XX__ leatherback (*Dermochelys coriacea)*

Other: Habitat use of the Hudson River by these resources is seasonal. Whether or not the federal action agency must consult with NOAA/Fisheries pursuant to Section 7 of the ESA will be determined after more detailed project plans become available.

Fish and Wildlife Coordination Act Species

__XX__ The following are present in the general project area: Anadromous and resident fish, forage and benthic species

Please contact the appropriate Regional Office of the New York State DEC to confirm the presence of anadromous or resident aquatic populations. Habitat use by some species or life stages may be seasonal

---

Essential Fish Habitat

__XX__ The project area has been designated as Essential Fish Habitat (EFH) for one or more species. When details of the project are made available and permit applications have been made, conservation recommendations may be given. For a listing of EFH and further information, please go to our website at: http://www.nero.nmfs.gov/ro/doc/webintro.html . The nature and scope of EFH assessment required of the federal action agency will be determined after more detailed project information becomes available.

____ No EFH presently designated in the immediate project area; however, impacts to anadromous fish may have an indirect effect on EFH and may require assessment pursuant to the implementing regulations of the Magnuson Stevens Fishery Conservation and Management Act. .

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, NY 13045

August 26, 2003

Ms. Sandra Collins
Senior Scientist
AKRF, Inc.
7250 Parkway Drive, Suite 210
Hanover, MD 21076

Dear Ms. Collins:

This responds to your letter of August 14, 2003, requesting information on the presence of Federally listed or proposed endangered or threatened species in the vicinity of the PATH Terminal at the World Trade Center Site on Manhattan Island, New York County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Therefore, no further Endangered Species Act coordination or consultation with the U.S. Fish and Wildlife Service (Service) is required. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally listed and proposed endangered and threatened species in New York* is available for your information.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under other legislation.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s),* and:

New York State Department of Environmental Conservation
New York Natural Heritage Program Information Services
625 Broadway
Albany, NY 12233
(518) 402-8935

If you require additional information or assistance please contact Michael Stoll at (607) 753-9334.

Sincerely,

Mark W. Clough
Acting For

David A. Stilwell
Field Supervisor

*Additional information referred to above may be found on our website at: http://nyfo.fws.gov/es/esdesc.htm.

cc: NYSDEC, Long Island City, NY (Environmental Permits)
NYSDEC, Albany, NY (Natural Heritage Program)

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

August 27, 2003

Sandra Collins
AKRF Environmental and Planning Consultants
7250 Parkway Dr, Suite 210
Hanover, MD 21076

Dear Ms. Collins:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for the proposed Rebuilding Project of the Port Authority Trans Hudson (PATH) Terminal at the World Trade Center, including possible construction barges in the Hudson river, area as indicated on the map you provided, located in lower Manhattan, New York City.

> We have no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Databases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Nicholad B. Conrad, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 2, Wildlife Mgr.

DIVISION OF ENVIRONMENTAL PERMITS

June 2001

REGION	COUNTIES	REGIONAL PERMIT ADMINISTRATORS
	Nassau & Suffolk Telephone: (631) 444-0365	John Pavacic NYS-DEC BLDG. 40 SUNY at Stony Brook Stony Brook, NY 11790-2356
2	New York City (Boroughs of Manhattan, Brooklyn, Bronx Queens, & Staten Island Telephone: (718) 482-4997	John Cryan NYS-DEC One Hunters Point Plaza 47-40 21st Street Long Island City, NY 11101-5407
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster & Westchester Telephone: (845) 256-3054	Margaret Duke (Peg) NYS-DEC 21 South Putt Corners Road New Paltz, NY 12561-1696
4	Albany, Columbia, Greene, Montgomery, Rensselaer & Schenectady Telephone: (518) 357-2069	William Clarke NYS-DEC 1150 North Wescott Road Schenectady, NY 12306-2014
4 (sub-office)	Delaware, Otsego & Schoharie Telephone: (607) 652-7741	John Feltman NYS-DEC Route 10 HCR#1, Box 3A Stamford, NY 12167-9503
5	Clinton, Essex, Franklin & Hamilton Telephone: (518) 897-1234	Richard Wild NYS-DEC Route 86, PO Box 296 Ray Brook, NY 12977-0296
5 (sub-office)	Fulton, Saratoga, Warren & Washington Telephone: (518) 623-1281	Thomas Hall* NYS-DEC County Route 40 PO Box 220 Warrensburg, NY 12885-0220
6	Jefferson, Lewis & St. Lawrence Telephone: (315) 785-2245	Brian Fenlon NYS-DEC State Office Building 317 Washington Street Watertown, NY 13601-3787
6 (sub-office)	Herkimer & Oneida Telephone: (315) 793-2555	J. Joseph Homburger* NYS-DEC State Office Building 207 Genesee Street Utica, NY 13501-2885

7	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga & Tompkins Telephone: (315) 426-7438	Ralph Manna NYS-DEC 615 Erie Blvd. West (Env.Permits Room 206) Syracuse, NY 13204-2400
7 (sub-office)	 Telephone: (607) 753-3095	Michael Barylski* NYS-DEC 1285 Fisher Avenue Cortland, NY 13045-1090
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne & Yates Telephone: (716) 226-5390	Peter Lent NYS-DEC 6274 East Avon Lima Road Avon, NY 14414-9519
9	Allegany, Cattaraugus, Chautauqua, Erie, Niagara & Wyoming Telephone: (716) 851-7165	Steve Doleski NYS-DEC 270 Michigan Avenue Buffalo, NY 14203-2999
9 (sub-office)	 Telephone: (716) 372-0645	Ken Taft* NYS-DEC 182 East Union, Suite 3 Allegany, NY 14706-1328

* Deputy Regional Permit Administrator

Appendix H

Process, Agency Coordination, and Public Participation

Appendix H-1: Response to Comments on Draft Scope

A. INTRODUCTION

This memorandum summarizes and responds to all substantive comments on the Draft Scope published in September 2003 for the Permanent WTC PATH Terminal. Public review for the Draft Scoping Document began on September 26, 2003, with the posting of the document on the project's website. The Port Authority of New York and New Jersey (Port Authority) held four public meetings to receive comments. Two meetings were held at the Hudson County Administrative Annex in Jersey City, New Jersey on October 8, 2003 and two were held at the Alexander Hamilton U.S. Custom House in New York, New York on October 9, 2003. The public comment period remained open until October 29, 2003.

The Draft Scoping Document was circulated to involved and interested agencies and other parties and was posted on the Port Authority's website. A notice of its availability and the public meeting dates were published in the *Federal Register* on September 26, 2003.

Advertisements for the public meetings were published in the following local newspapers:

- *The Battery Park City Broadsheet* (Thursday, September 25, 2003)
- *New York Daily News* (Monday, October 6, 2003)
- *El Nuevo Hudson* (Thursday, October 2, 2003)
- *The Jersey Journal and Waterfront Journal* (Wednesday, September 24, 2003)
- *The New York Times* (Tuesday October 7, 2003)
- *The Star-Ledger* (Monday, October 6, 2003)
- *Hoy* (Monday, October 6, 2003)
- *Newsday* (Tuesday, October 7, 2003)
- *Downtown Express* (Tuesday October 7, 2003)
- *el diario La Prensa* (Monday, October 6, 2003)
- *The Hudson Reporter (Hoboken, Jersey City, Union City, West New York, North Bergen, Secaucus, Hudson Current, The Secaucus Outlet Center)* (Thursday, October 2 and Sunday, October 5, 2003)
- *New York Post* (Tuesday October 7, 2003)

Information on the public meeting was also posted on the Port Authority's website; notices were mailed to public officials and interested parties in the PATH service area; and a press release announcing the hearing was sent to local media outlets. Meeting announcements were posted on the Port Authority Trans-Hudson's visual communication system at each station (PATHVision), and brochures were distributed at the major PATH stations in New Jersey.

This document identifies the organizations and individuals who commented on the draft scoping document, and then summarizes and responds to their comments. It considers comments made at the public meetings; telephone, written, e-mail, and fax comments received through October 29, 2003; and comments received after the close of the public comment period.

Section B, below, lists all individuals and organizations that commented on the Draft Scope. Following each name is a list of the comments made, referenced by number. Section C contains a summary of all comments and a response to each. These summaries convey the spirit of the comments made, but do not quote the comments verbatim.

The comments are organized by subject area, as follows:

- General
- Project Alternatives
- Analysis Methodology
- Construction
- Operation
- Pedestrians
- WTC Memorial and Redevelopment Plan
- Miscellaneous

Following each comment is a list in parentheses of people or organizations that made the comment. If multiple comments were made on the same subject, they are summarized into a single comment with all commenters listed afterward.

B. LIST OF COMMENTERS

SPOKEN

1. Anderson, Richard—New York Building Congress. (Comments 1 and 7)
2. Centolanzi, Patrick—Kew Gardens resident. (Comments 1, 2, 5, 15, 22, 24 and 55); Comments were also submitted by e-mail and in writing.
3. Clift, Joseph—Manhattan resident. (Comments 14 and 22)
4. Cook, Michael—Downtown Manhattan resident. (Comments 37, 62 and 63)
5. Delgado, Ryan—New York Central Labor Council. (Comments 11, 15 and 42)
6. Dennehy, Thomas—Committee 4 Better Transit. (Comment 55)
7. Epstein, Louis—World Trade Center Restoration Movement. (Comments 21 and 27); Comments were also submitted in writing.
8. Gualtieri, Richard. (Comment 14)
9. Haikalis, George—President, Institute for Rational Urban Mobility. (Comments 3, 14, 16, and 55)
10. Hensley, Jennifer—Downtown Alliance. (Comments 15, 49 and 54)
11. McCardle, Frank—General Contractors Association. (Comments 13, 15, 31, 38, 39, 40, 41 and 54)
12. Papp, Albert—New Jersey Association of Railroad Passengers. (Comments 14 and 16)
13. Reilly, Patricia—Coalition of 9/11 Families. (Comments 3, 19 and 20)
14. Sheth, A.D.—KS Engineering. (Comments 27 and 35)

15. Slippen, Dan—Pace University Center for Downtown. (Comment 7)

E-MAIL

16. Abramson, Steven. (Comment 37)
17. Bill. (Comment 16)
18. Butziger, Alexander. (Comments 6 and 17)
19. Dillon, Patricia—Independence Plaza Tenants Association. (Comments 32 and 33)
20. Gelb, Stephanie—Battery Park City Authority. (Comments 18, 58 and 61); Comments were also submitted in writing.
21. Graham, Barry. (Comment 53)
22. Horning, Diane. (Comments 3 and 9)
23. Nita-Gallo, Manuela—wife of victim. (Comment 3)
24. Santora, Maureen—mother of victim. (Comment 3)
25. Seaman, Daniel—brother of victim. (Comment 3)
26. Thorpe, Jennifer. (Comment 17)

WRITTEN

27. Anonymous—concerned family member. (Comment 4)
28. Baker, Marianne—Supporters of World Trade Center Preservation. (Comments 3, 9 and 25)
29. Bell, Patricia A.—Coalition of 9/11 Families. (Comment 3)
30. Carlson, David—U.S. Environmental Protection Agency. (Comments 23 and 26)
31. Coughlin, Mary . (Comment 3)
32. Delaney, Colleen M. —rescue worker, World Trade Center. (Comment 3)
33. Desmarais, Cheryl—wife of victim. (Comments 3, 9, 19 and 25)
34. Diehl, Loisanne—wife of victim. (Comment 3)
35. Forsythe, Tessie Molina—Support Group of St. James Church. (Comment 3)
36. Hughes, Catherine M. (Comment 60)
37. Ielpi, Lee—Coalition of 9/11 Families. (Comments 3, 9, 19 and 25)
38. Jackman, Barbara. (Comments 3, 9 and 25)
39. Jain, Sneh—wife of victim. (Comment 3)
40. Kolpak, Alexis D. (Comment 3)
41. Lynch, Kathleen A. —sibling of victim. (Comments 3, 9, 19 and 25)
42. Lyon, John—Jersey City resident. (Comments 1, 8, 48, 50, 51 and 52)
43. Martin, Caroline—Family Association of Tribeca East. (Comments 10, 12, 32, 33 and 34)

44. Milanowycz, Adele—mother of victim. (Comment 3)
45. Nedd, Roxanne—wife of victim. (Comments 3 and 19)
46. Parks, Diane Keating . (Comments 3 and 19)
47. Pisano, Fran. (Comment 3)
48. Rappleye, Karen—sibling of victim. (Comments 3, 19, 20 and 25)
49. Regenhard, Sally—Skyscraper Safety Coalition of 9/11 Families. (Comments 9 and 19)
50. Santillan, Expedito C.—Coalition of 9/11 Families. (Comment 3)
51. Seims, Erik—NYCDCP Transportation Division. (Comment 43)
52. Tamuccio, James W.—father of victim. (Comment 3)
53. Tamuccio, Patricia—mother of victim. (Comment 3)
54. Taylor, Bruce and Connie—parents of victim. (Comments 3, 9, 19 and 25)
55. Wah Low, Seu—Coalition of 9/11 Families. (Comments 3, 19 and 25)
56. Weiser, Anatoly S. (Comments 3 and 19)
57. Wengerchuk, Oksana—wife of victim. (Comments 3 and 25)
58. Wiley, Caryn—daughter of victim. (Comments 3, 19 and 25)
59. Zelman, Barry—sibling of victim. (Comment 3)
60. Zuccala, Madeleine A.—wife of victim. (Comment 3)
61. Pattison, Kathleen—mother of victim. (Comment 3)
62. Brandt-Young, Christina and Jennifer K. Brown—NOW Legal Defense and Education Fund. (Comment 44)
63. Anonymous—Spina resident. (Comments 3, 9 and 19)
64. Oliff, Andrew. (Comments 6, 32 and 64)
65. Weiss-Little, Michelle—sister of victim. (Comments 3 and 9)
66. Olmsted, Robert A. (Comments 56 and 57)
67. Thorpe, Raymond—father of victim. (Comment 3)
68. Meehan III, Thomas J.—father of victim. (Comment 3)
69. Lachman, Senator Seymour P.—New York State Senate, 23rd District. (Comments 3, 28, 29, 30 and 55)
70. Kornfeld, Robert—Coalition of 9/11 Families. (Comments 1, 36, 45, 46 and 47)
71. Gardner, Anthony—President of WTC United Family Group. (Comments 3, 9, 19 and 25).

C. COMMENTS RECEIVED

GENERAL

Comment 1: Every graphic that you present as part of this project should have the footprints of the tower shown. (Centolanzi, 2; Lyon, 42; Kornfeld, 70)

Response: Comment noted. This will be reflected in the Environmental Impact Statement.

Comment 2: We need to know specifically what elements of the station might be within the footprints of the towers, and information should be given as to why these elements must be within these areas. (Centolanzi, 2)

Response: The Environmental Impact Statement will provide a detailed description of the proposed terminal and its physical location within the World Trade Center site.

Comment 3: No building, including infrastructure, should be erected upon the footprints of the World Trade Center Towers. The addition of more tracks and infrastructure on the footprints encroaches on a site that should be historically preserved. Allow maximum access to the bedrock footprints for visitors. (Coughlin, 31; Diehl, 34; Horning, 22; Santora, 24; Seaman, 25; Pisano, 47; Santillan, 50; J.Tamuccio, 52; P.Tamuccio, 53; Bell, 29; Delaney, 32; Jackman, 38; Jain, 39; Kolpak, 40; Wah Low, 55; Lynch, 41; Milanowycz, 44; Weiser, 56; Wengerchuk, 57; Wiley, 58; Zuccala, 60; Desmarais, 33; Forsythe, 35; Nedd, 45; Zelman, 59; Ielpi, 37; Rappleye, 48; Baker, 28; Nita-Gallo, 23; Haikalis, 9; Reilly, 13; Taylor, 54; Weiss-Little, 65; Thorpe, 67; Meehan III, 68, Lachman, 69, Pattison, 61; Anonymous, 63; Parks, 46; Gardner, 71)

Response: The Federal Transit Administration, Federal Highway Administration, U.S. Department of Housing and Urban Development, Port Authority, Lower Manhattan Development Corporation, and New York State Department of Transportation are preparing documentation for review under Section 106 of the National Historic Preservation Act. This documentation will be used by federal and state oversight agencies to make a determination of the historical significance of the site. This process will follow the Advisory Council on Historic Preservation regulations (36 CFR 800); appropriate National Register Bulletins; and National Historic Landmark Regulations (36 CRF 65). Based on the findings of this review, a memorandum of agreement or a programmatic agreement would be developed to describe the findings and any necessary mitigation. This agreement would be signed by the preparers of the review documentation as well as the federal oversight agencies.

Comment 4: "Ground Zero" is a burial ground and therefore a sacred, hallowed place upon which nothing should be built or expanded. (Anonymous, 27).

Response: See above response to Comment 3.

Comment 5: For those track elements within the footprint area, propose architectural treatments that will clearly define to passengers on trains and in the terminal what tracks and tunnels are in the footprint memorial area. For example, unique and dramatic lighting can be used in those tunnel sections. (Centolanzi, 2)

Response: Comment noted. See above response to Comment 4 also.

Comment 6: It would be a good idea to build the new World Trade Center PATH station at least partly on the Twin Towers' footprints. We must take the World Trade Center site back from bin Laden to reintegrate it into the urban fabric. Keeping the footprints completely empty of development would encourage terrorists to litter our cities with more footprint memorials. (Butziger, 18; Oliff, 64)

Response: Comment noted.

Comment 7: Inconvenient transportation options will impede the revitalization of Lower Manhattan. The restoration of the PATH and the city's mass transit system is a greater good that must reach completion as soon as possible. Every effort should be made to expedite the completion of the environmental review process and construction of the new terminal. (Slippen, 15; Anderson, 1)

Response: As per President Bush's Executive Order 13274 (September 18, 2002) and the recent inclusion of the Lower Manhattan Recovery Effort to the list of Priority Projects (February 27, 2003) by U.S. Secretary of Transportation Mineta, the Federal Transit Administration, the Metropolitan Transportation Authority, and the Port Authority are coordinating to complete a comprehensive and expeditious environmental review process.

Comment 8: The Jersey Journal headline on the issue of 10/9/03 says: "World Trade Center station will be deluxe." With Exchange Place and Journal Square stations in good shape, what about the other stations that look quite shabby? (Lyon, 42)

Response: A program exists to rehabilitate the PATH stations system-wide to provide modern facilities while expanding to meet the travel demand. However, these projects are outside the scope of this Environmental Impact Statement.

Comment 9: The blueprints illustrating the original PATH train configuration and new plans should be made available to the public. (Horning, 22; Regenhard, 49; Jackman,

38; Lynch, 41; Desmarais, 33; Taylor, 54; Ielpi, 37; Baker, 28; Weiss-Little, 65; Anonymous, 63; Gardner, 71)

Response: Schematics of the proposed Permanent WTC PATH Terminals will be provided in the Environmental Impact Statement.

Comment 10: The Federal Register announcement is not enough public outreach. NEPA regulations require a much more substantial outreach. The few people at the scoping meeting are ample testimony of this. (Martin, 43)

Response: The public scoping meetings were also advertised in 13 local newspapers (see the introduction herein), and additional public outreach efforts were conducted, including briefings to public agencies, elected officials and key private firms; publication of project information on the Port Authority's website; printing and distribution of a flyer and project newsletter to more than 2,000 individuals and groups on the project's mailing list; postings on PATHVision; and the staffing of mobile information centers at PATH stations on two separate days.

Comment 11: The Permanent WTC PATH Terminal must be seamlessly integrated with other World Trade Center projects as well as the existing Lower Manhattan area. This includes accessibility and visibility at street level, unimpeded flow of pedestrian traffic once inside the hub and facilitated connections to the City's major public transportation modes. (Anderson, 1; Delgado, 5)

Response: The Port Authority is coordinating with the Lower Manhattan Development Corporation; Metropolitan Transportation Authority; New York State Department of Transportation; the City of New York; Studio Daniel Libeskind (Master Plan architect); Silverstein Properties, and others to provide for the coordinated redevelopment of the World Trade Center site and in support of other revitalization efforts planned for Lower Manhattan.

Comment 12: The public should be given a chance to comment on and have input into the development of the Environmental Performance Commitments. (Martin, 43)

Response: The Environmental Impact Statement will include a description and assessment of the Environmental Performance Commitments that will be implemented as part of the project. The public will be given the opportunity to comment on this portion of the Draft Environmental Impact Statement along with any other aspects of the analysis.

PROJECT ALTERNATIVES

Comment 13: The interim PATH as the No Build, long-term solution to the problems of Downtown has to be examined in the document and the notion that you could preserve it dispelled more clearly. (McCardle, 11)

Response: The Environmental Impact Statement will describe the temporary PATH station and its long-term limitations.

Comment 14: The Port Authority should consider routing a new track connection between the Downtown PATH under Fulton Street and constructing a new PATH No. 6 station with a mezzanine that will connect all six New York City subway stations and PATH, effectively merging all 14 transit lines within a single underground transportation complex in Lower Manhattan. Please add this program to one of the alternatives that will be considered in the scoping document. (Papp, 12; Clift, 3; Gualtieri, 8; Haikalis, 9)

Response: The Permanent WTC PATH Terminal will connect with the proposed Fulton Street Transit Center at Dey Street. The PATH system and NYCT's IRT No. 6 route are not compatible and to connect the two is technically infeasible. A connection between these systems would require major infrastructure improvements including new tracks and tunnels; communications systems upgrades; and the integration of fleets; operating agreements; and personnel. Such a proposal would require a longer and more difficult construction process with greater potential for adverse impacts to the environment than would the proposed Permanent WTC PATH Terminal. Therefore, this alternative will not be considered for further study in this EIS. Furthermore, a direct connection between New Jersey and East Midtown, Manhattan is not a goal of this proposal and is, therefore, outside the scope of this project.

Comment 15: The transportation improvements made in Lower Manhattan today must be built not only to accommodate existing capacity but also to support the increased capacity anticipated throughout the following decades as other Downtown development projects move forward. (Hensley, 10; Centolanzi, 2; McCardle, 11; Delgado, 5)

Response: The Permanent WTC PATH Terminal will be built to accommodate approximately 50 percent greater ridership than existed before September 11, 2001. It is anticipated that this capacity will support anticipated demand through 2025.

Comment 16: The Permanent PATH Station and the Fulton Street Transit complex should be combined into one. Fulton Street would serve as a pedestrian-only street and an

entranceway to Lower Manhattan extending between the South Street Seaport and the Winter Garden. (Papp, 12; Bill, 17; Haikalis, 9)

Response: A direct connection between the stations will be provided beneath Dey Street as part of the Fulton Street Transit Center project. Pedestrian improvements along Fulton Street are planned as part of New York City's Vision for Lower Manhattan; however, these efforts are not part of the scope of this project.

Comment 17: It is important that the new World Trade Center PATH Terminal allows for the construction of office towers different from those currently proposed, particularly towers taller and thus heavier than those now conceived. The PATH Terminal must be designed flexible enough in case the current World Trade Center design gets improved and scaled up. Particular attention needs to be paid to column strength and placement. (Thorpe, 26; Butziger, 18)

Response: The Port Authority is and will continue to coordinate with the Lower Manhattan Development Corporation; Studio Daniel Libeskind; Silverstein Properties; and others in the development and implementation of design standards for the redevelopment of the World Trade Center site. The design of the Permanent WTC PATH Terminal will comply with these standards.

Comment 18: There should be a way to keep vent shafts out of the open space on the surface of Route 9A. (Gelb, 20)

Response: Two (north and south) ventilation structures for PATH were located within the median of Route 9A prior to September 11, 2001. As part of this project, a new ventilation structure would be constructed in approximately the same location of the north ventilation structure that existed prior to September 11, 2001. The Port Authority is also currently studying two locations for a south vent. One option would be the construction of a vent in approximately the same location as the south vent that existed before September 11, 2001. The second option would locate the ventilation structure within a newly constructed building on the former site of Deutsche Bank site. The EIS will examine the potential effects of the north vent structure as well as both of options for the south vent.

Comment 19: Please recreate the PATH station to its design prior to the September 11, 2001 attacks. Do not increase the number of tracks or platforms (Parks, 46; Regenhard, 49; Wah Low, 55; Lynch, 41; Wiley, 58; Desmarais, 33; Nedd, 45; Taylor, 54; Ielpi, 37; Rappleye, 48; Reilly, 13; Weiser, 56; Anonymous, 63; Gardner, 71)

Response: The pre-September 11, 2001 PATH station would not have adequate capacity to support the anticipated ridership growth in Lower Manhattan over the next several decades, including future visitors to the proposed memorial. Therefore,

additional infrastructure has been planned as part of the Permanent WTC PATH Terminal.

Comment 20: A provision to protect the footprints must be incorporated into the Environmental Impact Statement. The creation of a transportation hub, a Permanent PATH Train Station and preservation of the footprints are not mutually exclusive. (Reilly, 13; Rappleye, 48)

Response: See above response to Comment 3.

Comment 21: The Draft Scope needs to be more flexible in terms of build alternatives, given that what is built below ground has to be integrated with what is built above ground and considering possible evolutions of the aboveground plan that may change what is needed below. (Epstein, 7)

Response: The Environmental Impact Statement will consider the various alternatives being prepared for concurrent environmental review processes for Route 9A (New York State Department of Transportation), the World Trade Center Memorial and Redevelopment Plan (Lower Manhattan Development Corporation), and Fulton Street Transit Center (Metropolitan Transportation Authority). These alternatives will be considered not only for their implications in the No Action condition, but also for their potential impacts to the design of the Permanent WTC PATH Terminal.

Comment 22: The current scoping plan seems to commit more financial support to architecture than to transit. Please include alternatives that focus on commitment of resources to transportation improvements. (Clift, 3; Centolanzi, 2)

Response: The proposed plan commits to the construction of the above-grade terminal facility; sub-grade levels will include pedestrian connections and other structural elements, as well as the extension of platforms to accommodate 10-car trains. The majority of the project costs are associated with the integration of the Terminal with the surrounding uses, including the proposed pedestrian connections.

Comment 23: We do not believe that analyzing one alternative is sufficient for the Environmental Impact Statement. For example, instead of a five level terminal, examine a four level terminal or different walkway schemes. (Carlson, 30)

Response: The Environmental Impact Statement will consider alternatives for the provision of off-site pedestrian connections and any other appropriate alternatives developed during the scoping process.

Comment 24: Historical information should be provided as to how the track routing came to exist. (Centolanzi, 2)

Response: As described above, a Section 106 review of the project site is currently being undertaken. The original configuration of the PATH tracks and subsequent iterations of their alignment will be described as part of the supporting documentation for the Section 106 review.

Comment 25: Incorporate the station into the memorial design (Jackman, 38; Wah Low, 55; Lynch, 41; Wengerchuk, 57; Wiley, 58; Desmarais, 33; Taylor, 54; Ielpi, 37; Rappleye, 48; Baker, 28; Gardner, 71).

Response: As proposed, the Permanent WTC PATH Terminal is consistent with the intentions of the current planning for the World Trade Center site, including the proposed memorial.

Comment 26: We recommend that the Permanent WTC PATH Terminal Draft Environmental Impact Statement should recognize that there are two "west connection" options currently proposed for the transit center. The Draft Environmental Impact Statement should discuss if either the Dey Street or the John Street Connection is chosen as part of the Fulton Transit Center, the design of the PATH Terminal can retain that connection. (Carlson, 30)

Response: At present, the Dey Street connection is being considered as part of the Fulton Street Transit Center Environmental Impact Statement. The Permanent WTC PATH Terminal will coordinate with the selected design for the Fulton Street Transit Center.

Comment 27: Some consideration should be given to enabling trains to pass beyond the current terminal to future evolution of the mass transit system. This may involve a number of possibilities (Long Island Rail Road connection, subway system integration, airport access) and again design consideration should not prejudge. The impact area of the Environmental Impact Statement does not need to be extended beyond the World Trade Center site but a strategy for eastward trackage should be offered for potential future construction. (Epstein, 7)

Response: The project will restore PATH system to its pre-September 11, 2001 service conditions. However, the new Terminal will provide for enhanced mobility through pedestrian connections to Lower Manhattan subways and Hudson River ferries. The proposed action does not preclude the development of the LIRR or JFK AirTrain service connection.

Comment 28: The World Trade Center station project should not be limited to PATH but should include the Cortlandt Street-World Trade Center Station (1 and 9); the Cortlandt Street Station (N, R, and W); and the World Trade Center-Church Street Station (E). There should be a single, unified station on the World Trade Center site and connections to the existing subway platforms should be fully integrated. (Seymour, 69)

Response: Connections to the Cortlandt Street (N, R, and W Lines) and Chambers Street-World Trade Center Station (A, C, E, 2, and 3 Lines) would be provided at or near them same location as provided prior to September 11, 2001. A direct connection to the Cortlandt Street Station (1 and 9 Lines) will also be provided. This connection is being coordinated with MTA's rehabilitation of the Cortlandt Street Station.

Comment 29: The connections to the Fulton Street Transit Center should be considered as part of the Permanent WTC PATH Terminal project. Including these connections as part of the Fulton Street project serves only the bureaucrats desire to keep the Port Authority and the Metropolitan Transportation Authority projects separate at the expense of logic, efficiency, and the best interest of commuters. (Seymour, 69)

Response: The Permanent WTC PATH Terminal and the Fulton Street Transit Center are being funded by the federally-sponsored, $4.55-billion Lower Manhattan Transportation Recovery Effort. The environmental review of these projects is being coordinated on both the local and federal levels, and each is considering the proposed elements of all projects being proposed for Lower Manhattan. While the physical construction of the Dey Street underpass will be part of the MTA Fulton Street Transit Center, its planning and design is a coordinated effort between MTA and Port Authority.

Comment 30: The Port Authority and Metropolitan Transportation Authority should use this opportunity to connect the PATH tubes with the 1 and 9 train line under Greenwich Street. PATH and the New York City Transit IRT (Interborough Rapid Transit) lines have a similar rolling stock, so a track connection could be useful in the future. (Seymour, 69)

Response: A direct connection between PATH and the 1 and 9 train line at Greenwich Street would not meet the goals and objectives of this project. Such a connection is also not technically feasible. The grade between the portals of the PATH's Hudson Tubes and the Greenwich Street line would be steep and would not meet the minimum operating criteria of PATH or New York City Transit. Furthermore, a direct connection between PATH's Lower Manhattan service and New York City Transit's 1 and 9 train line would not benefit a significant number of Lower Manhattan's commuters or visitors. PATH already provides

service along Sixth Avenue between 9th and 33rd Streets via its Uptown Lines and New York City Transit's 1 and 9 train lines terminate at the South Ferry Station, which is only two stops south of the World Trade Center site. Therefore, this proposal will not be considered for further study in this Environmental Impact Statement.

ANALYSIS METHODOLOGY

Comment 31: When considering the future growth of the downtown business community, the Permanent PATH Station projections should incorporate a long-term, 50-year horizon rather than the current projection, which only looks to 2020. (Sheth, 14; McCardle, 11)

Response: The Permanent WTC PATH Terminal Environmental Impact Statement will consider a design year of 2025. The evaluation of a transit project 20 years in the future is consistent with other environmental reviews being recently undertaken by the Federal Transit Administration. Furthermore, a 2025 design year is being considered for the transportation projects being planned in Lower Manhattan to be consistent with current population and employment forecasts prepared by the New York Metropolitan Transportation Commission.

Comment 32: The new PATH station is imperiled by the fact that no infrastructure will be allowed to take root at the site and by the environmental hazard posed by the Libeskind's pit with its exposed slurry wall. The Environmental Impact Statement should include an analysis of the safety and stability of the slurry wall. (Dillon, 19; Martin, 43, Oliff, 64).

Response: The Permanent WTC PATH Terminal project includes infrastructure elements, including slurry wall stabilization, that are needed to support the elements of the Terminal within the WTC "bathtub." These infrastructure elements will be addressed and assessed in the Environmental Impact Statement.

Comment 33: The Environmental Impact Statement should include a longer period than one opening year. (Dillon, 19; Martin, 43).

Response: The Environmental Impact Statement will consider the construction-period; the opening year; and the project's design year, which is over 20 years into the future.

Comment 34: The Environmental Impact Statement should consider a large part of Lower Manhattan. It should at least cover the whole area river to river south of Canal and Pike Streets. This is the area being studied for the World Trade Center

Memorial and Redevelopment Plan Generic Environmental Impact Statement. (Martin, 43)

Response: The Environmental Impact Statement will consider secondary impacts within all of Lower Manhattan south of Canal Street and west of Pike Street.

Comment 35: The environmental impact should be considered not only in association with the federal regulation but also with the New York State, New York City and any other local government agency involved. (Sheth, 14)

Response: The Environmental Impact Statement will consider a range of impact criteria under the direction of the Federal Transit Administration and in consultation with appropriate federal, state, and local agencies and authorities.

Comment 36: Section D of the Draft Scope, The Affected Environment, is deficient because it omits mention of the tower footprints as a resource and fails to identify the existing features or describe the physical impact of proposed changes to existing features (Kornfeld, 70).

Response: See above response to Comment 3.

CONSTRUCTION

Comment 37: The Environmental Impact Statement must contain measures to ensure that construction is done in an environmentally safe, health-protective manner. The following must be specified in the Environmental Impact Statement: (a) All contracts must require that all construction equipment use ultra-low-sulfur diesel fuel and/or new technologies, to reduce harmful diesel emissions. Contracts should contain financial incentives (using federal September 11, 2001 Recovery funds) to enable contractors to meet this requirement, whether they own their equipment or rent it. The cumulative effects of highly toxic diesel emissions on people's health during the many years of the World Trade Center re-building, using current standards, will be catastrophic. The problem can and must be addressed. (b) The site of the new PATH station must be tested comprehensively and stringently for existing contaminants in the soil. If such tests have been done since September 11, 2001, the Environmental Impact Statement should contain the results of the testing. (c) The Environmental Impact Statement must specify that the most stringent federal, state and city regulations be applied in the control of dust during construction. (d) The Environmental Impact Statement must provide for comprehensive ongoing, state-of-the-art air monitoring for all World Trade Center "Contaminants of Concern" (list developed by the federal EPA with several other environmental agencies, and available on the EPA web-site) in all neighborhoods of Lower

Manhattan (river to river, south of Canal and Pike Streets). Federal EPA standards should be used and the EPA should oversee this monitoring. (Dillon, 19) With the many construction parties involved, how will the Port Authority enforce the adherence to a green standard? (Cook, 4; Abramson, 16)

Response: A detailed analysis of construction activity will be included in the Environmental Impact Statement. This analysis will include an assessment of contaminated materials and air quality. The Port Authority will evaluate the cumulative construction impacts and implement ways to mitigate these impacts, which will comply with the Environmental Performance Commitments developed by the agencies sponsoring projects in Lower Manhattan. Furthermore, the Port Authority will implement any other measures that are specified in the Environmental Impact Statement in order to mitigate potential construction-period impacts. Also as will be described in the Environmental Impact Statement, the Port Authority and the Lower Manhattan Development Corporation are coordinating to develop sustainable and green design guidelines for the World Trade Center site, including the Permanent WTC PATH Terminal. These standards would be incorporated into the project's design and construction.

Comment 38: The Environmental Impact Statement should address construction traffic not simply from this project but from all others and should consider their affect on pedestrians and other motorized traffic. The document must describe the Port Authority's commitments to mitigate any potential adverse affects to vehicular and pedestrian traffic during construction. (McCardle, 11)

Response: A detailed assessment of vehicular and pedestrian traffic and potential construction-period impacts will be included in the Environmental Impact Statement. Furthermore, an analysis of the cumulative impact of all proposed projects in Lower Manhattan will be conducted. Mitigation measures will be recommended and implemented, if necessary.

Comment 39: The Environmental Impact Statement must address air quality issues that may result from construction in such a confined area. The document should examine the use of cleaner fuels and the filtration of dust, dirt, and other debris that commonly is found around construction sites. (McCardle, 11)

Response: A detailed assessment of air quality will be conducted. This analysis will include the environmental performance commitments developed for the planned projects in Lower Manhattan. Many of the measures recommended here are part of the environmental performance commitments agreed to by the Lower Manhattan agencies, which include the Port Authority.

Comment 40: The Environmental Impact Statement must examine methods to minimize the noise associated with very intense construction. (McCardle, 11)

Response: The Environmental Impact Statement will include a detailed assessment of construction-period noise, including the environmental performance commitments developed for planned projects in Lower Manhattan. Additional mitigation measures will be recommended, as necessary.

Comment 41: The document should address most clearly the ability of the Port Authority and the contracting community to build the Permanent PATH in a community friendly manner. (McCardle, 11)

Response: Comment noted.

Comment 42: Minimizing adverse impacts may be accomplished by using existing infrastructure where available and following green standards when considering design. (Delgado, 5)

Response: As will be described in the Environmental Impact Statement, the Port Authority and the Lower Manhattan Development Corporation are coordinating to develop sustainable and green design guidelines for the World Trade Center site, including the Permanent WTC PATH Terminal. These standards would be incorporated into the project's design and construction.

Comment 43: As you know, New York City Transit has "vacuum trains" for cleaning their roadbeds. PATH may be able to mitigate neighborhood concerns about contaminating the air during construction by purchasing such a train. Feeding contaminants through a giant hose into the train via a hole at the top of each car, sticking the train at the southernmost World Trade Center track during off-peak hours, then hauling the train off to the PATH yards would be an environmentally sound way to proceed with construction. (Seims, 51)

Response: Vacuum trains would not be appropriate for the World Trade Center site to be redeveloped, of which PATH is a component. The World Trade Center site is too large and the physical alignment of the PATH tracks is too small to provide for a significant benefit to air quality during construction.

Comment 44: The rebuilding of Lower Manhattan may result in a New York City construction labor shortage. This shortage can be prevented with a focused equal opportunity initiative. It is critical that all construction contracts and subcontracts include enforceable equal opportunity clauses. We urge the Port Authority to work with NOW Legal Defense and other interested groups to create an on-site, pre-apprenticeship program that will familiarize potential laborers with construction

needs and trade opportunities. The program should include a childcare component to facilitate participation in the program by parents. (Brandt-Young and Brown, 62)

Response: Through the Port Authority's Office of Business and Job Opportunity, the agency has a long-standing practice of encouraging Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) to seek business opportunities with it, either directly or as subconsultants and subconstractors. The Chief Engineer sets goals for MBE and WBE participation for Port Authority contracts. Such goals would be established for the construction of the Permanent WTC PATH Terminal.

Comment 45: The Draft Scope fails to describe the impact to the 1 World Trade Center and 2 World Trade Center tower footprints of construction work that commenced after the conclusion of the World Trade Center Emergency Operation in approximately June 2002. (Kornfeld, 70)

Response: The temporary PATH station, including tracks, platforms, and mezzanines, was constructed in the same location as the pre-September 11, 2001 PATH Terminal between July 2002 and November 2003. The temporary station and activities associated with its construction are not part of the scope for the Permanent WTC PATH Terminal.

Comment 46: When will the site be properly cleaned to allow an inventory of existing resources related to the 1 World Trade Center and 2 World Trade Center footprints by U.S. National Park Service, New York State Office of Parks, Recreation, and Historic Preservation, NYCLPC, or interested parties? This is critical for an informal evaluation to begin. (Kornfeld, 70)

Response: See response to Comments 3 and 24.

Comment 47: What measures have been implemented or are planned to protect the historic resources of the 1 World Trade Center and 2 World Trade Center footprints from construction damage. (Kornfeld, 70)

Response: Based on the findings of the Section 106 review process (see response to Comment 3), a memorandum of agreement may be developed to mitigate any potential impacts of the Permanent WTC PATH Terminal to any designated resources on the World Trade Center site.

OPERATION

Comment 48: Once there is again a trans-Hudson route to lower Manhattan, can we get a weekend schedule that allows service to run every fifteen minutes after 7:45pm? And on Sundays, running every twenty minutes via Hoboken to Journal Square is much too long. I realize that PATH considers itself a weekday commuter line, but weekend crowds must stand and be packed like animals. (Lyon, 42)

Response: The PATH system is a 24 hour-a-day, 7 day-a-week operation. System maintenance is undertaken during late night and weekend periods, including rehabilitation and/or replacement of track, signals, and other components. It is necessary to operate with longer headways during these periods to allow for adequate time to maintain the system. However, the Port Authority routinely evaluates its operating plan for PATH. If the future demand for late night and weekend service would warrant shorter headways, schedule adjustments would be made.

Comment 49: Planning must be done now to ensure that the World Trade Center Transportation Hub is built to incorporate the JFK International Airport, Long Island commuter rail connection. (Hensley, 10)

Response: The Permanent WTC PATH Terminal has been designed to provide for additional demand associated with future transit improvements, including the proposed connection to JFK Airport. The proposed action does not preclude the development of this connection.

Comment 50: Are there any plans to return benches and wastebaskets to PATH stations? (Lyon, 42)

Response: The Permanent WTC PATH Terminal will include certain amenities, such as those noted for the convenience of PATH customers, pursuant to security criteria being developed for the terminal.

Comment 51: The noise of the train announcements and the bells ringing to warn of closing doors are too loud and I believe exceed the 85 decibel limit. (Lyon, 42)

Response: Comment noted.

Comment 52: Monitors are programmed to tell us which station we are in. However, the Public Address announces at every station that "the elevators at Pavonia/Newport" are not working. If the station I am in has no elevator, why do I have to listen to this? Can't PATH direct this obnoxious message to only those stations with elevators? (Lyon, 42)

Response: Comment noted.

Comment 53: It would be nice if the new station at the World Trade Center had accurate "NEXT TRAIN" platform indicators, or even had all trains leaving from adjacent platforms so that you don't have to run from platform to platform. It would also be nice if the PATH trains could go fast under the Hudson when going to 33rd St, instead of slowing down dramatically. (Graham, 21)

Response: Comment noted.

Comment 54: We would like to see the PATH's extension to Newark Liberty International Airport, an amenity which has recently been made available to people in the Midtown area. (Hensley, 10; McCardle, 11)

Response: The Port Authority is studying options for the extension of PATH service to Newark Liberty International Airport. However, this project is independent of the Permanent WTC PATH Terminal.

Comment 55: The project should include an assessment of fare integration options. Metropolitan Transportation Authority Metro Cards should quickly replace PATH Quick Cards. With a fully integrated fare, PATH and subway entrances and exits could be consolidated, easing transfers. (Dennehy, 6; Centolanzi, 2; Haikalis, 9; Seymour, 69)

Response: The Port Authority and MTA New York City Transit are currently studying a fare integration program. However, this study is independent of the Permanent WTC PATH Terminal.

Comment 56: The Port Authority should study the feasibility of extending PATH in the future directly to the three terminals at New Liberty International Airport. This would solve the capacity problems of the monorail and would achieve a "one-seat" ride to the airport from the World Trade Center Transportation Hub. (Olmstead, 66)

Response: The Port Authority is studying options for an extension of PATH to Newark Liberty International Airport. This study and its recommendations are not part of the scope of the Permanent WTC PATH Terminal Environment Impact Statement.

Comment 57: If the Lower Manhattan business community believes that a good JFK connection is important to its recovery, the quickest way to achieve that goal is to reinstate a truncated version of the special "JFK Express – Train to the Plane" that New York City Transit operated from 1978 to 1990. The reactivated service

could run between Chambers Street and Howard Beach over the A subway line tracks, stopping at Broadway/Nassau and Jay Street. The Fulton Street Transit Center could include a Lower Manhattan Air Terminal component and a short side platform to provide a dedicated boarding area for JFK passengers. A second step could be to build a direct connection between the A line and the Air Train at Howard Beach and to procure a fleet of cars designed to operate over both systems. (Olmstead, 66)

Response: The Lower Manhattan Development Corporation has commissioned a feasibility study of transit service between JFK and Lower Manhattan in cooperation with the Port Authority, Metropolitan Transportation Authority, and New York City Economic Development Corporation. The Permanent WTC PATH Terminal is being planned to accommodate their recommendation for future service, but specific measures to implement this service are outside the scope of this Environmental Impact Statement.

PEDESTRIANS

Comment 58: We are concerned about pedestrian access to and from the South Residential Neighborhood and the WFC Towers 1 & 2. This critical link for Battery Park City Authority commuters and residents is not shown in the Scoping Document. Moving the 9A by-pass ramps to the south would help. With only one pedestrian tunnel portal to the PATH Terminal west of Route 9A, pedestrians will have to walk out of their way to access the site. (Gelb, 20)

Response: An all-weather connection would be constructed beneath Route 9A for direct access to the World Trade Center PATH Terminal from the Winter Garden. The proposed project will not preclude existing pedestrian bridges across Route 9A nor would it eliminate other above-grade connections proposed by the New York State Department of Transportation.

Comment 59: We would suggest that the Environmental Impact Statement evaluate the following compared to the pre-September 11, 2001 conditions: * Number and location of portals to pedestrian concourse. * Linear distance should be measured for pedestrian trips to and from the new terminal. * Number of traffic lanes to cross. (Gelb, 20)

Response: The Environmental Impact Statement will present a detailed analysis of pedestrian operations using commonly accepted methodologies and impact criteria. Potential impacts will be assessed based on pre-September 11, 2001 conditions.

Comment 60: I am very concerned about a PATH entrance/exit in Liberty Park (where Green Market is currently located). Please handle pedestrian traffic with care and keep the one open block east of Church open. (Hughes, 36)

Response: The Environmental Impact Statement will evaluate a Permanent Terminal both with and without a connection to Liberty Park.

Comment 61: It is important that the portal(s) connecting the World Financial Center site to the PATH Terminal be open and secure at all times. (Gelb, 20)

Response: Comment noted.

WTC MEMORIAL AND REDEVELOPMENT PLAN

Comment 62: In terms of potential contamination, the public would like to be informed on the status of the Deutsche Bank building. The figures on the test results from inside the building need to be included in the Environmental Impact Statement for the World Trade Center development projects. (Cook, 4)

Response: The potential contamination of the Duestche Bank Building is being considered as part of the environmental review process for the World Trade Center Memorial and Redevelopment Plan. This work is independent of the review process for the Permanent WTC PATH Terminal.

Comment 63: Both sites for the proposed tour bus parking garage -- underneath the Deutsche Bank or at site 26 in Battery Park City – seem poorly chosen. There exists great potential for a major traffic bottleneck at the end of Greenwich Street if it is opened up through the World Trade Center. (Cook, 4)

Response: The proposed bus parking garage is being considered as part of the environmental review process for the World Trade Center Memorial and Redevelopment Plan. This work is independent of the review process for the Permanent WTC PATH Terminal.

Comment 64: The Libeskind plan was not the one that the majority of New Yorkers chose or desired as the replacement of the World Trade Center. It is unlikely that the plan will survive if investigation were conducted as to its selection. (Oliff, 64)

Response: Comment noted.

MISCELLANEOUS

A number of commenters provided comments on issues that are not relevant to the scope of this project. These include requests for additional information and requests for career opportunities.

These comments have been retained as part of the public record for this project, but they are not specifically addressed as part of this document. ✳

Appendix H-2: DEIS Public Hearing Transcripts

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PUBLIC HEARING

RE: PERMANENT WORLD TRADE CENTER PATH TERMINAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

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City Hall
280 Grove Street
Jersey City, New Jersey

June 22, 2004
4:30 p.m.

B E F O R E :

MICHAEL P. DePALLO, Director and General Manager PATH

ROY ALLEN & ASSOCIATES, INC.
521 FIFTH AVENUE - 17TH FLOOR
NEW YORK, NEW YORK 10175
(212) 840-1167

A P P E A R A N C E S :

LOU MENNO, Program Director World
Trade Center Site Restoration
ARNOLD BLOCH, Moderator

MR. DePALLO: Hello. Let's get started, please. If everyone can have a seat, we'll get ready to go.

My name is Michael P. DePallo, I'm the Director and General Manager of PATH and I'm here today to open up this hearing.

I want to welcome you to this public hearing on the Draft Environmental Impact Statement, that's known as a DEIS, and Section 4(f) evaluation for the Permanent World Trade Center PATH Terminal.

The Federal Transportation Administration and The Port Authority of New York and New Jersey have undertaken this DEIS and Section 4(f) evaluation to reconstruct the permanent terminal at the World Trade Center site in Lower Manhattan.

For The Port Authority Trans-Hudson Corporation, PATH, the project would be funded as part of the Federal Government's 4.55 billion Lower Manhattan transportation recovery effort which was committed to New York City following the terrorist attacks of September 11th, 2001.

The Permanent World Trade Center PATH Terminal is proposed to be a full service regional transportation hub that would be coordinated with the existing and future transportation infrastructure, World Trade Center site development and the surrounding area.

The project is needed to be reevaluated and enhance the transportation facilities and infrastructure that existed at the World Trade Center complex prior to September 11th, 2001 and to ensure the long-term accessibility and economic vitality of Lower Manhattan.

The DEIS has been prepared pursuant to the National Environmental Policy Act, known as NEPA, N-E-P-A.

The alternatives considered in the DEIS include a no action alternative, a terminal with a Liberty Plaza connection alternative and a terminal without a Liberty Plaza connection alternative.

The terminal with and without the Liberty Plaza connection alternatives were

carried forward for detailed evaluation in the DEIS after careful review of a range of alternatives as part of the early planning for a Permanent World Trade Center PATH Terminal and following public comments during the scoping process.

This DEIS also considers design options for components of the terminal, including ventilation structures, a Route 9A pedestrian bridge and river water cooling.

The analysis and impact assessments in the DEIS consider potential effects on transit service and transportation, land use and local planning, social and economic conditions, historic and archeological resources, urban design and visual resources, air quality, noise and vibration, infrastructure and energy, contaminated materials, natural and water resources, coastal zone management, safety and security and cumulative effects.

Environmental performance commitments, preliminary sustainable design guidelines and mitigation measures to reduce

localized impacts are described in the document.

There will be a brief presentation in a few minutes followed by your comments.

I'd first like to introduce Arnold Bloch, our moderator for this evening and this afternoon.

Thank you for being here today.

Arnie.

MR. BLOCH: Thank you, Mike.

And also let me welcome you to this public hearing.

For the record, this meeting is part of an environmental review for the Permanent World Trade Center PATH Terminal.

This EIS, or Environmental Impact Statement, is being prepared in accordance with the National Environmental Policy Act, NEPA, of 1969 and the applicable regulations implementing NEPA as set forth in 23 CFR Part 771 and 40 CFR Parts 1500 through 1508 and 49 CFR Part 622.

This EIS is also being prepared in accordance with Section 106 of the National

Historic Preservation Act of 1966 and Section 4(f) of the U.S. Department of Transportation Act of 1966 and associated laws and regulations.

This is one of two public hearings that are being held to hear public comments on the Draft Environmental Impact Statement.

Tomorrow night we'll be having a meeting, tomorrow afternoon and evening in Manhattan at St. John's University, their Manhattan campus, from 4:00 until 8:00 p.m.

And if you need directions for that, they're on the little flier which is out on the table.

As Mike said earlier, the purpose of this meeting is to solicit public comments on the Draft Environmental Impact Statement, which was published on June 4th, 2004.

Copies of that Draft Environmental Impact Statement are available at various libraries in Lower Manhattan and then in New Jersey, in Jersey City, Bayonne, Harrison, Hoboken and Newark, or at the Port Authority's Website, which is

www.panynj.gov/pathrestoration.

And there's a number of documents out there that have that Website so you don't have to copy it down.

For a list of the libraries, if you'd like to look at it there, just please ask anyone at the sign in desk, and we have a couple of sample copies at the desk as well.

In a few minutes Lou Menno, who is the Program Director for the World Trade Center Site Restoration, will make a brief presentation about this project and about the information that's contained in the Draft Environmental Impact Statement.

After Lou is done, we'll begin the public comment portion of the meeting, which will last until 8:00 p.m.

I'll remind you about this again, but it's important that anyone who wishes to offer comments for the record will need to register as a speaker at the registration desk and you'll be filling out one of these yellow cards and I'll mention that again.

You'll have three minutes to

present at that time and you can also submit written documentation, which you can either do on this blue sheet which is available there or any kind of documentation that you have, you can submit that as well, and either tonight or you can submit it afterwards, up until Wednesday, July 21st, 2004, that's the cut-off date.

I'll go into that in some more detail when it's time to start the public comment period, but for now let me introduce Lou Menno.

MR. MENNO: Thank you, Arnold.

And good afternoon, everyone, and thank you for joining us this afternoon.

My presentation this afternoon will outline an analysis of the alternatives presented in the Draft Environmental Impact Statement for the World Trade Center Transportation Hub or the Permanent World Trade Center Permanent PATH Terminal.

We will first present the purpose and need for the project, including a definition of the problem and goals and the

objectives that the project will strive to achieve.

We will then present and describe the three alternatives that were evaluated in the Draft EIS.

Then we will describe the findings of the environmental analysis for the three alternatives, as well as the proposed mitigation measures to alleviate the adverse impacts for the project.

And finally, we will review the environmental process and the upcoming milestones for our project.

A Permanent World Trade Center PATH Terminal is needed to reestablish and enhance the transportation facilities and infrastructure that existed at the World Trade Center site before September 11th of 2001 and to ensure the long-term accessibility and economic vitality of Lower Manhattan.

If this project were not to happen, four distinct problems would occur.

The first one is the economic recovery would be affected.

Several current and proposed projects contribute to the economic recovery of Lower Manhattan, the proposals for the World Trade Center site to rebuild that site with a memorial, cultural facilities, office space, retail space, as well as a new headquarters that is planned in Battery Park City for Goldman Sachs, new residential buildings that will happen in Battery Park City, as well as other offices and residential communities throughout Lower Manhattan. All of these developments restore facilities that were lost on September 11th of 2001.

And they will also attract new residents, office workers and visitors to Lower Manhattan and high capacity transit services are needed to safely and efficiently transport these workers, visitors and residents to and from Lower Manhattan.

The ridership growth. The development in Lower Manhattan will increase the demand for PATH over time, and by the year 2025, that's in approximately 20 years, it is anticipated that the daily PATH ridership will

increase by 25 percent above the pre-September 11th, 2001 ridership levels.

And then commuting to Lower Manhattan without PATH will result in longer, less convenient and more expensive trips than with direct PATH service.

Additional ridership some commuters and visitors to Lower Manhattan would have to take, they would have to drive to this area. The additional vehicle trips would increase congestion to the city streets and to the river crossings and would worsen air quality.

And if they go to other modes of mass transit, in time those mass transit facilities would have to make some capital improvements to handle this ridership.

And finally, the limitation of the temporary PATH service that we recently restored, it's temporary, and by "temporary," it does not restore the capacity that existed before September 11th.

The station has fewer access points than our original PATH Station.

The platforms can only accommodate eight-car trains, not ten-car trains as the original station had.

The temporary station is open air, it's not climate controlled.

And certain elements of the station have a very limited service life.

And that the design does not fit in with the full redevelopment of the World Trade Center site.

There are four goals and supporting objectives that were developed to guide the alternative development process for the Permanent World Trade Center PATH Terminal.

The first goal is to effectively restore PATH service between New Jersey and Lower Manhattan.

And to successfully address this goal, the project must meet the following objectives:

Accommodate the pre-September 11, 2001 ridership levels;

To provide for the additional

capacity at the terminal;

To support the ridership growth to support the rebuilding of downtown;

To provide a modern station design with ADA accessibility, climate controlled station and station security;

And to minimize the disruption of the temporary PATH service as we build this project.

The second goal is to establish an intermodal transportation facility in Lower Manhattan.

Our project should enhance transportation connections to, from and within the World Trade Center site and within Lower Manhattan as compared to the pre-September 11, 2001 conditions that existed there at the Trade Center.

The opportunity to rebuild a PATH terminal should take advantage of connections to existing and future transit infrastructure and should allow for improved at grade and below grade pedestrian connections as compared to what we had before and also compared to the

temporary PATH facilities we presently have.

And to successfully address this goal, our project must improve street level visibility and access;

Provide for adequate and state-of-the-art pedestrian circulation within the facility;

And to provide for connections to New York City Transit subways and other major origination and destination points.

The third goal is to plan and construct a terminal that is consistent with the redevelopment of Lower Manhattan.

This project should support the physical and economic recovery of Lower Manhattan, including proposals for the reconstruction and rehabilitation of other transportation infrastructure, redevelopment at the World Trade Center site and the construction of all other off-site projects, all of which are undergoing their separate environmental reviews.

To successfully address this goal, the project must meet the following

objectives:

First is to construct a facility that is coordinated with the master plan for the World Trade Center site;

To provide for future connections to the World Trade Center buildings, all of the functions that will happen there, the commercial office space, especially the proposed memorial, and to coordinate the PATH facilities with other subgrade uses at the World Trade Center site;

And to plan and coordinate PATH elements with proposals for the reconstruction of Route 9A, the Fulton Street Transit Center and other off-site development.

And the fourth goal is to minimize the adverse impacts on the environment.

The construction and operation of the project should, to the extent possible, minimize the effects to the local and regional environment in the short-term and in the long-term.

The desired alternatives would not only minimize adverse effects but would also

provide for the greatest positive benefits to both the built and natural environment.

To successfully address this goal, the project must do the following:

Reuse existing infrastructure to the extent possible;

Provide for efficient and environmentally friendly construction techniques;

Minimize the disruption to PATH and New York City Transit Authority subway service during construction;

And to provide for green and sustainable design.

The Environmental Impact Statement considered three alternatives for a Permanent World Trade Center PATH Terminal.

The first was a no action alternative, the second one was a terminal with a connection to Liberty Plaza and the third, a new terminal without a connection to Liberty Plaza.

I'll now take you through each of those alternatives.

For the no action alternative, under the NEPA, a no action alternative is typically evaluated. The no action alternative is used as a baseline to evaluate the potential future impacts of a proposed project.

The no action alternative assumed that the temporary station would remain in service until the construction of the World Trade Center Memorial, cultural buildings, the office towers would not allow for the operation of PATH in its present location or configuration.

The demand for PATH service would exceed the station's capacity, meaning that its continued operation would not be safe, and major components of the station would exceed their service life.

The assessment as presented in our Environmental Impact Statement assumes that the station would have to cease operation anywhere between the year 2009 and the year 2025.

The other project alternatives

would result in a new PATH Terminal on the World Trade Center site.

There is one principal difference between these two next alternatives so, therefore, I will begin by describing the components that would be the same for both.

The new World Trade Center Permanent PATH Terminal would provide for a five-track, four-platform station for PATH to accommodate ten-car trains and the forecasted passenger growth.

The intermodal connections to all will have -- I'm sorry, intermodal connections to virtually all subways that service Lower Manhattan, the World Financial Center ferries and local and commuter bus services.

It will have a transportation hall with pedestrian connections to all proposed World Trade Center redevelopment facilities, subways and streets.

The terminal would be fully climate controlled and be designed to maximize natural lighting.

The terminal will provide numerous

intermodal connections. It will provide for east-west connections through the World Trade Center site, including connections to the MTA, New York City Transit Dey Street concourse that will be built as part of their Fulton Street Transit Center and that Transit Center will serve nine subway lines that converge in that area.

It will also connect with the Fulton Street Station of the R, W subway line and the World Trade Center Station on the E line and the future Cortlandt Street Station on the 1 and 9 line.

Connections with the World Trade Center site will allow for site access to the future World Trade Center Memorial, the cultural facilities and the office towers.

A concourse across Route 9A will allow for access between the PATH Terminal and the World Financial Center, Battery Park City and The Port Authority's new Trans-Hudson Ferry Terminal.

And under the terminal with a Liberty Plaza connection, this alternative

terminal would also provide for a subgrade concourse beneath Church Street between the World Trade Center site and Liberty Place.

The concourse will serve the numerous commuters who travel between PATH and the Financial District to the southeast of the site.

And under the next alternative, the terminal without a Liberty Plaza connection alternative, the terminal would not provide a subgrade concourse beneath Church Street between the World Trade Center site and Liberty Plaza.

Other than that, it is the same design as the terminal with the Liberty Plaza connection.

And in addition, there is no change in the construction schedule.

And I'll be going over the impacts of each of these.

As you may have seen on the display boards in this room and the videos as you entered, the terminal consists of a magnificent transportation hall, which will be

a grand architectural statement for Lower Manhattan, visible from the street, very accessible, it will be a Grand Central like terminal for Lower Manhattan.

And in addition, there are four additional levels, not just at street level but four additional levels of pedestrian infrastructure that connect directly to the subways and to the nearby development on and near the World Trade Center site.

And if you haven't had a chance to look at the boards and the videos, I please ask that you take a look at them after the hearing.

From a schedule point of view, the project would begin construction next year, in 2005, and would continue through 2009, and construction will be constructed in -- the construction will be done in phases and portions of the terminal will be open as those phases are completed.

And the construction of the terminal is expected to peak in 2006, as you can see here on this slide, which was selected

as the year for the construction period analysis in the EIS.

I'll now go through the benefits and the impacts of each of the alternatives.

The no action alternative would not result in the construction of a new terminal but it would eventually result in the full closure of the Temporary PATH Station.

Although the no action alternative would have little or no construction period impacts, it would have adverse impacts in the long-term.

The economic revitalization of Lower Manhattan incorporates transportation, infrastructure and development projects. A failure to construct a Permanent PATH Terminal is inconsistent with these revitalization plans.

It is estimated that absent a Permanent PATH Terminal, approximately 5 percent of the diverted PATH riders would drive to Lower Manhattan, and by the year 2025, this would result in 1200 additional vehicle trips in the a.m. peak hour.

These vehicles would cause congestion on the roadways and also generate substantial levels of pollutant emissions and would also create noise with all these vehicles on the road.

The diversion of the PATH riders would also cause congestion on other modes of transportation. It is anticipated that the diverted PATH riders would use commuter trains, buses, ferries and other subways to reach Lower Manhattan and the diversion of large numbers of passengers to these modes would require future capacity improvements by those other facilities.

The terminal with a Liberty Plaza connection has substantial long-term benefits as compared to the no action alternative but there would be impacts during construction.

In the long-term, the terminal with a Liberty Plaza connection would support the economic development of Lower Manhattan.

Since customers would continue to use PATH between New Jersey and Lower Manhattan, the terminal would not generate new

vehicle trips, vehicle emissions or the vehicular noise.

The terminal would also improve access between PATH and the other modes of transit but its operation would not result in adverse impacts in these other modes.

The pedestrian connections that will be provided as part of the terminal will improve street level pedestrian and vehicle circulation and will reduce street level congestion within and through the World Trade Center site, including the intersection of Liberty and Church Street.

The terminal's construction will generate truck trips to and from Lower Manhattan and it will require the use of construction equipment.

Thus, during the terminal's construction, there will be increased truck traffic on area roadways as compared to the no alternative -- to the no action alternative.

The terminal's construction will also generate emissions and noise from construction vehicles and the use of

construction equipment.

The terminal will also have both short- and long-term impacts to archeological and historic resources.

The terminal's construction may alter or remove portions of the Hudson River bulkhead under Route 9A and the remaining remnants and structures on the World Trade Center site.

The terminal's construction may also result in vibration impacts to five historic structures within 90 feet of the construction zone.

The terminal's construction may not allow for long-term preservation of portions of the Hudson River bulkhead and the remaining remnants of the World Trade Center site that exist today.

As will be discussed a little bit later on, the FTA and The Port Authority are working closely with preservation groups and the interested parties to draft mitigation measures to avoid, minimize and mitigate these effects to archeological and historic

resources.

Generally, the benefits and potential impacts of the terminal without a Liberty Plaza connection would be very similar or identical to those of the alternative with the Liberty Plaza connection.

Because the terminal without a Liberty Plaza connection would not require construction across Church Street, it would reduce the level of emissions, noise, vibration impacts near the southeast corner of the site as compared to the terminal with the Liberty Plaza connection but impacts may still occur.

This alternative would also have impacts to historic and archeological resources on and near the World Trade Center site.

In the long-term, the terminal without a Liberty Plaza connection would support the economic recovery of Lower Manhattan, however, because of the higher number of pedestrians, it would increase Church Street at grade pedestrian access and

this alternative does not provide for the same long-term benefits to vehicular and pedestrian circulation, vehicle emissions and the noise as would the terminal with a Liberty Plaza connection.

This is a slide where we are working with many of our other sponsors in Lower Manhattan for the coordination of the cumulative effects during construction.

The FTA and The Port Authority have been coordinating with the sponsors of other Lower Manhattan recovery projects to develop a coordinated set of mitigation measures to address the potential cumulative impacts of these projects during the construction period.

During the spring and summer of last year, the FTA prepared a methodology and approach to the study of cumulative effects for all of the projects in Lower Manhattan.

And in response, the Lower Manhattan project sponsors worked together in a collaborative way to develop environmental performance commitments, EPCs, commitments

intended to proactively address potential construction period impacts since they would be implemented and integrated as part of each of the federally sponsored recovery projects.

Although the EPCs reduce the potential impacts of the recovery projects, preliminary analysis for the individual environmental assessments showed that additional measures would be needed.

And in response, the project sponsors worked to investigate additional commitments for the reduction of air emissions and noise, with particular attention to areas that would be impacted by overlapping construction.

These efforts by the Lower Manhattan project sponsors continue to focus on actively researching the availability and practicality of new technologies to reduce air emissions and noise.

This includes an investigation of particulate filters, noise abatement measures and electrification of certain construction equipment.

As these projects move forward toward their individual Records of Decision, the project sponsors will continue to coordinate their research and will work together to minimize the potential cumulative impacts to the local community during the construction period.

And in the next slides I will present the specific mitigation measures that were identified as part of our work for the Permanent World Trade Center PATH Terminal.

These are the mitigations during the construction period.

Concerning the cultural resources, the EIS identified these six impact areas.

The FTA and The Port Authority are engaged in a Section 106 review process for the project which will result in a Memorandum of Agreement, an MOA, to mitigate any adverse effects to the archeological and historic resources.

This process follows the rules and regulations established by the National Historic Preservation Act.

Throughout the process, which began this past December, the FTA and The Port Authority have actively sought the participation of the Federal Advisory Council on Historic Preservation, the New York State Historic Preservation Officer and approximately 74 consulting parties that represent the interest of victims of the attacks, community groups and preservation groups, as well as federal, state and city agencies.

The Draft EIS identifies preliminary measures that the FTA and The Port Authority are considering to avoid, minimize and mitigate the project's effects to archeological and the historic resources.

Currently the FTA and The Port Authority are working with the various consulting parties to develop mitigation measures for the project.

These measures and commitments will be incorporated into a Memorandum of Agreement for the project among the FTA, the New York State Historic Preservation Officer

and The Port Authority, which will be executed prior to the publication of the Final EIS for our project.

Concerning the economic conditions, The Port Authority will work with other sponsors of Lower Manhattan recovery projects to ensure that businesses near the project sites in Lower Manhattan will remain visible, accessible and viable during the construction of the various federally funded recovery projects.

They will include a signage plan to indicate the location of affected businesses, as well as a comprehensive plan to ensure that businesses remain accessible both for their customers and for their delivery vehicles.

Concerning transportation, the maintenance and protection of traffic plan will not only ensure access to businesses but it will also assure the safe accessibility of Lower Manhattan streets and sidewalks for residents, workers and visitors.

The plan will include measures to

protect vehicles that travel near the construction zone while maintaining the most efficient traffic flow possible.

It will also ensure that access is maintained to residences and businesses and will provide for travel routes to, from and within Lower Manhattan and to keep people moving as construction proceeds.

And it will assure that all of this work will be accomplished while maintaining PATH service.

Air quality. The Lower Manhattan project sponsors have been working very hard to investigate measures to reduce emissions during construction.

A combination of techniques have been researched to reduce the effects of construction vehicles and equipment. These measures include retrofits to engines that reduce particulate emissions, the electrification of certain equipment to reduce emissions by portable generators and the use of ultra-low sulfur fuels and a monitoring program during construction.

The Port Authority is continuing to work with other project sponsors to research available technologies and to determine additional measures that would be undertaken to further reduce the potential construction period effects to air quality.

Noise and vibration. In tandem with our continued efforts to reduce air quality emissions during construction, The Port Authority is also working with other Lower Manhattan project sponsors to investigate strategies to reduce construction generated noise.

Strategies that we are currently researching include equipment retrofits such as mufflers and the use of noise walls, barriers and enclosures around construction zones.

The Port Authority will also work with the New York State Historic Preservation Officer and other preservation groups to develop construction protection plans for historic structures that may be impacted by vibrations from the construction of our

project.

This plan will include monitoring to predict acceptable vibration levels and measures to address exceedance of these levels should they occur during the project's construction.

And concerning contaminated materials, the Draft EIS generally found that contaminated materials were not found on the World Trade Center site.

However, the areas under Route 9A and Church Street have the potential for residual contaminated materials.

The Port Authority will develop a Health and Safety Plan to provide for specific protocols for testing, removal and disposal of these soils if they are encountered during our construction.

These protocols will incorporate all applicable federal, state and local regulations.

The plan will also provide for measures to protect the construction workers and local residents if and when contaminated

soils are found.

Now, concerning mitigations during operation, this will occur during the opening year of 2009 of the terminal and through our design year of 2025.

As we previously mentioned about the Memorandum of Agreement that will be developed to identify specific measures to avoid, minimize and to mitigate the adverse effects to historic resources, the MOA will not only address the potential impacts during the project's construction but it will also provide for measures to ensure the long-term preservation of the archeological and historic resources to the greatest extent possible.

Pedestrian circulation. If a Liberty Plaza connection is not constructed, there may be modifications to accommodate additional pedestrian traffic at street level at the intersection of Liberty and Church streets.

This may involve the physical widening of crosswalks and sidewalks or may require the relocation or removal of street

furniture, sign posts and other obstructions in order to increase the area of the sidewalk that can be used for pedestrian.

And for natural resources, the terminal building will be glass, steel and concrete. Special landscaping and glass treatments and lighting will be incorporated into the terminal's design to reduce the potential for fatal bird strikes.

And in addition, we'll be incorporating sustainable design principles that will allow construction and operation of an environmentally friendly terminal.

The NEPA process for the Permanent World Trade Center PATH Terminal began in September 2003.

The scoping meetings were held in October of last year and the scoping process was closed in mid-December.

We published our DEIS in late May of 2004 and with a Notice of Availability on June 4th.

Our public hearings are being held both today and tomorrow, June 23rd, and the

public comment period will be closed on July 21st.

Our Section 106 review process is also being conducted concurrently. The FTA, the U.S. Department of Housing and Urban Development and the Federal Transit Administration entered into a coordinated Section 106 process that began in December of 2003.

A coordinated Determination of National Register Eligibility was released by these federal agencies in draft form in January 2004 and the Final DOE was circulated on March 31.

Following the publication of the Final DOE, the federal agencies and the local project sponsors continued their Section 106 processes independently.

A Draft Finding of Effects was published by the FTA and The Port Authority in May of 2004 concurrent with the distribution of the DEIS.

A consulting parties meeting was held on June 20 -- I'm sorry, on June 14th to

present these findings and to begin a discussion of the mitigation measures.

The FTA and The Port Authority will now prepare a Memorandum of Agreement that will specifically -- that will specify the specific mitigation measures for effects to historic resources.

This MOA will be executed prior to the publication of the FEIS and we hope to publish the Final Environmental Impact Statement in September and have our Record of Decision in October of this year.

I thank you for listening to me through this brief presentation.

And we will be accepting comments on the DEIS until July 21st of 2004 and comments may be made at this public hearing and at tomorrow's public hearings and can be submitted by fax, E-mail or in writing.

And also please feel free to contact us if you need any additional information on the Draft EIS.

I'd like to thank you very much for your attention and I'd like to now turn it

over to Arnold for the comment period.

Thank you very much.

MR. BLOCH: Thank you, Lou.

So I'll now be calling up people, and they're names of the people who have registered to speak at the meeting.

You can register to speak at any time just by filling out one of these forms at the desk.

We'll be calling you in the order in which you've registered unless we get some elected officials and then as a courtesy to them we'll be allowing them to speak first.

When it's your turn to speak, please approach the microphone that we've just set up over here and clearly state your name for the record and if you have an organization that you represent, please tell us that as well.

I'm going to ask that you keep your comments to three minutes. If you find that your comments are going to go longer than three minutes, I'll ask you to cut that statement down.

You can submit it in writing, either to myself, to the stenographer over here or at the desk in the back where you signed in.

Or if we have time, and I'm sure we will, at the end you can return as a speaker, reregister and complete your remarks if you'd like to.

If you do have a written version, again, you can submit those to any of the three people I noted or actually anybody who's wearing one of these white and blue badges around their neck.

Also, if we take a brief recess at any point, please feel free, as Lou mentioned, to go to any of the boards or the monitors there, and if you need any help, have any questions, just -- there will be people around there wearing one of these and they'll be glad to help you in any way.

As Lou mentioned, there are many different ways to do your comments if you don't want to give them orally today. We ask that you can send them in mail to that address

there, by fax to that phone number there and by E-mail to the E-mail address there.

Remember, if you're going to be mailing it, to postmark it by Wednesday, July 21st, and if you're going to be faxing or E-mailing it, just fax or E-mail by that same date, by 5:00 p.m. of that date.

So I'm going to start by calling the first speaker and we have Douglas John Bowen from the New Jersey Association of Railroad Passengers.

MR. BOWEN: Thank you.

Do I need to repeat that for the record?

My name is Douglas John Bowen, I'm the President of the New Jersey Association of Railroad Passengers, that's a statewide rail passenger advocacy group.

And seldom have we felt so conflicted in a situation like this and I would be lying if I said that our members and other people won't be using this fine upgrade and this fine facility. Inside the box it's an improvement and we applaud The Port

Authority and PATH for the effort.

That said, it is still within the box and an opportunity has been missed. I suppose we should thank The Port Authority for including in its DEIS a mention of NJR's PATH-Lex proposal on pages 2-11 and 2-12 in which you review, analysis and then, of course, subsequently dismiss the proposal to connect New Jersey not just to Lower Manhattan but to the Upper East Side of Manhattan where the CBD is, the number one CBD, central business district, in the United States.

We still feel that's a missed opportunity, and because of that, we'll be presenting our written testimony along with more oral testimony at tomorrow's hearing that will be presented by Al Papp.

We do thank you again for the effort. Again, I would lying if I said I personally or organization members will not be riding the new and improved PATH, but again, it could have been more.

Thank you.

MR. BLOCH: Thank you very much.

Do we have any other registered speakers at the moment?

If not, what we'll do is just take a brief recess.

And as cards come in, I'll just call that person and ask you to come back and we'll have that speaker speak.

So in the meantime, if you'd like to go to the boards and the monitors, please feel free and see any of us who are wearing this and we'll help you out with any questions.

Thank you.

(Time noted: 5:25 p.m.)

(A recess was taken)

(Time noted: 6:30 p.m.)

MR. BLOCH: All right. We're going to reconvene and do a brief presentation, myself and Lou Menno, for those who weren't here for the earlier one and then open it up for any comments that people would like to make.

I wanted to thank you, welcome you to this public hearing.

For the record, this meeting is part of the environmental review for the Permanent World Trade Center PATH Terminal.

This EIS is being prepared in accordance with the National Environmental Policy Act, NEPA, and the applicable regulations which implement NEPA which are set forth in the Code of Federal Regulations 23 CFR Part 771 and 40 CFR Parts 1500 through 1508 and 49 CFR Part 622.

The EIS is also being prepared in accordance with Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the U.S. DOT, Department of Transportation, Act of 1966 and associated laws and regulations.

This is one of two public hearings that are being held to hear public comments on the Draft Environmental Impact Statement.

Tomorrow evening in Manhattan at St. John's University, their Manhattan campus Downtown, will also be having a public hearing from 4:00 to 6:00, and we have a little flier outside if you're interested in attending

that, there are direction on how to get there.

The purpose of this meeting is to solicit public comment on the Draft EIS, the Draft Environmental Impact Statement, which was published on June 4th, 2004.

Copies of that statement, the Draft Environmental Impact Statement, are available in libraries in Lower Manhattan, as well as various libraries in Jersey City, Bayonne, Harrison, Hoboken and Newark.

And if you want to know which libraries they're at, you can ask at the front desk where you signed in.

They're also available on The Port Authority's Website, and I won't bother to read it, it's available on all the different literature that we have, the Website, you can download it there.

And we have a couple of sample copies of the EIS, fairly thick, out there on the desk as well.

In a few minutes Lou Menno, who is the Program Director for the World Trade Center Site Restoration, will make a

presentation about this project and the information that's contained in the Draft Environmental Impact Statement.

When Lou is done, we'll begin the public comment portion and that will go until 8 o'clock.

And at that point when Lou is done, I'll tell you about the rules about speaking, but this is the important document you just have to fill out and you can just decide to fill this out after Lou's speech, presentation, or at any point until 8 o'clock and we'll allow you to speak.

And I'll also tell you a little bit later about how you can submit written documentation as well.

But for now let me introduce Lou to go through a power point presentation about the EIS.

MR. MENNO: Thank you. Thank you, Arnold.

And good afternoon -- I should say good evening, everyone, and thank you for joining us this evening.

My presentation will outline the analysis of the alternatives presented in the Draft Environmental Impact Statement for the World Trade Center Transportation Hub or the World Trade Center Permanent PATH Terminal.

First we will present the purpose and need for the proposed project, including a definition of the problem and the goals and objectives that the project will strive to achieve.

Next we will present and describe the three alternatives that were evaluated in the Draft EIS.

I will also describe the findings of the environmental analysis for the three alternatives, as well as the proposed mitigation measures to alleviate adverse impacts from the project.

And I will finally review the environmental process and the upcoming milestones.

A Permanent World Trade Center PATH Terminal is needed to reestablish and enhance the transportation facilities and

infrastructure that existed at the World Trade Center site prior to September 11, 2001 and to ensure the long-term accessibility and economic vitality of Lower Manhattan.

And four distinct problems would exist if this project were not undertaken.

From an economic recovery point of view, several current and proposed projects contribute to the economic recovery of Lower Manhattan, proposals for a memorial, cultural facilities, office spaces and retail at the World Trade Center site, a new headquarters building that is planned in Battery Park City for Goldman Sachs, as well as the 7 World Trade Center which is under construction, offices and residential projects throughout Lower Manhattan.

All of these developments restore facilities that were lost on September 11th of 2001 but they will also attract new residents, workers and visitors to Lower Manhattan.

High capacity transit services are needed to safely and efficiently transport these workers, visitors and residents to and

from Lower Manhattan.

Ridership growth. The development in Lower Manhattan will increase the demand for PATH over the period of time, and by the year 2025, it is anticipated that daily PATH ridership will exceed the September 11, 2001 ridership levels by approximately 25 percent.

And commuting to Lower Manhattan without PATH will result in longer, less convenient and more expensive trips than with direct PATH service.

Additional ridership on other transit modes may require that capacity of these systems be enhanced, and without PATH, some of our commuters and visitors to Lower Manhattan would drive to the area and the additional vehicle trips would increase congestion on city streets and river crossings and worsen air quality.

And then there are the limitations of the Temporary PATH Station, which was recently restored. By its title, "temporary," the temporary station does not restore the capacity that existed before September 11th.

The station has fewer access points than we had originally in the original station and the platforms can only accommodate eight-car trains. The original station was able to accommodate ten-car trains.

The temporary station is open air and it's not climate controlled and certain elements of the station have a limited service life and the station's design does not easily support the full redevelopment of the World Trade Center site.

The four goals and supporting objectives were developed to guide us through the alternative development process for the Permanent PATH Station Terminal.

The first goal is to effectively restore long-term PATH service between New Jersey and Lower Manhattan.

And to successfully address this goal, the project must meet the following objectives:

Accommodate the pre-September 11, 2001 PATH ridership levels;

Provide for additional capacity at

the terminal to support ridership growth;

Provide for a modern station design with ADA accessibility, climate control and station security;

And to minimize the disruption to temporary PATH service during construction of our project.

The second goal is to establish an intermodal transportation facility in Lower Manhattan.

This project should enhance transportation connections to, from and within Lower Manhattan as compared to the pre-September 11, 2001 conditions in Lower Manhattan.

And the opportunity to rebuild a PATH facility should take advantage of connections to existing and future transit infrastructure and should allow for improved at grade and below grade pedestrian connections as compared to the original pre-September 11, 2001 station as well as our temporary facilities that we have now.

To successfully address this goal,

the project must meet the following objectives:

Improve street level visibility and access;

Provide for adequate and state-of-the-art pedestrian circulation within the facility;

And to provide for connections to New York City Transit subways and other major origination and destination points.

The third goal is to plan and construct a terminal that would support the redevelopment of Lower Manhattan.

The project would support the physical and economic recovery of Lower Manhattan, including proposals for the reconstruction or rehabilitation of other transportation infrastructure, redevelopment of the World Trade Center site and construction of other off-site projects, all of which are undergoing their separate environmental reviews.

To successfully address this goal, the project must meet the following

objectives:

We must construct the facility that is coordinated with the master plan for the World Trade Center site;

We must provide for future connections to the World Trade Center buildings and functions, including the proposed memorial, that will be built at the World Trade Center site;

Coordinate the PATH facilities with other subgrade uses at the World Trade Center site;

And to plan and to coordinate the PATH elements with proposals for the reconstruction of Route 9A, the Fulton Street Transit Center and other off-site development.

And the fourth goal is to minimize adverse impacts to the environment.

The construction and operation of the project should, to the extent possible, minimize effects to the local and regional environment in both the short-term and in the long-term.

The desired alternative should not

only minimize adverse effects but would also provide for the greatest positive benefits to both the built and the natural environment.

To successfully address this goal, the project must meet the following objectives:

Reuse existing infrastructure to the extent possible;

Provide for efficient and environmentally friendly construction techniques;

Minimize disruption to PATH and New York City subway service during construction;

And provide for green and sustainable design.

Our EIS considered three alternatives for the Permanent World Trade Center PATH Terminal. The first one is a no action alternative, the second one is a new terminal with a connection to Liberty Plaza and the third is a terminal but without a connection to the Liberty Plaza.

I'll now take you through each of

these alternatives to give you an overview of what they are.

Under the NEPA process, a no action alternative is typically evaluated. The no action alternative is used as a baseline to evaluate the potential future impacts of a proposed project.

The no action alternative assumed that a temporary station would remain in service until the construction of the World Trade Center Memorial, the cultural buildings and office towers, that would not allow for the continued operation of the PATH Station in its present location or configuration.

The demands for PATH service would exceed the station's capacity, meaning that its continued operation would not be safe, and major components of the station would exceed their service life.

The assessment presented in the EIS assumes that the station would cease its operation sometime between the year 2009 and the year 2025.

The other project alternatives

would result in a new PATH terminal on the World Trade Center site.

There is one principal difference between these alternatives, therefore, I will be begin by describing the components that would be the same for both alternatives.

The new terminal would provide a new PATH Station that would have five tracks and four platforms to accommodate ten-car trains and the forecasted passenger growth.

The terminal will also have intermodal connections to virtually all of the subways that service Lower Manhattan, the World Financial Center ferries and local and commuter bus services.

It will have a transportation hall with pedestrian connections to all proposed World Trade Center redevelopment facilities, subways and streets.

The terminal would be fully climate controlled and be designed to maximize natural lighting.

The terminal will provide numerous intermodal connections. It will provide for

east-west connections through the World Trade Center site, including connecting with the MTA, New York City Dey Street concourse of the Fulton Street Transit Center and the Transit Center will serve nine subway lines. This is where there are nine subway lines that converge in Lower Manhattan.

It will also connect with the Cortlandt Street Station on the R and W subway line and the World Trade Center Station on the E line, as well as the future Cortlandt Street Station on the 1 and 9 line.

Connections within the World Trade Center site will allow for access to future World Trade Center Memorial, cultural facilities, retail and the office towers.

A concourse across Route 9A will allow for access between the PATH Terminal and the World Financial Center, Battery Park City and The Port Authority's new Trans-Hudson Ferry Terminal.

And under the terminal with a Liberty Plaza connection, this alternative terminal design would also provide a subgrade

concourse beneath Church Street between the World Trade Center site and Liberty Plaza.

The concourse will serve the numerous commuters who travel between PATH and the Financial District to the south of the World Trade Center site.

Under the terminal without a Liberty Plaza connection, the terminal would not provide a subgrade concourse beneath Church Street between the World Trade Center site and Liberty Plaza.

Other than that, it is the same design as the terminal with the Liberty Plaza connection.

In addition, there is no change in the construction schedule.

And in a few moments I will talk about the impacts of all of these options.

The Permanent PATH Terminal, as you may have seen on the display boards and videos as you entered, is a terminal that consists of a magnificent transportation hall, which will be a grand architectural statement for Lower Manhattan, visible from the street,

a Grand Central Terminal for Lower Manhattan.

In addition, there are four additional levels of pedestrian infrastructure below the street level connecting directly to the subways and the other nearby developments on or near the site.

And if you haven't had a chance to take a look at these displays and look at the video, I please invite you to take a look at them at the end of the presentation.

Our project would begin construction next year, in 2005, and will continue through 2009. Construction will be in phases and portions of the terminal will open as they are completed.

The construction of the terminal is expected to peak in 2006, which was selected as the year for construction period analysis in our Environmental Impact Statement.

The next few slides will compare the benefits and the impacts of the three project alternatives.

The no action alternative would

not result in the construction of a new terminal but it would eventually result in the full closure of the Temporary PATH Station, and although the no action alternative would have little or no construction period impacts, it would have adverse impacts in the long-term.

The economic revitalization of Lower Manhattan incorporates transportation, infrastructure and development projects, and the failure to construct a Permanent PATH Terminal is inconsistent with these revitalization plans.

It is estimated that absent a Permanent PATH Terminal, approximately 5 percent of the diverted PATH riders would drive to Lower Manhattan, and by the year 2025, this could result in 1200 additional vehicle trips in the a.m. peak hours.

These vehicles would cause congestion on area highways, generate substantial levels of pollutant emissions and would create noise.

The diversion of PATH riders would

also cause congestion on other modes of transportation. It is anticipated that the diverted PATH riders would use commuter trains, buses, ferries and other city subway lines to reach Lower Manhattan.

The diversion of a large number of passengers to these modes may require future capacity enhancements by these other facilities.

The terminal with a Liberty Plaza connection has substantial long-term benefits as compared to the no action alternative, but there would be no impacts during construction -- excuse me, but there would be impacts during construction.

In the long-term, the terminal with a Liberty Plaza connection will support the economic development of Lower Manhattan.

Since customers would continue to use PATH between New Jersey and Lower Manhattan, the terminal would not generate new vehicle trips, vehicle emissions or vehicular noise.

The terminal would improve access

between PATH and other modes of transit but its operation would not result in adverse impacts to these other modes.

But pedestrian connections that will be provided as part of the terminal will include street level pedestrian and vehicle circulation and will reduce street level congestion within and through the World Trade Center site, including at the intersection of Liberty and Church streets.

The terminal's construction will generate truck trips to and from Lower Manhattan and it will require the use of construction equipment.

Thus, during the terminal's construction, there would be increased truck traffic on area roadways as compared to the no action alternative.

The terminal's construction would also generate emissions and noise from construction vehicles and the use of construction equipment.

The terminal will also have both short- and long-term impacts to archeological

and historic resources.

The terminal's construction may alter or improve -- may alter or remove portions of the Hudson River bulkhead under Route 9A and remaining remnants and structures on the World Trade Center site.

The terminal's construction may also result in vibration to five historic structures within 90 feet of the construction zone.

The terminal's construction may not allow for the long-term preservation of portions of the Hudson River bulkhead and the remaining remnants of the World Trade Center site that exist today.

As will be discussed a little later, the FTA and The Port Authority are working closely with preservation groups and the interested parties to draft mitigation measures to avoid, minimize or mitigate these effects to the archeological and the historical resources.

Generally, the benefits and the potential impacts of the terminal without a

Liberty Plaza connection would be very similar or identical to those of the alternative with the Liberty Plaza connection.

Because the terminal without a Liberty Plaza connection would not require construction across Church Street, it would reduce the level of emissions, noise and vibration impacts near the southeast corner of the World Trade Center site as compared to the terminal with a Liberty Plaza connection but impacts may still occur.

This alternative would also have impacts to historic and archeological resources on or near the World Trade Center site.

In the long-term, the terminal without a Liberty Plaza connection would support the economic recovery of Lower Manhattan, however, because of the higher number of pedestrians who would cross Church Street at grade, this alternative will not provide for the same long-term benefits to vehicle and pedestrian circulation, vehicle emissions and the noise that would -- the

terminal would -- that the terminal with a Liberty Plaza connection would have.

The coordination of cumulative effects. The FTA and The Port Authority have been coordinating with the sponsors of the other Lower Manhattan recovery projects to develop a coordinated set of mitigation measures to address the potential cumulative impacts of these projects during the construction period.

During the spring and summer of last year, the FTA prepared a methodology and approach to the study of cumulative effects for its projects in Lower Manhattan.

In response, the Lower Manhattan project sponsors worked together to develop environmental performance commitments, EPCs, commitments intended to proactively address potential construction period impacts since they would be implemented and integrated as part of each of the federally sponsored recovery projects.

Although the EPCs reduce the potential impact of the recovery projects,

preliminary analysis for the individual environmental assessments showed that additional measures would be needed.

And in response, the project sponsors worked to investigate additional commitments for the reduction of air emissions and noise, with particular attention to areas that would be impacted by overlapping construction.

These efforts by the Lower Manhattan project sponsors continue, focusing on actively researching the availability and the practical use of new technologies to reduce air emissions and noise.

This includes an investigation of particulate filters, noise abatement measures, the electrification of certain construction equipment.

As these projects move forward toward their individual Records of Decision, the project sponsors will continue to coordinate their research and will work together to minimize the potential cumulative effects to the local community during the

construction period.

And in the next few slides I will present the specific mitigation measures that were identified for our Permanent World Trade Center PATH Terminal that are in our Draft EIS.

Concerning the mitigation measures during construction, the first one is for cultural resources.

The FTA and The Port Authority are engaged in a Section 106 review process for our project which will result in a Memorandum of Agreement, MOA, to mitigate any adverse effects to the archeological and historic resources.

This process follows the rules and regulations established by the National Historic Preservation Act.

Throughout the process, which began this past December, the FTA and The Port Authority have actively sought the participation of the Federal Advisory Council on Historic Preservation, the New York State Historic Preservation Officer and

approximately 74 consulting parties that represent the interested -- that represent the in -- I'm sorry, that represent the interests of victims of the attacks, community groups and preservation groups and federal, state and city agencies.

The Draft EIS identifies preliminary measures that the FTA and The Port Authority are considering to avoid, minimize and mitigate the project's effects to archeological and historic resources.

Currently the FTA and The Port Authority are working with the various consulting parties to develop mitigation measures into -- mitigation measures that will be -- and commitments that will be incorporated into this Memorandum of Agreement for the project.

And that will be among the FTA, the New York State Historic Preservation Officer and The Port Authority and it will be executed prior to the publication of the Final EIS for our project.

Concerning the economic

conditions, The Port Authority will work with the other sponsors of the Lower Manhattan recovery projects to ensure that businesses near the project sites in Lower Manhattan remain viable and accessible during the construction of the various federally funded recovery projects.

These efforts include a signage plan to indicate the location of affected businesses, as well as a comprehensive plan to ensure that businesses remain accessible to both their customers and their delivery vehicles.

Transportation. The maintenance and protection of traffic plan will not only ensure access to businesses but would also assure the safe accessibility of Lower Manhattan streets and sidewalks for residents, workers and visitors.

This plan will include measures to protect vehicles that travel near the construction zone while maintaining the most efficient traffic flow possible.

It will also ensure that access is

maintained to residences and businesses and will provide for travel routes to, from and within Lower Manhattan to keep people moving as construction proceeds.

And it will assure that all of this work will be accomplished while maintaining PATH service.

Air quality. The Lower Manhattan project sponsors have been working very hard to investigate measures to reduce emissions during construction.

A combination of techniques have been researched to reduce the effects of construction vehicles and equipment.

These measures include retrofits to engines that reduce particulate emissions, the electrification of certain equipment to reduce emissions by portable generators and the use of ultra-low sulfur fuels and a monitoring program during construction.

The Port Authority is continuing to work with other project sponsors to research available technologies and to determine additional measures that could be

undertaken to further reduce the potential construction period effects to air quality.

Noise and vibration. In tandem with our continued efforts to reduce air quality emissions during construction, The Port Authority is also working with other Lower Manhattan project sponsors to investigate strategies to reduce construction generated noise.

Strategies that we are currently researching include equipment retrofits such as mufflers and the use of noise walls, barriers and enclosures around the construction zones.

The Port Authority will also work with the New York State Historic Preservation Officer and other preservation groups to develop construction protection plans for the historic structures that may be impacted by vibration from construction equipment.

This plan will include monitoring to predictable -- this plan will include monitoring to predictable acceptable vibration levels and measures to address exceedance of

these levels should they occur during the project's construction.

Contaminated materials. The Draft EIS generally found that contaminated materials were not found on the World Trade Center site, however, the areas under Route 9A and Church Street may have the potential for residual contaminated materials.

The Port Authority will develop a Health and Safety Plan to provide for specific protocols for the testing, removal and disposal of these soils if they are encountered during construction.

These protocols will incorporate all applicable federal, state and local regulations.

The plan will also provide for measures to protect the construction workers and the local residents if and when contaminated soils are found.

Concerning the mitigation measures during the operation, we talk about operation as during the opening year of 2009 and our design year of 2025.

As described previously, a Memorandum of Agreement will be developed to identify specific measures to avoid, minimize and mitigate adverse effects to historic resources.

The MOA will not only address potential impacts during the project's construction but it will also provide for measures to ensure the long-term preservation of historic and historic -- and archeological resources to the greatest extent possible.

Concerning pedestrian circulation, if a Liberty Plaza connection is not constructed, there may be modifications to accommodate additional pedestrian traffic at street level at the intersection of Liberty and Church streets.

This may involve the physical widening of crosswalks and sidewalks or may require the relocation or the removal of the street furniture, sign posts or other obstructions in order to increase the area of the sidewalk that can be used by pedestrians.

Natural resources. The terminal

building will be glass, steel and concrete. Special landscaping, glass treatments and lighting will be incorporated into the terminal design to reduce the potential for fatal bird strikes.

In addition, we will be incorporating sustainable design principles that will allow construction and operation of an environmentally friendly terminal.

The NEPA process for the Permanent World Trade Center Terminal began in September of 2003.

The scoping meetings were held in October of 2003 and the scoping process was closed in mid-December of last year.

We published our DEIS in late May of 2004 and with a Notice of Availability on June 4th.

Our public hearings are being held today and tomorrow, June 23rd, and the public comment period will be closed on July 21.

Our Section 106 review process is being conducted concurrently.

The FTA, the United States

Department of Housing and Urban Development and the Federal Transit Administration entered into a coordinated Section 106 process beginning in December of 2003.

A coordinated Determination of National Register Eligibility was released by these federal agencies in draft form in January of 2004 and the Final DOE was circulated on March 31st of this year.

Following the publication of the Final DOE, the federal agencies and the local project sponsors continued their Section 106 processes independently.

A Draft Finding of Effects was published by the FTA and The Port Authority in May of this year and concurrent with the distribution of the DEIS.

And a consulting parties meeting was held on June 14th of this year to present these findings and to begin a discussion of mitigation measures.

The FTA and The Port Authority will prepare a Memorandum of Agreement that will specify mitigation measures for effects

to historic resources.

The MOA will be executed prior to the publication of the FEIS and we hope to publish the Final Environmental Impact Statement in September and have our Record of Decision in October of this year.

I'd like to thank you very much for taking the time to listen to my presentation.

I'd like to now turn it over to Arnold because we will now be accepting your comments on the DEIS until July 21st.

Comments can be made at this public hearing or tomorrow at the public hearing in New York or can be submitted by fax, E-mail or in writing.

And please feel free to contact us if you have any additional information concerning our Draft EIS.

Thank you very much.

Arnold.

MR. BLOCH: Thanks, Lou.

We don't yet have anyone who's signed up for speakers to speak, but you have

until 8 o'clock to do so.

We just ask that you keep your remarks to about three minutes, and if you -- we also are looking for you to submit any written comments, either today on these blue sheets that were available at the desk, and you can submit those to myself or at the desk or to the court reporter over here, and you can also submit written comments beyond this date through July 21st.

You can see here and in any of the documents that we have up front there are addresses both for mail and for E-mail and fax numbers.

We only ask that you please postmark, if you're mailing it, by Wednesday, July 21st, and if you're faxing or E-mailing, please do so before 5 o'clock on Wednesday, July 21st.

So if you would like to make any comments, please just go to the desk there and submit one of these cards.

If you would like to talk informally with anybody here about anything

that you've heard today or see on these boards, we'll just call a brief recess and anyone who's wearing one of these tags will be glad to talk with you, any members of the public, while we're still waiting for any speakers.

We'll be here till 8:00.

So thank you.

And I guess right now we'll just have a brief recess until anyone wants to speak.

Thank you.

(Time noted : 7:15 p.m.)

(A recess was taken)

MR. BLOCH: Okay. It's now 8:00 and we have no more speakers so I'm going to close this public hearing for tonight.

Thank you very much.

(Time noted: 8:00 p.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
ss.
COUNTY OF NEW YORK)

I, Ann Brunetti, a shorthand reporter and notary public of the State of New York, do hereby certify:

That the foregoing, pages 1 through 79, taken at the time and place aforesaid, is a true and correct transcription of my stenographic notes, to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand this 9th day of July 2004.

Ann Brunetti

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PUBLIC HEARING

RE: PERMANENT WORLD TRADE CENTER PATH TERMINAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

- - - - - - - - - - - - - - - - - x

St. John's University
101 Murray Street
New York, New York

June 23, 2004
4:30 p.m.

B E F O R E :

MICHAEL PETRALIA, Chief of Public and Government Affairs, PATH

ROY ALLEN & ASSOCIATES, INC.
521 FIFTH AVENUE - 17TH FLOOR
NEW YORK, NEW YORK 10175
(212) 840-1167

A P P E A R A N C E S :

TONY CRACCHIOLO, Director of Priority
Capital Programs, PATH

ARNOLD BLOCH, Moderator

MR. PETRALIA: Good afternoon.

My name is Michael Petralia, I'm the Chief of Public and Government Affairs for The Port Authority of New York and New Jersey.

I want to welcome you to this public hearing on the Draft Environmental Impact Statement and Section 4(f) evaluation of the Permanent World Trade Center PATH Terminal.

The Federal Transit Administration and The Port Authority of New York and New Jersey have undertaken the DEIS and Section 4(f) evaluation to reconstruct the permanent terminal at the World Trade Center site in Lower Manhattan.

For The Port Authority Trans-Hudson, PATH, system, the project will be funded as part of the Federal Government's 4.55 billion Lower Manhattan transportation recovery effort which was committed to New York City following the terrorist attacks of September 11th, 2001.

The Permanent World Trade Center PATH Terminal, designed by Architect Santiago

Calatrava, is proposed to be a full-service regional transportation hub that would be coordinated with the existing and future transportation infrastructure, the World Trade Center site development and the surrounding area.

The project is needed to reestablish and enhance transportation facilities and infrastructure that existed at the World Trade Center complex prior to September 11th, 2001 and to ensure the long-term accessibility and economic vitality of Lower Manhattan.

This DEIS has been prepared pursuant to the National Environmental Policy Act, or NEPA.

The alternatives considered in the DEIS include a no action alternative, a terminal with a Liberty Plaza connection alternative, a terminal with -- a terminal without a Liberty Plaza connection alternative.

The terminal with and without the Liberty Plaza connection alternatives were

carried forward for detailed evaluation in this DEIS after careful review of a range of alternatives as part of the early planning for the Permanent World Trade Center PATH Terminal and following public comments during the scoping process.

This DEIS also considers design options for components of the terminal, including ventilation structures, a Route 9A pedestrian bridge and river water cooling.

The analyses and impact assessments in the DEIS considered potential effects on transit service and transportation, land use and local planning, social and economic conditions, historic and archeological resources, urban design and vital resources, air quality, noise and vibration, infrastructure and energy, contaminated materials, natural and water resources, coastal zone management, safety and security and cumulative effects.

Environmental performance commitments, preliminary sustainable design guidelines and mitigation measures to reduce

localized impacts are described in the documents.

There will now be a brief presentation followed by your comments, but before the presentation I would like to introduce Arnold Bloch, our moderator for this afternoon and through this evening.

Thank you again for being here today.

MR. BLOCH: Thank you, Mike.

And also let me welcome you to our public hearing.

For the record, this meeting is part of the environmental review for the Permanent World Trade Center PATH Terminal.

This Environmental Impact Statement is being prepared in accordance with the National Environmental Policy Act, known as NEPA, and the applicable regulations which implement NEPA as set forth in 23 CFR Part 771 and 40 CFR Parts 1500 through 1508 and 49 CFR Part 622.

The EIS is also being prepared in accordance with Section 106 of the National

Historic Preservation Act of 1966 and Section 4(f) of the U.S. Department of Transportation Act of 1966 and associated laws and regulations.

This is one of two public hearings that are being held to hear public comments on the Draft Environmental Impact Statement.

Last night we were in Jersey City at City Hall from 4:00 until 8:00 p.m.

As Mike said earlier, the purpose of this meeting is to solicit public comment on the Draft EIS, which was published on June 4th, 2004.

Copies of the Draft Environmental Impact Statement are available at various libraries in Lower Manhattan, Jersey City, Bayonne, Harrison, Hoboken and Newark or at the Port Authority's Website.

The Website address is available on the newsletter, which hopefully you picked up, it's on the back so I won't try and read it for you so you can just get it there.

For a list of the libraries that the EIS is available at, you can please ask at

the sign in desk downstairs.

We have a number of sample copies at the registration desk as well.

In a few minutes Tony Cracchiolo, who is the Director of Priority Capital Programs for The Port Authority, will make a brief presentation about this project and about the information contained in the Draft Environmental Impact Statement.

After Tony is done, we will begin the public comment portion of this meeting, which will last until 8:00 p.m.

I'll remind you about this again but it's important that anyone who wishes to offer comments, please register downstairs at the sign in desk and you have to fill out one of these yellow forms. A number of people have done that.

But if you'd like to do that and you haven't done that, at any point this evening you can go down and register and we'll call you at that point. You'll have three minutes to present at that time.

You can also submit written

documentation either tonight or afterwards and all the way through Wednesday, July 21st, 2004.

So let me now introduce Tony Cracchiolo and he'll give you a presentation about the EIS.

MR. CRACCHIOLO: Thank you and good afternoon.

This presentation will outline the analysis of the alternatives presented in the Draft Environmental Impact Statement for the World Trade Center Transportation Hub.

First I will present the purpose and need for the project, including a definition of the problem and the goals and objectives that the project will strive to achieve.

Next I will present and describe the three alternatives that were mentioned to you just a minute ago that were evaluated in the Draft EIS.

And then I will describe the findings of the environmental analysis for the three alternatives, as well as the proposed

mitigation measures to alleviate any adverse impacts from the project.

Finally, I'll review the environmental process and upcoming milestones.

A Permanent World Trade Center PATH Terminal is needed, number one, to establish and enhance transportation facilities and infrastructure that existed at the World Trade Center complex prior to September 11, 2001, and second, to ensure the long-term accessibility and economic vitality of Lower Manhattan.

Four distinct problems would exist if the problem were not undertaken.

First, economic recovery. Several current and proposed projects contribute to the economic recovery of Lower Manhattan, proposals for memorial, cultural facilities, offices and retail development on the World Trade Center site, a new headquarters building being planned in Battery Park City by Goldman Sachs, as well as No. 7 World Trade Center which is currently under construction and offices and residential projects throughout

Lower Manhattan.

These developments restore facilities that were lost on September 11, 2001 but they also attract new residents, office workers and visitors to Lower Manhattan.

High capacity transit services are needed to safely and efficiently transport these workers, visitors and residents to and from Lower Manhattan.

Second, ridership growth. This development in Lower Manhattan will increase the demands for PATH over time. By 2025, it is anticipated that the daily PATH ridership will exceed pre-September 11, 2001 levels by approximately 25 percent.

Commuting to Lower Manhattan without PATH will result in longer, less convenient and more expensive trips than with direct PATH service.

Anyone who remembers how it was getting to Lower Manhattan prior to the opening of our temporary PATH service will know what I'm talking about.

Additional ridership on other transit modes may require that the capacity of these systems be enhanced, and without PATH, some commuters and visitors to Lower Manhattan would drive to the area. The additional vehicle trips would increase congestion on city streets and river crossings and worsen air quality.

There are limitations of temporary PATH service recently restored. The temporary station does not restore the capacity that existed in the pre-9/11 terminal.

The station has fewer points of access than did the pre-September 11 terminal.

Platforms accommodate only eight-car trains as compared to the ten-car platforms that existed prior to September 11.

And the temporary station is open air, it is not climate controlled.

Certain elements of the station have a limited service life and the station as designed does not easily support the full development of the World Trade Center site.

Four goals and supporting

objectives were developed to guide the alternatives development process for the Permanent World Trade Center Terminal.

Goal number one, effectively restore long-term PATH service between New Jersey and Lower Manhattan.

To successfully address this goal, the project must meet the following objectives.

Accommodate pre-September 11, 2001 PATH ridership;

Provide for additional capacity at the terminal to support ridership growth;

Provide for modern station design with full ADA accessibility, climate control and station security;

And minimize disruption to temporary PATH service during construction.

Goal two, establish an intermodal transportation facility in Lower Manhattan.

This project should enhance transportation connections to, from and within Lower Manhattan as compared to the September 11 -- pre-September 11, 2001

conditions.

The opportunity to rebuild the PATH facility should take advantage of connections to existing and future transit infrastructure and should allow for improved at grade and below grade pedestrian connections as compared to the pre-September 11th and temporary PATH facilities.

To successfully address this goal, the project must meet the following objectives:

Improve street level visibility and access;

Provide for adequate and state of the art pedestrian circulation within the facility;

And provide for connections to New York City Transit subways and other origination and destination points.

Third, plan and construct the terminal that would support the redevelopment of the Lower Manhattan.

The project should support the

physical and economic recovery of Lower Manhattan, including proposals for the reconstruction or rehabilitation of other transportation, infrastructure, redevelopment of the World Trade Center site and the construction and occupation of other off-site projects, all of which are undergoing separate environmental reviews.

To successfully address this goal, the project must meet the following objectives:

Construct the facility as coordinated with the master plan for the World Trade Center site;

Provide for future connections to World Trade Center buildings and functions, including the proposed memorial;

Coordinate PATH facilities with other subgrade uses at the site;

And plan and coordinate PATH elements with proposals for reconstruction of the Route 9A, West Street, the Fulton Street Transit Center and other off-site development.

And fourth, minimize adverse

impacts to the environment.

Construction and operation of the project should, to the extent possible, minimize effects to the local and regional environment in the short-term and in the long-term.

The desired alternative would not only minimize adverse effects but would also provide for the greatest positive benefits to both the built and natural environments.

To successfully address this goal, the project must meet following objectives:

Reuse existing infrastructure to the degree possible;

Provide for efficient and environmental friendly construction techniques;

Minimize disruption to PATH and New York City Transit subway service during construction;

And provide for a green and sustainable design.

The EIS considered three alternatives for a Permanent World Trade

Center PATH Terminal, a no action alternative, a new terminal with a connection to Liberty Plaza at the corner of Church and Liberty streets and a new terminal without a connection to Liberty Plaza.

The next several slides will describe these alternatives.

Maintain the Temporary PATH Station.

Under NEPA, a no action alternative is typically evaluated. The no action alternative is used as a baseline to evaluate the potential future impacts of the proposed project.

The no action alternative assumed that the temporary station would remain in service until:

One, the construction of the World Trade Center Memorial, cultural buildings and the office towers would not allow for the operation of a PATH Station in its present location or configuration;

Number two, the demand for PATH service would exceed the station's capacity,

meaning that its continued operation would not be safe;

And three, major components of the station would exceed their service life.

The assessment presented in the EIS assumes that the station would need to cease operations under this alternative at some point between 2009 and 2025.

Second, construct a new terminal on the site.

The other project alternatives would result in a new PATH terminal on the World Trade Center site.

There is one principal difference between these two alternatives, therefore, I will begin by describing what the components are in common for both alternatives.

The terminal would provide in both cases five tracks and four platforms to accommodate ten-car trains and forecasted passenger growth.

The intermodal would -- would provide intermodal connections to virtually all subways Downtown, World Trade -- World

Financial Ferry Terminal and local and commuter bus services.

A transportation hall would be provided with pedestrian connections to all proposed World Trade Center redevelopment facilities, subways and surrounding streets and the terminal would be fully climate controlled and be designed to maximize natural lighting.

The terminal will provide numerous intermodal connections. It will provide for an east-west connection through the World Trade Center site, including connecting with the MTA, New York City Transit's Dey Street concourse to the Fulton Transit, Fulton Street Transit Center at Broadway. The Transit Center will serve nine subway lines.

It will also connect with the Cortlandt Street Station on the R and W subway line, the World Trade Center Station on the E line and the future Cortlandt Street Station on the 1 and 9 line which would be reopened.

Connections within the World Trade Center site will allow for access to the

future World Trade Center Memorial, cultural facilities, retail and office towers.

And a concourse across West Street, Route 9A, will allow for access between the PATH terminal and the World Financial Center, Battery Park City and The Port Authority's new Trans-Hudson Ferry Terminal.

And under the terminal with the Liberty Plaza connection alternative, the terminal would also provide a subgrade concourse beneath Church Street between the World Trade Center site and Liberty Plaza.

The concourse will serve the numerous commuters who travel between PATH and the Financial District, the Wall Street District.

Under the terminal without a Liberty Plaza connection, the terminal would not provide a subgrade concourse beneath Church Street between the World Trade Center site and Liberty Plaza.

Other than that, it is the same design as the terminal with the Liberty Plaza

connection.

In addition, there is no change in the construction schedule on either of these alternatives.

We'll discuss the impacts of this option shortly.

As you may have seen on the display boards and video as you entered today, the terminal exists of a magnificent transportation hall, which would be a grand architectural statement for Lower Manhattan, visible from the street, a Grand Central Terminal for Lower Manhattan.

In addition, there are four additional levels of pedestrian infrastructure connecting directly to the subways and the nearby development on and around the site.

If you haven't had a chance to take a look at these displays, I invite you to stop by later to do so. They'll be running throughout the hearing.

Okay. The project would begin in 2005 and would continue to 2009. Construction will be in phases and portions of the terminal

will open as they are completed.

The construction of the terminal is expected to peak in 2006, which was selected as the year for construction period analysis in the EIS.

The no action alternative.

The next few slides compare the benefits and impacts of all the project alternatives.

Starting with the no action alternative, this alternative would not result in the construction of a new terminal but it would eventually result in the full closure of the Temporary PATH Station.

Thus, although the no action alternative will have little or no construction period impacts, it would have adverse impacts in the long-term.

The economic revitalization of Lower Manhattan incorporates transportation, infrastructure and development projects. The failure to construct the Permanent PATH Terminal is inconsistent with these revitalization plans.

It is estimated that absent a permanent terminal, approximately 5 percent of the diverted PATH riders would drive to Lower Manhattan. By 2025, this could result in 1200 additional vehicle trips in the a.m. peak hour.

These vehicles would cause congestion on area roadways, would generate substantial levels of pollutant emissions and will create noise.

The diversion of PATH riders would also cause congestion on other modes of transit. It is anticipated the diverted PATH riders would use commuter trains and buses, ferries and city subways to reach Lower Manhattan.

The diversion of large numbers of passengers to these modes may require future capacity enhancements.

The terminal with the Liberty Plaza connection has substantial long-term benefits as compared to the no action alternative but there would be impacts during its construction.

In the long-term, the terminal with a Liberty Plaza connection would support the economic development of Lower Manhattan.

Since customers could continue to use PATH between New Jersey and Lower Manhattan, the terminal would not generate new vehicle trips, vehicle emissions or vehicular noise.

The terminal would improve access between PATH and the other modes of transit but its operation would not result in adverse impacts to these other modes.

The pedestrian connections that will be provided as part of the terminal will improve street level pedestrian and vehicle circulation and will reduce street level congestion within and through the World Trade Center site, including at the intersection of Liberty and Church streets.

The terminal's construction will generate truck trips, however, to and from Lower Manhattan and will require the use of construction equipment.

Thus, during the terminal's

construction, there will be increased truck traffic on area roadways as compared to the no action alternative.

The terminal's construction will also generate emissions and noise from construction vehicles and the use of construction equipment.

The terminal will also have both short- and long-term impacts to archeological and historical resources.

The terminal's construction may alter or remove portions of the Hudson River bulkhead under Route 9A, the remaining remnants and structures on the World Trade Center site.

And the terminal's construction may also result in vibration impacts to five historic structures within 90 feet of the construction zone.

The terminal's construction may not allow for the long-term preservation of portions of the Hudson River bulkhead and remaining remnants of the World Trade Center site that exist today.

As will be described a bit later, the FTA and The Port Authority are working closely with the preservation groups and interested parties to draft mitigation measures to avoid, minimize or mitigate these effects to archeological and historic resources.

The terminal without the Liberty Plaza connection generally has the same benefits and potential impacts to the terminal with the Liberty Plaza connection.

The difference, basically the difference is that without this connection, there are additional impacts to the intersection at Liberty and Church Street.

Both of these alternatives would support the economic development of Lower Manhattan, however, because a higher number of pedestrians would cross Church Street at grade, this alternative would not provide the same long-term benefits to vehicular and pedestrian circulation, vehicle emissions and noise as would the terminal with the Liberty Plaza connection.

The FTA and The Port Authority have been coordinating with the sponsors of other Lower Manhattan recovery projects to develop a coordinated set of mitigation measures to address the potential cumulative impacts of these projects during the construction period.

During the spring and summer of last year, FTA, the Federal Transit Administration, prepared a methodology and approach to the study of cumulative effects for its projects in Lower Manhattan.

In response, the Lower Manhattan project sponsors worked together to develop environmental performance commitments, EPCs, commitments intended to proactively address potential period -- construction period impacts since they would be implemented and integrated as part of each of the federally sponsored recovery projects.

Although the EPCs reduce the potential impacts of the recovery projects, preliminary analysis for the individual environmental assessments showed that

additional measures would be needed.

In response, the project sponsors worked to investigate additional commitments for the reduction of air emissions and noise, with particular attention to areas that would be impacted by overlapping construction.

These efforts by the Lower Manhattan project sponsors continue, focusing on actively researching the availability and practicality of new technologies to reduce air emissions and noise.

This includes an investigation of particulate filters, noise abatement measures and electrification of certain construction equipment.

As these projects move forward towards their individual periods of Records of Decision, the project sponsors will continue to coordinate their research and will work together to minimize potential cumulative effects to the local community during the construction period.

In the next few slides I will present the specific mitigation measures that

were identified with the Permanent World Trade Center Terminal in the Draft EIS.

The EIS identified six resource areas during the project's construction.

The FTA and The Port Authority are engaged in a Section 106 review process for the project which will result in a Memorandum of Agreement to mitigate any adverse effects to archeological and historic resources.

This project follows the rules and regulations established by the National Historic Preservation Act.

Throughout the process, which began this past December, the FTA and The Port Authority have actively sought the participation of the Federal Advisory Council on Historic Preservation, the New York State Historic Preservation Officer and approximately 74 consulting parties that represent the interests of victims of the attack, community groups and preservation groups and federal, state and city agencies.

The Draft EIS identifies preliminary measures that the FTA and The Port

Authority are considering to avoid, minimize or mitigate the project's effects to archeological and historic resources.

Currently the FTA and The Port Authority are working with the various consulting parties to develop mitigation measures for the project.

These measures and commitments will be incorporated into a Memorandum of Agreement for the project among the FTA, New York State Historic Preservation Officer and The Port Authority, which will be executed prior to the publication of the Final EIS for this project.

Second, The Port Authority will work with the other sponsors of the Lower Manhattan recovery projects to ensure that businesses near the project sites in Lower Manhattan remain viable and accessible during the construction of the various federally funded projects.

These include a signage plan to indicate the location of affected businesses, as well as a comprehensive plan to ensure that

businesses remain accessible to both their customers and delivery vehicles.

Third, the maintenance and protection of traffic plan will not only ensure access to businesses but will also assure the safe accessibility of Lower Manhattan's streets and sidewalks for residents, workers and visitors.

This plan will include measures to protect vehicles that travel near the construction zone while maintaining the most efficient traffic flow possible.

It will also assure that access is maintained to residences and businesses and will provide for travel routes to, from and within Lower Manhattan to keep people moving as construction proceeds.

And it will assure that all of this work will be accomplished while maintaining PATH service.

The Lower Manhattan project sponsors have been working very hard to investigate measures to reduce emissions during construction.

A combination of techniques have been researched to reduce the effects of construction vehicles and equipment.

These measures include retrofits to engines that reduce particulate emissions, the electrification of certain equipment to reduce emissions by portable generators and the use of ultra-low sulfur fuels and a monitoring program during construction.

The Port Authority is continuing to work with the other project sponsors to research available technologies and to determine additional measures that could be undertaken to further reduce construction period effects to air quality.

Fifth, in tandem with our continued efforts to reduce air quality emissions during construction, The Port Authority is also working with the other Lower Manhattan project sponsors to investigate strategies to reduce construction generated noise.

The strategies that we're currently researching include equipment

retrofits such as mufflers and the use of noise walls, barriers and enclosures around construction zones.

The Port Authority will work with the New York State Historic Preservation Officer and other preservation groups to develop construction protection plans for the historic structures that may be impacted by vibration from construction equipment.

This plan will include monitoring to predictable acceptable vibration levels and measures to address exceedance of these levels should they occur during the project's construction.

And six, the Draft EIS generally found that contaminated materials were not found on the World Trade Center site, however, the areas under Route 9A and Church Street have the potential for residual contaminated materials.

The Port Authority will develop a Health and Safety Plan to provide for specific protocols for the testing, removal and disposal of these soils if they are

encountered during construction.

These protocols will incorporate all applicable federal, state and local regulations.

The plan will also provide for measures to protect construction workers and local residents if and when contaminated soils are found.

Now I'd like to take a minute to discuss the mitigation actions we're considering during our opening year, 2009, when we begin operations and our design year, 2025.

As described previously, a Memorandum of Agreement will be developed to identify specific measures to avoid, minimize or mitigate adverse effects to historic resources.

The MOA will not only address potential impacts during the project's construction but it will also provide for measures to ensure the long-term preservation of archeological and historic resources to the greatest extent possible.

If a Liberty Plaza connection is not constructed, there may be modifications to accommodate additional pedestrian traffic at street level at the intersection of Liberty and Church streets.

This may involve the physical widening of crosswalks and sidewalks or may require the relocation or removal of street furniture, sign posts and other obstructions in order to increase the area of the sidewalk that will be available for the use by pedestrians.

The terminal building will be a glass, steel and concrete construction. Several landscaping, glass treatments and lighting will be incorporated -- special landscaping, glass treatments and lighting will be incorporated into the terminal's design to reduce the potential for fatal bird strikes.

In addition, we will be incorporating sustainable design principles that will allow construction and operation in an environmentally friendly terminal.

The NEPA process for the Permanent World Trade Center PATH Terminal began in September 2003.

Scoping meetings were held in October and you can see from the schedule and scoping -- the scoping process was closed in mid-December.

We published our DEIS in late May of this year and with a Notice of Availability on June 4th.

Our public hearings were held yesterday and are being held here today and the public comment period will close on July 21st.

Our Section 106 review process, which is going on concurrently, being sponsored by the FTA, the U.S. Department of Housing and Urban Development, the Federal Transit Administration entered into a coordinated Section 106 process beginning in December of last year.

A coordinated Determination of National Register Eligibility was released by these federal agencies in draft form in

January of 2004 and the Final DOE was circulated on March 31st of this year.

Following the publication of the Final DOE, the federal agencies and local project sponsors continued their Section 106 processes independently.

A Draft Finding of Effects was published by the FTA and The Port Authority in May 2004, concurrent with the distribution of DEIS.

And a consulting parties meeting was held on June 14th this year to present these findings and to begin a discussion of mitigation measures.

FTA and Port Authority will now prepare a Memorandum of Agreement that will specify mitigation measures for effects to historic resources.

This MOA will be executed prior to the publication of the Final EIS for the project. We hope to publish this Final EIS in September and have our Record of Decision in October of this year.

We will be accepting -- besides

your comments today which we invite, we will also be accepting comments that are written or E-mailed on the DEIS until July 21st, 2004.

Comments can be made in a number of forms, as I said, E-mail, fax or in writing, so please, please do so. We welcome and invite your comments.

Thank you very much for your attention.

I'd like to now turn the floor back to Arnold for your comments.

MR. BLOCH: Thank you, Tony.

So now I'm going to begin calling the names of people who have registered to speak at this meeting.

You can register to speak, as I mentioned earlier, at any point during this meeting up through 8 o'clock, and all you have to do, if you haven't done this already, is fill in one of these yellow forms which is downstairs when you came in and we'll take it and I'll be calling you out.

I'll be calling you in the order in which you registered, except if any elected

officials come we will afford them the courtesy of speaking first.

I will call out the names of the speaker and then the next speaker just so that person is aware that his or her turn is coming up.

And there are two microphones here at the bottom here, one here on my right and on the left. If you have any difficulty getting down there, they're wireless, we can always bring them up, so just let us know.

When it's your turn to speak, please approach the microphone, clearly state your name for the record and if you have an organizational affiliation, please do so, tell us that as well.

I ask that you keep your comments to three minutes. If you feel that you need to go longer than that, I'm going to suggest that you cut your statement down a bit or you can submit it in writing or if we have time at the end, you can come back, register to speak again and you could pick up your comment at that point after everyone else has had a

chance to speak.

If you do have a written version of your comments as well as any other documentation that you would like to submit that you think is worthwhile to submit, please hand it either to myself, to the court reporter who's down here on my right or downstairs at the desk where you signed in.

If at any time you'd like to just step out of the room, you can visit any of the boards or the video that Tony mentioned downstairs and talk to any of the project representatives who are wearing these white and blue badges around their neck.

But please remember that those comments and that conversation that goes on is informal and will not be part of the written record. This will be what you say in here.

This is not the only way for you to submit your comments. As Tony mentioned, we have these forms downstairs, you could put comments on this, or you could submit comments or documentation in any other form that you'd like to.

And you can do so at any of these, send it to this address, send it to that fax or E-mail it to that address there.

That information is also available in the small handout that you may have received or got downstairs and also in the larger one on the back page, both of them starting with "Building a New PATH." On the back page it gives the same information so you don't have to be scurrying around to write that down.

But I do want to remind you that there is a closing date. We would ask that if you're mailing anything that you would postmark it no later than Wednesday, July 21st of this year, and if you're going to be faxing or E-mailing it, please do so by 5:00 p.m. on Wednesday, July 21st, 2004.

Okay. Now I'm going to be calling the first speaker and announcing the name of the next speaker.

The first speaker is Chris Ormsby and the next speaker will be Alan Mason.

MR. ORMSBY: My name is Chris

Ormsby, I'm a member of Local Union No. 3, IBW, and I am definitely in favor of the building of this facility.

I can't think of a more grand and proper entrance to Lower Manhattan than this facility.

It will also create countless temporary construction jobs and countless permanent jobs.

Thank you.

MR. BLOCH: Thank you, Mr. Ormsby.

Mr. Mason.

And after he speaks, Louis Epstein will be the next speaker.

MR. MASON: My name is Alan Mason, I'm also with Local 3, IBW. We're the electricians union in the City of New York.

When the Trade Center was attacked, we will lost 17 members that were electricians and another four that were in our union that weren't -- incurred a personal loss.

Not only does the building of Lower Manhattan continue but New York is the

heart of the U.S. and it's really important that it's not only rebuilt but it's rebuilt bigger, better, more grand and also safer.

You know, so for me, it's not my backyard. I know there are people here who have co-ops, condos, houses right inside of it.

I come in every day, I work right there, which makes it as important to me as anyone who does live there.

If we don't make commuting and transportation to Lower Manhattan efficient, safe, comfortable, what's going to happen is the same thing that happened right after 9/11.

You're going to have businesses leaving, you're going to have businesses taking their employees across the river and weakening New York.

Right now we're in global economy. If we take jobs out of New York, there's very little that will keep us as the heart of America.

We really have to keep America strong, we have to keep this city strong and I

mean we can't let people who attack us show us, you know, you can shut America down, it just can't happen.

As far as which plan, it seems like the Liberty with the connection is going to have the most long-term benefits. Yes, there might be trucks and construction noise that would be greater during building, but this is Lower Manhattan, you're going to have trucks and construction noise anyway.

The reality is the long-term effects are less pollution, more comfort, more safety, less need for vehicles in the long-term to be in the area.

I just want to ask everybody to remember that this city belongs to the world. This is truly the heart of America, this city, and try not to think about what's in your own backyard and remember that what you decide as far as the building is what the rest of the world sees of this country.

Thank you.

MR. BLOCH: Thank you, Mr. Mason.

The next speaker, our next speaker

is Louis Epstein and after him will come Jen Hensley.

MR. EPSTEIN: The proposed terminal would be more environmentally appropriate if it did not seek to accommodate the appalling Daniel Libeskind site plan or the indefensible priorities dictated by the Development Corporation that required the Libeskind plan to be as bad as it is.

We must never forget that in the official public poll of the planning process the Libeskind plan finished dead last and it was comfortably won by neither, which is the public's repudiation of the entire priorities that made these plans that, for instance, force vehicular traffic through the site, which has been cited as one of the reasons why we need this terminal.

A new transportation system should be with the aim of furthering the "devehicularization" of Lower Manhattan, not opening more streets.

Scrapping the official plan that is no more close to being financed in favor of

a plan centered on fewer taller buildings which would have their construction impact more localized and more in the spirit of what was destroyed in 2001 would be more appropriate for many reasons, including environmentally.

To the extent that the proposed PATH terminal makes this more difficult is a problem rather than a solution.

The WTC planned Final EIS failed absolutely to made a credible response to the sprawling and numerous arguments that the restoration alternative of new, better twin towers would be better than the Libeskind plan.

The physical manifestation of the Calatrava design is one that is extravagant and strange.

A more understated and physically responsible terminal would free valuable public resources for better uses, such as paying the severance fee for those who continue to obstruct gigantic twin towers greater than before and return them to their

rightful place on the Manhattan skyline.

The murderers of thousands wish those towers gone forever. We must have no part in granting their wishes.

MR. BLOCH: Thank you, Mr. Epstein.

I just want to remind others to give their affiliation.

Yours was?

MR. EPSTEIN: The World Trade Center Restoration Movement.

MR. BLOCH: Okay. And the next speaker is Jen Hensley and after her will be Petra Todorovich.

MS. HENSLEY: Thank you for the opportunity to speak here today on the Draft EIS for the Permanent PATH Station at the World Trade Center site.

I am Jen Hensley, Director of Governmental and Community Affairs for the Downtown Alliance, Lower Manhattan's business improvement district.

We represent thousands of property owners and businesses and several hundred

thousand workers south of Chambers Street.

The PATH Station at the World Trade Center site is an important part of Lower Manhattan's transportation network, providing convenient and affordable access to and from New Jersey for more than 30,000 commuters daily.

The opening of the Temporary PATH Station at the World Trade Center site last November marked a significant milestone in Lower Manhattan's recovery after the September 11th attacks.

And the subsequent unveiling of Santiago Calatrava's magnificent design for the permanent station is further proof that Lower Manhattan's revitalization is well underway.

The Downtown Alliance is thrilled with the plans for the Permanent PATH Station, which will undoubtedly serve as a grand point of arrival in Lower Manhattan and a spectacular 21st century transit center.

Of course, a grand station deserves a grand train and we encourage The

Port Authority to continue your work with the LMDC, the city and the state to bring direct, one-seat access from Long Island and Kennedy Airport to Lower Manhattan.

These transportation improvements are critical to maintaining and enhancing Downtown's role as a central business district and a thriving part of the region's economy.

In fact, there is no single issue that is more important to Downtown's major employers.

We believe that Lower Manhattan's transportation infrastructure must be enhanced quickly and efficiently, with a focus on expanding service and connections to labor markets in the suburbs.

The Downtown Alliance does, however, have several concerns as the Permanent PATH project moves forward.

First, we believe the construction of the permanent station should be coordinated to the forthcoming Lower Manhattan Construction Command Center.

It is critical that issues such as

worker transportation to and from the construction site, permitting, movement of materials and other logistical concerns be coordinated with the many other development projects happening in Lower Manhattan at the same time.

Secondly, we believe that the construction of the Permanent PATH Station should occur with minimum disruption to existing PATH service, particularly during the weekday rush hours.

The Downtown Alliance would also like to see the retail plan for the station complement the other retail components on the World Trade Center site and in the surrounding areas.

We envision a complete retail complex with shops and restaurants that serve the worker and residential populations Downtown, as well as commuters and the many visitors that will come to use the cultural and memorial spaces on the site and other attractions throughout the neighboring community.

Finally, I'd like to thank The Port Authority for your hard work and vision both on this Permanent PATH Station and on Lower Manhattan's broader revitalization.

I look forward to working with you as this process continues.

Thanks.

MR. BLOCH: Thank you, Miss Hensley.

The next speaker is Petra Todorovich and after her will be Olaf Olsen.

MS. TODOROVICH: Good afternoon.

My name is Petra Todorovich, I'm an Associate Planner at Regional Planning Association, an 80-year-old non-profit research and planning organization for the tristate region.

RPA strongly supports the construction of the World Trade Center Transportation Hub to restore long-term access to Lower Manhattan and connectivity to the New York City subway system, contributing to the revitalization and economic recovery of Lower Manhattan.

We are particularly pleased by the selection of Santiago Calatrava, the lead architect for the station, and his graceful and symbolic design of the freestanding grand pavilion unveiled in January of this year.

The commitment to rebuilding the public and civic spaces of Lower Manhattan with high quality architecture holds great promise for Lower Manhattan's future.

The design of the pavilion that allows light to reach down to the platform level of PATH trains supports a long-hauled goal of RPA that transit facilities should be open to light and air and to orient the rider to the street above and improve the user experience.

RPA also supports the functionality of the transportation hub described in the DEIS, including the expansion of the station to accommodate five tracks and four ten-car platforms.

Coherent connections to the 9, 1, R, W and E subway lines will enhance connections to the subway system to the

benefit of commuters moving to and through Lower Manhattan.

The preliminary design of the station suggests it will correct the deficiencies of the former station by providing sufficient capacity for the 175,000 people a day that will be making their way on foot from PATH to the subways or buildings on the streets above.

It is imperative that the new station avoid hidden spaces, narrow corridors, steep stairwells, low ceilings and poor ventilation, all mistakes of the PATH Station -- the past station that we now have an opportunity to correct.

Within the context of our strong support for the project, we offer several additional recommendations for your consideration.

We support the terminal without a Liberty Plaza connection alternative for the project.

While the EIS has demonstrated poor pedestrian levels of service at Church

and Liberty streets without the underground passageway, the proposed mitigation measures of widening sidewalks and crosswalks are, in fact, extremely desirable.

In contrast, the Liberty Plaza connection if built would draw pedestrians underground below Church Street, undermining the viability of street level retail, which is an important component of maintaining street life in Lower Manhattan.

The Liberty Plaza connection would also require the appropriation of public open space in Liberty Plaza for access and egress to the passageway and cost $81 million, a price we feel is not justified by its relatively slim benefit.

We also have comments which we'll include in our written statement strongly supportive of preserving and incorporating destroyed elements of the World Trade Center into the design of the new station and comments calling for the strengthening of the environmental performance criteria to mitigate air pollution, noise and vibration during

construction.

Finally, we look forward to greater details from The Port Authority regarding specific design of the outdoor public spaces around the PATH pavilion, as well as the retail mix of the below-grade shops, their plans for a footage and the retail strategy in light of potential slower rates of office space absorption.

While The Port Authority has designed a station that will provide seamless and pleasant underground connections which are important to Lower Manhattan destinations, we believe the success of Lower Manhattan's revitalization will depend greatly on the quality of the pedestrian experience at the street level.

We, therefore, urge you to pay great attention to the design of the public places surrounding the PATH pavilion, as well as the public spaces throughout the World Trade Center site which hold the greatest potential to provide a positive or negative user experience during the decade of

construction that lies ahead of us.

Thank you.

MR. BLOCH: Thank you.

Our next speaker is Olaf Olsen and after him is Jenna Orkin.

Olsen, I'm sorry.

MR. OLSEN: That's quite all right.

Good evening, ladies and gentlemen, members of the panel.

My name is Olaf J. Olsen and I'm speaking on behalf of the dock building Local Union 1456, which is part of the New York City District Council Partners and the Building and Construction Trades Council of New York.

My local represents 1900 members, many of whom live in New York City. Most of my members went to Ground Zero on 9/11 rescuing survivors and helping the community recover.

More recently some worked on the Temporary PATH Station that will be completed in record time at the World Trade Center site.

Thank you for the chance to

comment on the environmental impact studies for the proposed Permanent PATH Station.

We support this critically important transit project.

Santiago Calatrava, the architect chosen by The Port Authority to design the Lower Manhattan PATH Transit Hub, has designed and engineered some of the most brilliant infrastructure projects in the world.

One rider said Calatrava is the only architect who can make a compelling connection between a subway platform and ancient Greece. His buildings are often considered to be works of art.

The design of the PATH Station could not be more fitting for the site of the former World Trade Center, a bird-like, fully functional structure with movable wings that look ready to soar. This design could not be more inspiring.

I would not be surprised if people from around the world flock to Lower Manhattan to see this modern work of art as they flock to see other Calatrava creations in the

countries, in other countries.

The Permanent PATH Station is a critical project for Downtown redevelopment, for the residents of New Jersey who work in Manhattan and for the companies that make up this important business district.

The station will ensure future economic development growth throughout the city and region by linking all the transit services that are now separate in Lower Manhattan.

The station will provide much needed connections and a fully climate controlled environment and provide easy access to New York City subway lines as never before.

This line is the one Downtown transportation project that is fully funded and ready to go into construction immediately. I cannot for the life of me understand why anyone wants to stop this important improvement to our transit system.

We know that other Downtown transit projects are also needed but they might never be fully funded and may be years

away from being in construction, if they are ever built.

Thousands of construction jobs, 10,000 in all, that will be created by this project will be well-paying positions with wages and benefits that can support a family. These are the kinds of jobs and wages that should stay in your communities.

Construction workers like us are the backbone of so many middle-class neighborhoods in the five boroughs. We're the community activists, the Little League coaches and the volunteers at our children's schools.

We need the employment opportunity and a better transit system that comes with projects like this.

We need this project to ensure our economy remains strong.

In closing, I'd like to say that I urge that this project move forward with construction as quickly as possible.

And thank you very much.

MR. BLOCH: Our next speaker is Jenna Orkin and after that comes Bernard

Goetz.

MS. ORKIN: Thank you.

I'm not going to discuss the project itself but simply how it's going to be executed.

And I apologize to people who've heard me make similar comments at similar hearings.

I only had the opportunity to see the DEIS downstairs this afternoon but I noticed that the language was vague and made very few, if any, promises.

You talked about expected exceedance in the particulate matter 2.5, which is the highly respirable kind, and where you have exceedance in the PM 2.5, we know from after 9/11 that you also can have exceedance in very and ultra-fine particulates, which are even smaller and which EPA and other agencies don't even measure, however, they may be even more dangerous to human health.

Particulate matter 2.5 sounds like a long scientific name with, you know, vague

attributes that don't have any relationship to human beings, but, in fact, it is the kind of potentially toxic dust that it penetrates deep into the lungs and alveoli and stays there, it does not get exhaled.

Your DEIS says, "Substantial additional reductions beyond those contemplated by the EPCs would be needed to assure compliance with air quality criteria. The Port Authority of New York and New Jersey and FTA are investigating options available for further reductions in PM emissions."

To say that you're investigating options gives no information and even fewer promises.

You talk about reducing or mitigating harmful effects to the extent possible.

Who will determine what is possible and according to what criteria, is it simply going to be a criteria of expense and when you don't feel like it anymore, then the health of the people of Lower Manhattan get sacrificed to the economics of the project?

You say, "Effectiveness depends on compliance. Verification measures would be implemented."

Who will be verifying, who will be monitoring?

Will Port Authority and FTA be monitoring themselves?

You need to have a third-party monitor who is objective to do the monitoring, otherwise it's a conflict of interest.

And then suppose you verify that there are exceedance, then what happens, do you simply impose a fine?

Truck companies will only incorporate the cost of those fines into their contracts as a necessary business expense, pay the fines and continue to emit excessive particulates.

A few weeks ago Kevin Rampe was asked a similar question and he said oh, well, if there are exceedance the EPA will make us shut down that portion of the site.

So then I called EPA. That is not what they said. They said we don't do that,

that's up to the state and local authorities.

So I think everybody should get their act together.

Regarding the removal of the hazardous materials, I'm concerned that, you know, you say there's very little left, I'm concerned that you're relying on EPA data.

EPA is a highly compromised agency in this disaster. Just yesterday on this stage the World Trade Center Expert Technical Review Panel met to discuss in one of many, many meetings what should be done now to mitigate the disaster that was left by EPA.

EPA's own Inspector General found that they lied about air quality after 9/11.

So if you rely on EPA and their monitoring equipment and what they say, then I would caution you, for instance, that in January of '02 an article by Andrew Schneider the St. Louis Post Dispatch found that their testing equipment after 9/11 was twenty years behind the times. For every asbestos fiber the EPA found, independent contractors found nine.

So in closing, I found that what I read of this EIS was vague and not reassuring at all.

I hope that the Final EIS will be specific and will take into account that this population in Lower Manhattan has had its immune system severely compromised by 9/11 and there is evidence of that in respiratory symptoms and other symptoms. So all that must be taken into account in the methods that you use in this construction.

Thank you.

MR. BLOCH: Thank you.

Our next speaker is Bernard Goetz and after him comes George Haikalis.

MR. GOETZ: Good evening.

My name is Bernie Goetz and I'm concerned about the Calatrava center being good full-service hub.

I'm a long-term resident of New York and support the construction of this transportation facility but I do not support the extension of Greenwich Street.

One of my former jobs was a

building contractor. I built 130 houses and was responsible for their site plans.

The Calatrava transportation center is supposed to be a full-service hub.

On the proposed site plan both Church and Fulton streets are narrow streets and do not have room for bus parking.

How can the Calatrava center be a full-service hub if there is no room for street buses to park?

I think this is basically the result of siting the Freedom Tower north of Fulton Street. I personally think super skyscrapers like the Freedom Tower or other large towers are better sited south of Fulton Street.

I'm asking that this panel recommend site plan changes that widen Fulton and Church streets so that buses have room to park.

Here's a site plan analysis which shows the situation. I have several copies I'd like to submit.

Thank you.

MR. BLOCH: Thank you.

Our next speaker is George Haikalis and after him is Ken Lustbader.

MR. HAIKALIS: My name is George Haikalis, I'm losing my microphone here, I'm Chair of the Regional Rail Working Group, which is a consortium of all kinds of activists in the New York area.

The tragic events of 9/11 have created an extraordinary opportunity to reconfigure the region's rail transit system to better serve Lower Manhattan.

With a replacement plan for the World Trade Center under review, it becomes possible to consider linking the Downtown PATH line with the No. 6 Lexington Avenue local subway, the PATH-Lex connection, as we call it.

Both rapid transit lines, which are nearly identical in most physical characteristics, terminate at stations in Lower Manhattan less than 3,000 feet apart.

Most of the rapid transit lines pass through Lower Manhattan making multiple

stops, reducing walking time and improving service for transit passengers.

The Regional Rail Working Group has developed a wide range of options for the PATH-Lex connection and two representative examples are shown in the material that we'll be submitting today. We'll be submitting additional material later.

The advantages of this connection are significant for passengers. Residents from Manhattan's Upper East Side neighborhoods could use the less congested No. 6 local to reach workplaces in the World Financial Center and the rebuilt World Trade Center without transferring to congested No. 4 and 5 trains at Brooklyn Bridge.

Residents from these neighborhoods could also more easily reach the growing workplaces in New Jersey's waterfront in Jersey City, Hoboken and also Newark.

In turn, this access also benefits New Jersey residents who could access the many workplaces in retail districts that are well-served by the No. 6 local.

Extending the reach of the PATH line to East Midtown will also ease travel to Newark's Liberty International Airport.

Businesses on both sides of the Hudson will also benefit from this improved access.

A direct link from Manhattan's East Side will be an important incentive to market the substantial amount of office space planned for the World Trade Center and along the New Jersey waterfront as well.

Stores and restaurants in Chinatown and in SoHo would gain improved access to customers that are filling the new apartment houses along the waterfront.

Port Authority and New Jersey -- excuse me, the MTA officials argued that the PATH-Lex connection is not feasible because it required steeper grades and sharper curves than are considered "best practice" for new construction.

It also requires underpinning of subway structures, which adds to the cost.

Yet leaving the existing system in

place means the trains must negotiate far sharper curves at the World Trade Center Terminal and the City Hall loop just south of Brooklyn Bridge Station.

Grades of four and a half percent are found at many locations in New York City Transit System and The Port Authority recently completed Kennedy AirTrain that has even steeper grades.

The underpinning proposed for the connection is quite similar to that required for the recently completed local-express connection to the 63rd Street Tunnel in Queens.

Thru routing subway trains from Brooklyn to The Bronx by way of the Manhattan business district has been the operating practice for new lines built in New York City since the five boroughs were consolidated in 1898.

This is the norm for most rapid transit systems throughout the world. The PATH-Lex connection would simply apply this practice to trains crossing the Hudson River.

Consolidating the PATH system with the much larger New York City Transit system could produce annual operating cost savings of 10 to $20 million, which could be shared equally by the two states.

Capital cost gains would be realized through unified procurement of rolling stock and other supplies.

These gains could be -- could occur only after certain agreements are made with managers and labor leaders for a satisfactory plan for The Port Authority to compensate the MTA for the incremental costs for operating the PATH service.

Similar agreements are already in place between MTA and the states of New Jersey and Connecticut for commuter rail service.

Jurisdiction of the PATH system could be readily shifted from the FRA to the FTA since PATH no longer operates on mainline railway tracks.

After the economic downturn resulting from 9/11, transit advocates expected public agencies to collaborate on

improving transit systems serving Lower Manhattan. Exactly the opposite has happened.

While the Downtown PATH line was out of service, many passengers had to use more circuitous routes and often had to pay double fares.

Because of the potential revenue loss, The Port Authority and the MTA chose not to integrate the PATH fares into MTA's citywide MetroCard system to offset this burden.

Furthermore, Port Authority and MTA officials have been less than responsive to efforts by the Regional Rail Working Group to consider connecting the two systems.

It was only through the efforts of U.S. Representative Jerrold Nadler that both agencies even agreed to participate in a nominal discussion of the PATH-Lex connection.

Since The Port Authority has not made information requested by the working group available in a timely manner, we respectfully request a 60-day extension of the comment period so we could review the material

we just received last week.

We can and must do better.

The Governors of the two states must call upon the MTA and The Port Authority to override the institutional prerogatives and cooperate through a comprehensive regional planning process with an opportunity for meaningful public input. Only then can the region make up for the terrible loss that occurred on 9/11.

Thank you.

MR. BLOCH: Thank you.

And the next speaker is Ken Lustbader.

MR. LUSTBADER: Good afternoon.

My name is Ken Lustbader and I represent the Lower Manhattan Emergency Preservation Fund.

The Fund is a coalition of five leading preservation organizations that was formed in response to the events of September 11th, including the Municipal Art Society, the National Trust for Historic Preservation, the New York Landmarks

Conservancy, the Preservation League of New York State and the World Monuments Fund.

The LMEPF support this project and commends the DEIS for addressing historic preservation concerns and for identifying the numerous historic resources that contribute to the character and architectural significance of Lower Manhattan.

Most broadly, we are concerned about the possible impact that vibrations will have on adjacent historic properties and recommend state-of-the-art vibration monitoring and increasing vibration standards.

We are especially concerned about the cumulative impact of numerous construction projects on the surrounding historic properties and recommend that the project be coordinated by a single entity charged with overseeing all of Lower Manhattan construction.

Specifically, we are concerned about the proposed project and its negative impact on a number of surviving elements of the current World Trade Center site itself.

These elements are called out in the National Register Determination of Eligibility and we are requesting that the FTA and PA provide more detailed information regarding why certain elements are proposed for removal and/or demolition.

While we are not promoting the preservation of the site as it currently exists and look forward to rebuilding, we believe that the FTA and PA need to view the site as historic and make attempts to incorporate existing elements into the design goals and provide an analysis and detailed explanation if the preservation of these elements cannot be achieved.

We offer the following specific comments regarding certain elements that may be affected:

We appreciate the attempt to minimize encroachment over the perimeter column bases which outline the footprints of towers one and two, however, we are concerned about the cumulative impact of additional construction activities that will have on

minimizing access to these bases.

Although the MTA and PA are not party to the Programmatic Agreement for the World Trade Center Site Memorial and Redevelopment Plan, we are requesting that they adhere to the design and construction goals outlined in the document.

Additionally, the Memorial Center Advisory Committee recently recommended providing access to these bases and this should be a recognized goal of all coordinated construction activities.

As part of a separate review, we previously commented that the PA consult with museum curators and investigate the possibility of salvaging more than three elements from the northwest remnant subgrade structures.

Additional elements, along with the recently photographed Tito Dupret images, could provide for a more effective interpretation of the World Trade Center site.

As one of the last surviving elements of the World Trade Center site, the

passageway to the E train was recently restored and the PA should revisit the proposed plan to have it demolished.

We are requesting that additional analysis be done with the goal of incorporating it into the new design.

Currently, the PA proposes to remove the steel beam in cross form to an off-site location.

We're requesting that instead of moving the cross off site it be moved temporarily within the World Trade Center site.

Should it have been to be moved to off-site, it should be -- we should be provided with an explanation as to why and confirmation that it will be moved to Hangar 17 at JFK where it will be properly stored.

The plaza and subway entrance at Vesey Street are the only surviving above ground elements of the World Trade Center site and the current plan to have them demolished should be revisited with the goal of possibly

incorporating them in situ into the new design.

This proposed demolition, with no detailed justification or explanation, underscores our request for additional information as to how decisions to demolish elements were made.

The LMEPF recognizes the unprecedented nature of this undertaking and the importance of ensuring for meaningful public input as rebuilding proceeds.

And we appreciate the outreach that the MTA and PA are doing to various interest groups and look forward to our continued participation.

Thank you.

MR. BLOCH: Thank you very much.

That's all the speakers I have right now.

If anyone else would like to speak, please go downstairs and fill out one of these yellow slips.

Remember, you can always mail, E-mail or fax material to us.

We'll take a brief recess.

When we get another speaker we'll reconvene, otherwise we'll be here till 8:00.

(Time noted: 5:50 p.m.)

(A recess was taken)

(Time noted: 6:30 p.m.)

MR. BLOCH: Okay. We're going to get started again.

My name is Arnold Bloch, I'm the moderator for this evening.

I wanted to welcome you to this public hearing.

For the record, this meeting is part of the environmental review for the Permanent World Trade Center PATH Terminal.

This EIS is being prepared in accordance with the National Environmental Policy Act of 1969, known as NEPA, and the applicable regulations implementing NEPA as set forth in 23 CFR Part 771 and 40 CFR Parts 1500 through 1508 and 49 CFR Part 622.

The EIS is also being prepared in accordance with Section 106 of the National Historic Preservation Act of 1966 and

Section 4(f) of the U.S. Department of Transportation Act of 1966 and associated laws and regulations.

This is one of two public hearings that are being held to hear public comments on the Draft Environmental Impact Statement.

Yesterday we had one in Jersey City, at City Hall from 4:00 to 8:00 p.m., and today we began this one at 4:00 p.m. and now we're back in session.

The purpose of this meeting is to solicit public comments on the Draft Environmental Impact Statement, which was published on June 4th, 2004.

Copies of that Draft Environmental Impact Statement are available at certain libraries in Lower Manhattan and also in New Jersey, in Jersey City, Bayonne, Harrison, Hoboken and Newark, or at the Port Authority's Website.

And a little later on we'll show you the Website address but it's also available on various documents that I'm sure you may have picked up, this larger one on the

back page and also on the smaller one also listing a Website there. So the DEIS is available there.

We do have a couple of sample copies downstairs at the registration desk if you wanted to look at those.

In a few minutes Tony Cracchiolo, the Director of Priority Capital Programs for The Port Authority, will make a presentation about this project and the information that's contained in the EIS.

After he's done, we'll begin the public comment portion of the meeting, which will last until 8:00 p.m.

I'll remind you about this again but it's important that anyone who wishes to speak needs to sign one of these small yellow forms downstairs. You can do so at any point between now and 8:00 and we'll allow you to speak.

I'll tell you that we will give you three minutes but if we don't have many speakers you can take a little bit longer and nobody is going to complain.

You can also submit written documentation, and we'll talk about that a little later, either tonight or through Wednesday, July, 21st.

Okay. So let me introduce Tony Cracchiolo.

MR. CRACCHIOLO: Thank you, Arnie.

Good evening.

This presentation will outline the analysis of alternatives presented in the Draft Environmental Impact Statement for the World Trade Center Transportation Hub.

First I will present the purpose and need for the project, including the definition of the problem and the goals and objectives that the project will strive to achieve.

Next I will present and describe the three alternatives that were evaluated in the Draft EIS.

And then I'll describe the findings of the environmental analysis of the three alternatives, as well as the proposed mitigation measures to alleviate adverse

impacts from the project.

Finally, I'll review the environmental process and upcoming milestones.

The Permanent World Trade Center PATH Terminal is needed, one, to establish and enhance the transportation facilities and infrastructure that existed at the World Trade Center complex prior to September 11th, 2001, and second, to ensure the long-term accessibility and economic vitality of Lower Manhattan.

Four distinct problems would exist if the project were not undertaken.

First, economic recovery. Several current and proposed projects contribute to the economic recovery of Lower Manhattan, proposals for a memorial, cultural facilities, offices and retail on the World Trade Center site, a new headquarters building planned in Battery Park City by Goldman Sachs, as well as 7 World Trade Center, which is currently under construction, and offices and residential projects throughout Lower Manhattan.

These developments restore

facilities that were lost on September 11th, 2001 but they also attract new residents, office workers and visitors to Lower Manhattan.

High capacity transit services are needed to safely and efficiently transport these workers, visitors and residents to and from Lower Manhattan.

Ridership growth. This development in Lower Manhattan will increase the demand for PATH over time. By 2025, it is anticipated that the daily PATH ridership will exceed pre-9/11/2001 levels by approximately 25 percent.

Commuting to Lower Manhattan without PATH will result in longer, less convenient and more expensive trips than the direct PATH service.

Additional ridership on other transit modes may require that the capacity of these systems be enhanced.

Without PATH, some commuters and visitors to Lower Manhattan would drive to the area. Additional vehicle trips would increase

congestion on city streets and river crossings and worsen air quality.

And finally, there are limitations of the temporary PATH service recently restored. The temporary station does not restore the capacity that existed prior to 9/11.

The station has fewer points of access than the station did pre-9/11.

The platforms accommodate only eight-car trains as compared to the ten-car platforms that existed before the attacks, and the temporary station is open air, it is not climate controlled.

Certain elements of the station have a limited service life and the station as designed does not easily support the full redevelopment of the World Trade Center site.

Project goals. There are four goals and supporting objectives that were developed to guide the alternatives development process for the Permanent World Trade Center PATH Terminal.

Goal number one is to effectively

restore the long-term PATH service between New Jersey and Lower Manhattan.

To successfully address this goal, the project must meet the following objectives:

Accommodate pre-9/11 PATH ridership;

Provide for additional capacity at the terminal to support ridership growth;

Provide for a modern station designed with full ADA accessibility, climate control and station security;

And minimize disruption to the temporary PATH service during construction.

The second goal, to establish an intermodal transportation facility in Lower Manhattan.

The project should enhance transportation connections to, from and within Lower Manhattan as compared to pre-9/11/2001 conditions.

The opportunity to rebuild the PATH facility should take advantage of connections to existing and future transit

infrastructure and should allow for improved at grade and below grade pedestrian connections as compared to pre-9/11 and the temporary PATH facilities.

To successfully address this goal, the project must meet the following objectives:

To approve -- it should improve street level visibility and access;

It should provide for adequate and state-of-the-art pedestrian circulation within the facility;

And it should provide connections to all New York City subways and other major origin and destination points.

Goal number three, plan and construct a terminal that would support the redevelopment of Lower Manhattan.

The project should support the physical and economic recovery of Lower Manhattan, including proposals for the reconstruction of and rehabilitation of other transportation, infrastructure, redevelopment of the World Trade Center site and

construction and occupation of other off-site projects, all of which are undergoing separate environmental reviews.

To successfully address this goal, the project must meet the following objectives:

Construct a facility that's coordinated with the master plan for the redevelopment of the World Trade Center site;

Provide for future connections to World Trade Center buildings and functions, including the proposed memorial;

Coordinate PATH facilities with other subgrade uses at the World Trade Center site;

And plan and coordinate PATH elements with proposals for the reconstruction of Route 9A, West Street, the Fulton Street Transit Center and other off-site development.

And the fourth goal, to minimize adverse impacts to the environment.

The construction and operation of the project should, to the extent possible, minimize effects to the local and regional

environment in the short- and in the long-term.

The desired alternative would not only minimize adverse effects but would also provide for the greatest positive benefits to both the built and the natural environment.

To successfully address this goal, the project must meet the following objectives:

Reuse existing infrastructure to the extent possible;

Provide for efficient and environmentally friendly construction techniques;

Minimize disruption to PATH and New York City subway service during construction;

And provide for green and sustainable design.

The EIS considered three alternatives for the Permanent World Trade Center PATH Terminal, a no action alternative, a new terminal with a connection to Liberty Plaza at Liberty and Church streets, and a new

terminal without such a connection to Liberty Plaza.

The next several slides will describe these alternatives.

Under NEPA, the no action alternative is typically evaluated. The no action alternative is used as a baseline to evaluate the potential future impacts of the proposed project.

The no action alternative assumed that the Temporary PATH Station will remain in service until one of three things happened.

One, the construction of the World Trade Center Memorial, cultural buildings and office towers would not allow for the operation of the PATH Station in its present location or configuration.

Two, the demand for PATH service would exceed the station's capacity, meaning that its continued operation would not be safe.

Or three, major components of the station would exceed their service life.

The assessment presented in the

EIS assumes that the station would need to cease operations if this alternative is chosen at some point between 2009 and 2025.

The alternative with and without, the terminal development with and without the Liberty Street connection alternatives, these are the -- both of these alternatives would result -- both of these build alternatives would result in a new PATH terminal on the World Trade Center site.

There is one principal difference between these alternatives, therefore, I will begin by describing the components they both have in common.

The terminal would provide five tracks and four platforms to accommodate ten-car trains and to meet the forecasted passenger growth.

Intermodal connections would be provided to virtually all subways, World Financial Center ferries and local and commuter bus services.

A transportation hall with pedestrian connections to all proposed World

Trade Center redevelopment facilities, subways and streets.

And the terminal would be fully climate controlled and be designed to maximize natural light.

The terminal with the Liberty Plaza connection will provide numerous intermodal connections.

It will provide for east-west connections through the World Trade Center site, including connecting with the MTA, New York City Transit's Dey Street concourse of the Fulton Street Transit Center. The Transit Center itself will serve nine subway lines.

It will also connect with the Cortlandt Street Station on the R and W subway line, the World Trade Center Station on the E line and the future Cortlandt Street Station which will be restored on the 1 and 9 line.

Connections within the World Trade Center site will allow access to the future World Trade Center Memorial, cultural facilities, retail and office towers.

A concourse across Route 9A, West

Street, will allow for access between the PATH terminal and the World Financial Center, Battery Park City and The Port Authority's new Trans-Hudson Ferry Terminal.

And finally, the terminal with the Liberty Plaza connection alternative would provide subgrade access beneath Church Street at Liberty Street between the World Trade Center site and Liberty Plaza.

This concourse will serve numerous commuters who travel between PATH and the Wall Street Financial District.

Without the Liberty Plaza connection, everything else on this alternative is the same as I just mentioned except this alternative does not have that subgrade access concourse beneath Church Street to Liberty Plaza. Other than that, it's the same.

In addition, there is no change to the construction schedule.

We'll discuss the impacts of this particular option shortly.

Okay. As you've seen on the

display boards and video as you entered today, the terminal consists of a magnificent transportation hall, which would be a grand architectural statement for Lower Manhattan, visible from the street, a Grand Central Terminal for Lower Manhattan.

In addition, there are four additional levels of pedestrian infrastructure connecting directly to the subways and to the other nearby developments on or near the site.

If you haven't had a chance to look at these displays and the videos that are downstairs, I invite you to do so now or later.

The project would begin in 2005 and would continue to 2009. Construction will be in phases and portions of the terminal will open as they are finished.

The construction of the terminal is expected to compete in 2006 to be -- to peak in 2006, which was selected as the year for construction period analysis in the EIS.

The no action alternative. The next few slides compare the benefits and

impacts of these various alternatives starting with the no action alternative.

This alternative would not result in construction of a new terminal, as I mentioned, but it would eventually result in full closure of the Temporary PATH Station.

Thus, although the no action alternative, this no action alternative will have little or no construction period impacts, it would have adverse impacts in the long-term.

The economic revitalization of Lower Manhattan incorporates transportation, infrastructure and development projects. The failure to construct a Permanent PATH Terminal is inconsistent with these revitalization goals.

It is estimated that absent the permanent terminal, approximately 5 percent of diverted PATH passengers would drive to Lower Manhattan. By 2025, this could result in 1200 additional vehicle trips in the a.m. peak hours.

These vehicles would cause

congestion on area roadways, would generate substantial levels of pollutant emissions and will create noise.

The diversion of PATH riders would also cause congestion on other modes of public transit. It is anticipated that diverted PATH riders would use commuter trains and buses, ferries and city subways to reach Lower Manhattan.

The diversion of large numbers of passengers to these modes may require future capacity enhancements.

The terminal with a Liberty Plaza connection has substantial long-term benefits as compared to the no action alternative but there would be impacts during construction.

In the long-term, the PATH terminal with the Liberty Plaza connection would support the economic redevelopment of Lower Manhattan.

Since customers could continue to use PATH between New Jersey and Lower Manhattan, the terminal would not generate new vehicle trips, emissions or vehicle noise.

The terminal would improve access between PATH and other modes of transit but its operation would not result in adverse impacts to these other modes.

The pedestrian connections that will be provided as part of the terminal will improve street level pedestrian and vehicular circulation and will reduce street level congestion within and through the World Trade Center site, including at the intersection of Liberty and Church.

The terminal's construction will generate, however, truck trips to and from Lower Manhattan and it will require the use of construction equipment.

Thus, during the terminal's construction, there will be increased truck traffic on area roadways as compared to the no action alternative.

The terminal's construction will also generate emissions and noise from construction vehicles and the use of construction equipment.

The terminal will also have both

short- and long-term impacts to archeological and historic resources.

The terminal's construction may alter or remove portions of the Hudson River bulkhead under Route 9A and remaining remnants and structures on the World Trade Center site.

The terminal's construction may also result in vibration impacts to five historic structures within 90 feet of the construction zone.

The terminal's construction may not allow for the long-term preservation of portions of the Hudson River bulkhead and remaining remnants on the Trade Center site that exist today.

As will be described a little later, the FTA and The Port Authority are working closely with the preservation groups and interested parties to draft mitigation measures to avoid, minimize or mitigate these effects to archeological and historic resources.

Generally the benefits and potential impacts of the terminal without a

Liberty Plaza connection will be very similar or identical to those of the alternative with a Liberty Plaza connection.

Because the terminal without a Liberty Plaza connection would require construction across less -- would not require construction across Church Street, it would reduce vehicle emissions, noise and vibration impacts near the southeast corner of the World Trade Center site as compared to the terminal with a Liberty Plaza connection but impacts would still occur.

This alternative would also have impacts to historic and archeological resources on or near the site.

In the long-term, the terminal without a Liberty Plaza connection would support the economic recovery of Lower Manhattan, however, because a higher number of pedestrians would need to cross Church Street at grade, this alternative would not provide the same long-term benefits to vehicular and pedestrian circulation, vehicle emissions and noise as would the terminal with a Liberty

Plaza connection.

The FTA and The Port Authority have been coordinating with the sponsors of other Lower Manhattan recovery projects to develop a coordinating set of mitigation measures to address the potential cumulative impacts of these projects during the construction period.

During the spring and summer of last year, the FTA prepared a methodology and approach to the study of cumulative effects for its projects in Lower Manhattan.

In response, the Lower Manhattan project sponsors worked together to develop environmental performance commitments, EPCs, commitments intended to proactively address potential construction period impacts since they would be implemented and integrated as part of the each of the federally sponsored recovery projects.

Although the EPCs reduce the potential impacts of the recovery projects, preliminary analysis for the individual environmental assessments showed that

additional measures would still be needed.

In response, the project sponsors worked to investigate additional commitments for the reduction of air emissions and noise, with particular attention to areas that would be impacted by overlapping construction.

These efforts by the Lower Manhattan project sponsors continue, focusing on actively researching the availability and practicality of new technologies to reduce air emissions and noise.

This includes an investigation of particulate filters, noise abatement measures and electrification of certain construction equipment.

As these projects move forward toward their individual Records of Decision, the project sponsors will continue to coordinate their research and will work together to minimize potential cumulative effects to the local community during the construction period.

In the next few slides I will present the specific mitigation measures that

were identified for the Permanent World Trade Center PATH Terminal in this Draft EIS.

And there are six, the EIS identified six resource areas during the project's construction.

The FTA and The Port Authority are engaged in a Section 106 review process for the project which will result in a Memorandum of Agreement to mitigate any adverse effects to archeological and historic resources.

This process follows the rules and regulations established by the National Historic Preservation Act.

Throughout the process, which began this past December, the FTA and The Port Authority have actively sought the participation of the Federal Advisory Council on Historic Preservation, the New York State Historic Preservation Officer and approximately 74 consulting parties that represent the interests of victims of the attacks, community groups and preservation groups and federal, state and city agencies.

The Draft EIS identifies

preliminary measures that the FTA and The Port Authority are considering to avoid, minimize or mitigate the project's effects to archeological and historic resources.

Currently, the FTA and The Port Authority are working with the various consulting parties to develop mitigation measures for the project.

These measures and commitments will be incorporated into the MOA for the project among the FTA, the New York State Historic Preservation Officer, The Port Authority which will be executed prior to the publication of the Final EIS for this project.

Second, The Port Authority will work with the other sponsors of Lower Manhattan recovery projects to ensure that businesses near the project sites in Lower Manhattan remain viable and accessible during construction of the various federally funded recovery projects.

These efforts include a signage plan to indicate the location of affected businesses, as well as a comprehensive plan to

ensure that businesses remain accessible at all times to both their customers and delivery vehicles.

Third, the maintenance and protection of traffic plan will not only ensure access to businesses but will also assure the safe accessibility of Lower Manhattan streets and sidewalks for residents, workers and visitors.

This plan will include measures to protect vehicles that travel near the construction zone, while maintaining the most efficient traffic flow possible.

It will also ensure that access is maintained to residences and businesses and will provide for travel routes to, from and within Lower Manhattan to keep people moving as construction proceeds.

And it will assure that all work will be accomplished while maintaining PATH service to Lower Manhattan.

Fourth, air quality. The Lower Manhattan project sponsors have been working very hard to investigate measures to reduce

emissions during construction.

A combination of techniques have been researched to reduce the effects of construction vehicles and equipment.

These measures include retrofits to engines that reduce particulate emissions, the electrification of certain equipment to reduce emissions by portable generators and the use of ultra-low sulfur fuels and a monitoring program during construction.

The Port Authority is continuing to work with the other project sponsors to research available technologies and to determine additional measures that could be undertaken to further reduce the potential construction period effects to air quality, noise and vibration.

In tandem with our continued efforts to reduce air quality emissions during construction, The Port Authority is also working with the other project sponsors to investigate strategies to reduce construction generated noise.

Strategies that we are currently

researching include equipment retrofits such as mufflers, the use of noise walls, barriers and enclosures around construction zones.

The Port Authority will work with the New York State Historic Preservation Officer and other preservation groups to develop construction protection plans for historic structures that may be impacted by vibration from construction equipment.

This plan will include monitoring to predict acceptable vibration levels and measures to address exceedance of these levels should they occur during the project's construction.

And six, contaminated materials. The Draft EIS generally found that contaminated materials were not found on the World Trade Center site, however, the areas under Route 9A, West Street, and Church Street have the potential for residual contaminated materials.

The Port Authority will develop a Health and Safety Plan to provide for specific protocols for the testing and removal and

disposal of these soils if and when they're encountered during construction.

These protocols will incorporate all applicable federal, state and local regulations.

The plan will also provide for measures to protect the construction workers and local residents if and when contaminated soils are found.

During operation, mitigation measures that would be employed, there are three.

Cultural resources. This is the period from when we open in 2009 and through our design year 2025.

As described previously, a Memorandum of Agreement will be developed to identify specific measures to avoid, minimize or mitigate adverse effects to historic resources.

The MOA will not only address potential impacts during the project's construction but will also provide for measures to ensure the long-term preservation

of archeological and historic resources to the greatest extent possible.

Second, pedestrian circulation. If a Liberty Plaza connection is not constructed, there may be modifications to accommodate additional pedestrian traffic at street level at the intersection of Church and Liberty streets.

This may involve the physical widening of sidewalks and crosswalks or may require the relocation or removal of street furniture, sign posts and other obstructions in order to provide an increased area for sidewalk use by pedestrians.

Natural resources. The terminal building will be glass, steel and concrete. Special landscaping, glass treatments and lighting will be incorporated into the terminal's design to reduce the potential for fatal bird strikes.

In addition, we will be incorporating sustainable design principles that will allow the construction and operation of an environmentally friendly terminal.

The NEPA Section 106 review schedule. The NEPA process for the Permanent PATH Terminal began in September of last year.

The scoping meetings were held in October of last year and the scoping process was closed in mid-December.

We published our Draft EIS in late May of this year, with a Notice of Availability on June 4th.

Our public hearings were held yesterday and are being held here today. The public comment period for you to make your comments, if you don't make them today, are through July 21st of this year.

Our Section 106 review process is being conducted concurrently. The FTA and the U.S. Department of Housing and Urban Development and The Port Authority entered into a coordinated Section 106 review process beginning in December of 2003.

A coordinated Determination of National Register Eligibility was released by the federal agencies in draft form in January '04 and the Final DOE was circulated

on March 31st.

Following the publication of the Final DOE, the federal agencies and the local project sponsors, including The Port Authority, continued their 106 processes independently.

A Draft Finding Of Effects was published by FTA and The Port Authority in May of 2004 concurrent with the distribution of this DEIS.

And a consulting parties meeting was held on June 14th to present these findings and begin a discussion of mitigation effects.

The FTA and The Port Authority will now prepare a Memorandum of Agreement that will specify mitigation measures for effects to historic resources.

This MOA will be executed prior to the publication of the Final EIS for this project. We hope to publish that Final EIS this coming September and have our Record of Decision by October of this year.

And finally, and then I'll shut up

and you can talk, we will be accepting comments tonight, as well as you have the ability to make your comments by fax, E-mail and writing, as Arnold said, and feel free to contact us and please, we do invite your comments, you have to July 21st.

Thank you.

Now Arnold.

MR. BLOCH: Thank you, Tony.

In a moment I'll be calling the names of the people who registered to speak. By now we have two speakers.

I just wanted to remind you that any time between now and 8:00 p.m. you can go downstairs, fill out one of these yellow forms and that will allow you to speak.

When it's your turn to speak, I just ask that you come down to a microphone at the bottom here, there's one on either side, whichever is convenient for you, just clearly state your name for the record and any organization or affiliation if you'd like to do that as well.

And if for anyone it's difficult

for them to come down here because of the steps, we'll gladly take the mike and bring it up to you so just let us know if that's an issue.

I'll ask that you keep your comments relatively brief, somewhere around three minutes. If you feel you need to go longer than that and we don't have any other speakers, we can have you come back and finish up your remarks.

You can also submit anything you'd like in written form. We do have that blue comment form downstairs, which is fine, but you could submit any kind of documentation that you feel is appropriate to us.

Just bring it up to the court reporter down here at the base of the hall here or to myself or to the desk up there where Tony is sitting, we'll gladly take that and make that part of the formal record.

If at any time you want to go out of the room and go back and visit the boards or the display downstairs, please feel free.

And you can talk to anyone who is

wearing any one of these white and blue badges who is part of the project team. Just remember that that's an informal discussion. That discussion you have downstairs will not be part of the formal record, only what you present here will be.

And as Tony said, there are other ways that we look forward to getting any material you want to send to us, by mail, you could fax it, you can E-mail.

And you don't have to scramble now and write those numbers. It's available inside this small brochure which you might have picked up, the same information, as well as on this larger one on the last page so you can get it there.

And we do ask that anything you send by mail be postmarked no later than Wednesday, July 21st, 2004, and anything you fax to us or E-mail to us be done by 5:00 p.m. on Wednesday, July 21st, 2004.

Okay. So I'm now going to call the first speaker and that's Francis McArdle.

MR. McARDLE: Good evening.

My name is Frank McArdle, I'm the Managing Director of the General Contractors Association of New York representing the heavy construction industry in New York City.

I come this evening to speak in support of the permanent PATH solution. We as an organization do not believe that the interim PATH Station is in the best interests of the economic and social future for Lower Manhattan.

The PATH system is a critical element in Lower Manhattan. It now carries 15 percent of the daily commuters that come into Lower Manhattan to work, creating the third largest business district in the United States.

The key of all of the projects that are being developed is the enhancement of that economic vitality and the potential to develop Lower Manhattan into a true 24-hour center that accommodates both visitors and residents and commuters each day.

The permanent PATH as you've presented it with the Liberty Street

connection we believe presents an opportunity for Lower Manhattan to compete more effectively for job growth and development in the New York City metropolitan area.

There's no question Lower Manhattan is in competition with other areas, Midtown and areas in New Jersey, for job growth and development in the future.

There is no question that there are a substantial number of advantages that Midtown has now and will have in the future as the art project moves ahead to supplement the development of the Secaucus Transfer Station, which is now open and operating. The PATH enhancement is critical to keeping Lower Manhattan competitive.

We believe the proposal that's before us tonight with a Permanent PATH Station, the kind that Mr. Calatrava has so dramatically presented to us, with a connection of a high-speed line that extends all the way to Newark Airport, will, in fact, enhance the economic vitality of Lower Manhattan.

The interim proposal, the no build alternative that you've presented, is, in fact, exactly that, it's a no build, no future alternative.

It does not restore the capacity that existed. It does not allow the enhancement of service to New Jersey. That's critical.

The net increase in commuters into New York City is all coming from New Jersey. We are not as attractive anymore to people living on Long Island, they find jobs on Long Island, as in the case with Westchester.

If we are to have new people come into New York City from outside of New York City, they are most likely to come, again, from New Jersey. We need to have the capacity to bring them here effectively in a mass transit mode.

We certainly can't have them drive, we don't have the street space for that and, in fact, it's very clear that bus alternatives are not as effective as fixed rail.

This system enhances Lower Manhattan's competitiveness and that's why we support it.

There are no questions there will be impacts and you've laid them out well, but we believe those impacts can be minimized and that the community in Lower Manhattan, both the business community and the residential community, can, in fact, find the construction to be as environmentally effective as possible.

In the area of both noise and air, we believe that plans can be put in place to minimize the impact of this construction on the communities that depend on Lower Manhattan for their homes or for their daily jobs.

We expect to work with The Port Authority and the other owners in Lower Manhattan to put in place the noise plans and the other developments that will allow this construction to go forward in as environmentally sound a fashion as is possible.

We believe that's possible and

it's one of the reasons we support the proposal you've put forward.

Thank you very much.

MR. BLOCH: Thank you.

Our next speaker is Albert Papp, Jr.

MR. PAPP: Good evening.

My name is Albert Papp, Jr. and I am the Director of the New Jersey Association of Railroad Passengers.

Tonight we're here to urge that the environmental impact statement review process reconsider our proposal first vetted on March 31st, 2003 to connect the Downtown PATH with a physical track connection to the No. 6 Lexington Avenue New York City Transit subway line.

Over the past year and a quarter, beginning with the initial meeting on March 31st at the PATH Journal Square headquarters, NJRP has been suggesting that The Port Authority and New York City Transit build a physical track, 3,000 feet in length, between the now refurbished PATH line with the

No. 6 local subway in concert with the rebuilding of the World Trade Center site in Lower Manhattan.

Despite the comments expressed in the March 22nd, 2004 DEIS and statements contained within a June 10th, 2004 Port Authority letter to myself, both detailing reasons why the project isn't feasible, NJR continues to believe that construction of either a track connection or an across the platform transfer be named a viable option to enhance Trans-Hudson mobility and provide new transportation pathways to the residents of both New Jersey and New York.

We believe the benefits of this project far outweigh any of the enumerated challenges in the above two cited references.

While NJR acknowledges these challenges which have been put forth by the consultants to The Port Authority, Parsons, Brinkerhoff, Quaid & Douglas, we humbly suggest they are certainly no more daunting than those the nation faced in the 1960s when President Kennedy tasked the country to land a

man on the moon by the end of that tumultuous decade.

As such, NJR strongly urges The Port Authority and New York City Transit to seriously reconsider the proposal to construct that 3,000 foot connection between the Downtown PATH and the Lexington Avenue No. 6 local subway line.

While we are aware of the political imperatives surrounding the imminent groundbreaking for the construction of the Freedom Tower now scheduled for this upcoming July 4th, Independence Day, we must express our dismay and concern with several of the key assumptions that The Port Authority and New York City Transit used reaching their conclusion not to carry this proposal forward for further consideration.

Principally, New York City Transit's adoption of overly restrictive MW-1 Track Standards and Reference Manual has the net effect of virtually precluding any future subway or regional rail infrastructure construction in the Lower Manhattan area

without major alterations to existing structures and/or properties, not to mention disruption to existing transit operation.

In our proposal we specifically adopted grades, track radii and tunnel separations that are well within existing New York City Transit operating parameters and which have served this city faithfully for almost a century.

The invoking by the NYCT of these rather disingenuous yardsticks not only precludes a PATH-Lex connection but will have the effect of damping the future mobility needs of the public, not to mention hindering the accessibility to the Downtown area and the rebuilding efforts about to get underway.

It may be time to visit these restrictive criteria and permit modification of them in those circumstances where the applicability may prohibit the building of needed infrastructure.

Specifically, MW-1 limits gradients to three percent, curve radii to 350 feet and separations of intersecting subways

to one tunnel diameter where tubes exist.

The proposed connection between the PATH and the No. 6 Lexington subway line that we have proposed employs grades of four and a half percent, curve radii of 200 feet and a minimum rail-to-rail clearance of 17 feet where the proposal link passes under the existing A and C line at Church Street and 14 feet where it passes over the existing 2 and 3 lines at Beekman Street.

We would be grossly remiss and hasten to point out that New York City Transit has operated the No. 6 train around the City Hall loop, which uses 147 foot curve radius for a century and that the PATH has used 115 feet curve radii in its daily operation for almost as long.

We also note that the much vaunted No. 7 line, which is due to be extended west from Times Square, operates on two minute headways and employs four and a half percent grades in the Steinway Tunnel located to the west of Grand Central Terminal and that the recently conducted JFK AirTrain daily

surmounts grades as steep as 5.35 percent.

NJR desires to continue in a constructive dialogue within the EIS process with The Port Authority and New York City Transit regarding our proposed PATH-Lex connection.

This once in a century opportunity can benefit the entire region by concentrating and expanding economic activity in a rebuilt and revitalized Lower Manhattan.

But this opportunity will be realized only if ingrained jurisdictional and institutional impediments can be placed aside.

Generations yet unborn will thank us if we can exercise superior foresight and adopt this transportation improvement in the aftermath of one of the most tragic episodes in American history.

The choice is ours. Let's vote for improved transportation linkages. We can do it now. Again, the choice is ours.

Thank you.

MR. BLOCH: Thank you.

Our next speaker is Kelly

Coangelo.

MS. COANGELO: Hi.

My name is Kelly Coangelo, I'm a resident and a PATH rider.

I live in this neighborhood and since February 2004 I've done the reverse commute of World Trade Center and PATH train to Journal Square with the exception of the 26 months that it was out of service so obviously I fully support this project.

And I also do like the option with the Liberty Plaza connection just because that area can get very congested with traffic and pedestrians during rush hour.

I just have three quick comments, I hadn't planned on speaking, but being a resident down here we had to fight with the EPA to get air monitoring results put on their Website after they put air monitoring equipment after September 11th.

So I would just ask that if the air quality monitoring is going to be taking place in various locations, that one of the locations or a few of the locations actually

be put down in the pit where the PATH riders are walking and standing because I don't know what it's going to be like down there with a lot of construction going on.

And the second one would be that air quality monitoring results are posted on a Website on a daily basis for residents and workers to obtain.

You know, obviously we've breathed a lot of bad stuff down here already and we want to make sure that, you know, the health of our children and of the people who live and work in this area is protected and I think just by making these results public that would be very helpful.

And one other suggestion is noise monitoring. I didn't see on the slide presentation if there was going to be noise monitoring equipment to measure if there's ever a noise violation because I know there's different regulations depending on the day and the time for noise violations. So that's just one other suggestion and that's it.

Thank you.

MR. BLOCH: Thank you very much.

I don't think there are any other speakers right now.

What we'll do is take a short recess. We can reconvene at any time when another speaker comes. We'll be here till 8:00.

Just remember if you want to send in any documentation, this is the way to do it, and please feel free to visit downstairs and talk with anyone about what you see.

Thank you.

(Time noted: 7:20 p.m.)

(A recess was taken)

(Time noted: 7:40 p.m.)

MR. BLOCH: We do have another speaker.

And since you weren't here earlier, I just wanted to let you know we're looking for your remarks, as well as written documentation that you'd like to give us.

And I would like to ask you to keep your remarks to three to five minutes.

So let me read your name --

MR. ADLER: Do you have a timer that I could look at?

MR. BLOCH: No. You know, we'll trust you.

MR. ADLER: I don't have a watch.

MR. BLOCH: Mr. Adler, if you want to repeat your name and --

MR. ADLER: Yes, my name is Steve Adler, telephone number 718-295-3510, E-mail address v, as in Victor, a, n as in Nancy, t-r-a-n613@yahoo.com.

I represent myself and hopefully reasonable people in this city.

MR. BLOCH: Go ahead.

MR. ADLER: Unfortunately, I found out about this hearing only this afternoon and it was some time before I even found out whether I would be able to participate. So I hope you'll excuse me for coming just a bit late.

By a show of hands, could you tell me which -- who among you is just from the general public as opposed to paid staff.

MR. BLOCH: Actually, Mr. Adler --

MR. ADLER: Let the record show that not a single person raised their hand. There are approximately a dozen people altogether.

In any event, here we are again to discuss a massive construction project for the benefit of the transit riders and for the community as a whole under the auspices this time of The Port Authority and its illustrious partners, the MTA, the Lower Manhattan Development Corporation and whatever other agencies there might be.

The one suggestion I would like to make is before considering the design of the various subway stations involved, you should consider methods of fare collection that are barrier free.

So that instead of having various kinds of turnstiles, a person might wear some kind of a badge or other device as they're riding in whatever vehicles, and as they're riding, the badge or device or whatever can accumulate cost units and thereby a person could pay for the service depending on the

time and place, type of vehicle and type of service within the vehicle that the person is using.

Until relatively recently, this hasn't been particularly practicable, but I suggest that before spending enormous amounts of money on various barrier based station systems, which are a tremendous inconvenience to the great flows of people in and out of these various transit facilities, that you put out at least a request for proposals to the community that might be able to provide such technology and see what you come up with.

This could save a substantial amount in fare collection and make the station that much more usable for things other than just transit purposes.

For example, in the New York City subway system, which will be a part of this massive project, there are roughly a million square feet of essentially unutilized subway mezzanine space.

That space could be marketed. It could be rented out on an hourly, daily or

yearly basis to small firms, including street peddlers and the like or larger firms, but as long as you have these barriers in place, the attractiveness of the space is much lower. So I hope you'll bear that in mind.

A second very important point is the long-term impact of road user charges on the demand for both road space, the air used as an open sewer and the many transit facilities.

So if you're planning a transit facility based on existing utilization rates and existing ways of using the streets, in particular where the streets are essentially open sewers for the fumes of the vehicles, and in the future, not to distant I hope, we might have systems of road user charges that charged vehicle users for the pollution that they cause.

The result of such a system might be a massive diversion, particularly in areas such as Lower Manhattan, to pollution free vehicles of various types.

Another point is that the cost of

roads depends disproportionately on the axle weight of the vehicles. So buses, for example, have massive rear axle loads and are responsible for a large percentage of the damage caused to streets in New York City.

If instead of just allowing whatever vehicles can get by on the road within certain limits we charged vehicles for the damage that they cause to roads, we might see a switch to much lighter vehicles and the result might be that we could have different types of road construction.

Also, if we have zero pollution vehicles or almost all zero pollution vehicles, instead of having the streets as they are, with nothing on top of them for the most part, we can envision a system of multi-level streets where you could have subways on one level, mezzanines on another level, individualized vehicles still on another level and ultimately on the top some kind of pedestrian parkway where there would be no vehicles but you could -- or only certain limited types of vehicles.

But as long as you have to use the air as an open sewer to get rid of the pollution, this type of thing is much more expensive.

And also, as long as the vehicles are very heavy, the construction of various levels with vehicles and so forth is relatively expensive as well.

The last point is that, as I mentioned many times before, we should look very carefully at an open market for surface transportation. There's no need for a monopoly in the area of service transportation. You don't need monopolies for buses. We don't need a taxi and medallion system with restricted entry.

If we opened up the market to service transportation, we would get, as I pointed out many times before, as people could discover in detail by sending me an E-mail, we would get a rather ubiquitous, largely van based system of providing on the order of eight to ten times the frequency of services of existing buses, attracting people out of

cars and taxis, reducing the equivalent DMT by on the order of one or two billion miles per year in New York City.

I'd also like to add something that the barrier free fare collection system might help to bring about.

There is a monopoly, a natural monopoly on the transit right-of-way but there's not necessarily a natural monopoly on the vehicles that go on that right-of-way.

If you have a barrier free system that enables one to charge for one's presence in a particular vehicle or part of a vehicle, one can imagine a system where the right-of-way is a monopoly but there might be multiple service providers on that right-of-way providing a whole range of services, from your basic New York sardine effect, to more luxury accommodations.

And this might help to attract people again out of cars and taxis, saving energy and so forth.

So I hope that I've entertained you since you're on government time or other

contract time, nobody here raised their hand when I asked about general public.

And if anybody wants a copy of my press release which says almost nothing about what I've said here, I'd be glad to give you one.

Thank you very much.

MR. BLOCH: Thank you.

Now that there are no other speakers, we'll just take a brief recess.

(Time noted: 7:44 p.m.)

(A recess was taken)

(Time noted: 7:58 p.m.)

MR. BLOCH: I'm just going to bring Mr. Adler back to speak for another 30 seconds.

MR. ADLER: Right. I omitted an entire topic that the World Trade Center, may it rest in peace, was famous for and that is elevators.

The World Trade Center itself had something on the order of 13 mile elevators. These were built without federal funding, believe it or not, except to the extent that

the Federal Government funded The Port Authority projects.

In general, we've had billions of dollars of elevators built in New York City over the last 30 years, almost none of it funded by the Federal Government.

Fast, efficient and automated. The automated elevators in this city have displaced roughly 100,000 elevator operator careers, lifetime careers, but nobody is talking about getting the Federal Government to pay for elevators in New York City and without those elevators in New York City, the subways would hardly make any sense.

So what we need to do is to figure out how to pay for the subways without relying on the people in Nebraska, and I suggest that the people in Nebraska should figure out how to pay for their various farm programs without relying too much on the people in New York City.

Thank you very much.

MR. BLOCH: Thank you again.

Okay. Given that it's 8 o'clock

and we have no other speakers, we are now going to adjourn this public meeting.

Good night.

(Time noted: 8:00 p.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
ss.
COUNTY OF NEW YORK)

I, Ann Brunetti, a shorthand reporter and notary public of the State of New York, do hereby certify:

That the foregoing, pages 1 through 135, taken at the time and place aforesaid, is a true and correct transcription of my stenographic notes, to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand this 9th day of July 2004.

Ann Brunetti

Appendix H-3: Written Comments on the DEIS

LIST OF COMMENTERS

A total of 41 parties commented on the DEIS. Fifteen parties spoke at the public hearings. Their comments are reflected in the transcripts shown in Appendix H-2. The remaining comments were mailed, e-mailed, or faxed to PANYNJ during the public comment period. The following is a list of those commenters, their affiliation, and the date and method in which their written comments were received. This introduction is followed by the written comments, which are sorted alphabetically by surname.

- Anonymous 1. Facsimile dated June 16, 2004.
- Ayer, Sarah M, AT&T. Letter dated July 21, 2004.
- Bachmore, John, Verizon Communications, Inc. Letter dated July 21, 2004.
- Barzilai, Tal, E-mail dated July 21, 2004.
- Blackman, Laura, Hudson River Park Trust. E-mail dated July 8, 2004.
- Butziger, Alexander. E-mail dated July 21, 2004.
- Carey, Timothy S., Battery Park City Authority. Letter dated July 14, 2004.
- Epstein, Louis, The World Trade Center Restoration Movement. Speaker at public hearing dated June 23, 2004 and letter dated July 21, 2004.
- Gardner, Anthony, Coalition of 9/11 Families. Letter dated July 27, 2004. (Comments are herein noted as Gardner.)
- Gardner, Anthony, Coalition of 9/11 Families; Fetchel, Mary, Voice of September 11; Sally Regenhord, Sally, Skyscraper Safety Campaign. Letter dated July 16, 2004. (Comments are herein noted as Gardner et al.)
- Gaull, Marilyn. E-mail dated July 6, 2004.
- Goetz, Bernard. Speaker at public hearing dated June 23, 2004; written comments dated June 23, 2004.
- Gorsky, Steven, Barclay's. Written comments dated June 16, 2004.
- Haikalis, George, Regional Rail Working Group. Speaker at public hearing dated June 23, 2004; written comments dated June 23, 2004; e-mail comments dated August 4, 2004.
- Hargrove, Robert W., U.S. Environmental Protection Agency. Letter dated July 21, 2004.
- Hemric, Benjamin. Letter dated July 20, 2004.
- Hensley, Jen, The Alliance for Downtown New York, Inc. Speaker at public hearing dated June 23, 2004; written comments dated June 23, 2004.

- Jackson, Don, Local Union #3 IBEW. Written comment sheet dated June 23, 2004.
- Kornfeld Jr., Robert, The Historic Districts Council. Written comments dated July 6, 2004.
- Lachman, Seymour P., New York State Senate District 23. Letter dated July 21, 2004.
- Lictro, John. D. E-mail dated July 20, 2004.
- Love, William C., Jr., Coalition to Save West Street. Letter dated July 5, 2004.
- Lustbader, Ken, Lower Manhattan Emergency Preservation Fund. Speaker at public hearing dated June 23, 2004; written comments dated June 23, 2004.
- Morrow, Yvonne. Written comments submitted on July 21, 2004.
- O'Shea, James P. Facsimile dated June 28, 2004.
- Papp Jr., Albert, New Jersey Association of Railroad Passengers. Speaker at public hearing dated June 23, 2004; e-mail comments dated August 4, 2004.
- Pasternack, Scott. E-mail dated June 21, 2004.
- Sanchis III, Frank E., Municipal Art Society; Breen, Peg, New York Landmarks Conservancy; Burnham, Bonnie, World Monument Fund; Merritt, Elizabeth, National Trust for Historic Preservation; Heyl, Scott, Preservation League of New York State. Letter dated July 8, 2004. ((Comments are herein noted as Sanchis III et al 1.)
- Sanchis III, Frank E., Municipal Art Society; Fenollosa, Marilyn, National Trust for Historic Preservation; Breen, Peg, New York Landmarks Conservancy; Burnham, Bonnie, World Monument Fund; Merritt, Elizabeth, National Trust for Historic Preservation; Heyl, Scott, Preservation League of New York State. Letter dated August 2, 2004. ((Comments are herein noted as Sanchis III et al 2.)
- Scian, Paul. E-mail dated June 21, 2004.
- Stilwell, David A., U.S. Department of the Interior, Fish and Wildlife Service. Letter dated June 15, 2004.
- Sulphin, Amanda, New York City Landmarks Preservation Commission. Letter dated June 17, 2004.
- Taylor, Willie R., U.S. Department of the Interior. Letter dated July 30, 2004.
- Todorovich, Petra, Regional Plan Association. Speaker at public hearing dated June 23, 2004; written comments dated June 23, 2004.
- Yaro, Robert D., Regional Plan Association. Letter dated July 21, 2004.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received: 06/16/04 **Type:** Written Comment
Contact Details: Anonymous 1 **Location:**
The City of New York Administration for Children's Svcs.
Div. Of Legal Svcs.
220 Church Street
New York, NY 10013
P ; F ; E

Comment:
To whom it may concern: I feel that we need at least two bathrooms at WTC PATH terminal for the convenience of the public. Thank you for your consideration in this matter.

Third Floor
400 West Avenue
Rochester, NY 14611

BY FAX and E-MAIL to:

Mr. Richard J. Schmalz, P.E, DSEIS by Fax at (212) 267-4114 and
by E-Mail route9A@dot.st.ny.us
WTC Path Terminal by Fax at (212) 435-5514

July 21, 2004

Mr. Richard J. Schmalz, P.E.
Project Director
Route 9A/Lower Manhattan Redevelopment Project
21 South End Avenue
New York, NY 10280

WTC Path Terminal – Comments
115 Broadway, 5th Floor
New York, NY 10006

Re: Route 9A Reconstruction and Permanent WTC Path Terminal

Ladies and Gentlemen:

AT&T Corp. and its wholly owned subsidiaries AT&T Communications of New York, Inc. and Teleport Communications New York ("AT&T") submit this comment letter on the Draft Generic Environmental Impact Statement ("DGEIS") for the Route 9A Reconstruction and the Permanent Path Terminal Projects ("Plans") issued by the New York State Department of Transportation ("NYSDOT") and the Port Authority of New York and New Jersey ("Port Authority"), respectively. In preparing our comments, AT&T reviewed the July 21, 2004 comments submitted to NYSDOT and the Port Authority by Verizon New York Inc. and Empire City Subway Company (Limited) (collectively "Verizon"). AT&T believes Verizon has raised some issues that would benefit from further discussion during the planning process.

AT&T was directly affected by the September 11, 2001 attacks on the World Trade Center. As one of the major providers of telecommunications services to the financial district and other areas of lower Manhattan, we incurred significant damage to our facilities, extra expenses for emergency response, recovery and restoration efforts to our critical communications services and significant loss of revenue due to service outages. There was also severe impairment to the communications paths linking our lower Manhattan facilities with Verizon's facilities and with our many business and residential customers. AT&T was able to rapidly replicate its lost functionality through alternate facilities and permanent restoration but at significant cost. AT&T would like to ensure that any additional cost to us under the Plan and other lower Manhattan projects is minimized and that vital telecommunications services are not unduly disrupted.

AT&T fully supports the reconstruction of the World Trade Center site and the revitalization of Lower Manhattan. We are pleased to have the opportunity to work with NYSDOT, the Port Authority and other Federal, State and municipal agencies. NYSDOT, PANYNJ and the governmental agencies will base their planning decisions on the DGEIS. In doing so, AT&T believes that certain points raised in the Verizon letter merit further examination.

Specifically, AT&T supports:

(1) establishing a coordinated planning approach for the World Trade Center Memorial and Redevelopment Plan, the Route 9A Project, WTC Path Terminal and the Fulton Transit Hub;

(2) implementing achievable time frames for completion of infrastructure construction related to these projects;

(3) avoiding any permanent impairment of utility infrastructure along the Route 9A pathway;

(4) avoiding unnecessary additional costs to carriers associated with any infrastructure relocation or construction, to the extent carriers may be responsible for such costs. This would include avoiding multiple relocations, identifying any new routes as quickly as possible, providing adequate notice to all affected utilities, enlisting cooperation from building owners and minimizing any disruption of telecom services to business and residential consumers;

(5) treating all carriers with infrastructure in the project areas in a non-discriminatory manner. This would include (but not be limited to) extending to these carriers any benefits Verizon receives with regard to easements, access to facilities, and recovery of restoration costs resulting from reconstruction projects under the Partial Action Plan for Utility Restoration and Infrastructure Rebuilding ("Partial Action Plan").

AT&T looks forward to working with the NYSDOT, the Port Authority, and other governmental agencies and carriers to successfully restore lower Manhattan while avoiding disruption of vital telecommunications facilities and minimizing additional financial burdens on AT&T. Please feel free to call me at (585) 987-3160 if you have any questions.

Sincerely,

Sarah M. Ayer

Sarah M. Ayer
Senior Attorney
AT&T Corp.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received: 07/21/04 **Type:** Letter

Contact Details:
John Bachmore
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Verizon, OSP Engineering - Liberty
230 West 36th Street Rm. 627
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Location:

Comment:
Letter sent by Verizon sent on 7/21 - Scanned

John Bachmore
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July 21, 2004

Mr. Richard J. Schmalz, P.E.
Project Director, Route 9A/Lower Manhattan Redevelopment Project
21 South End Avenue
New York, New York, 10280

and

WTC PATH Terminal- Comments
115 Broadway, 5th Floor
New York, New York 10006

Re: Route 9A Reconstruction and Permanent PATH Terminal/DGEIS

Ladies and Gentlemen:

Verizon New York Inc. and its wholly-owned subsidiary, Empire City Subway Company (Limited)("ECS"), submit the enclosed consolidated comments on the Draft Environmental Impact Statements pertaining to the Route 9A Reconstruction and the Permanent PATH Terminal projects, issued by the New York State Department of Transportation ("NYSDOT") and the Port Authority of New York and New Jersey ("Port Authority"), respectively.

Please note that Verizon has consolidated its comments to the foregoing projects based on the interdependence of the projects, and the impacts that both projects will potentially have on the ability of Verizon and ECS to deliver telecommunications services to the residents and businesses of Lower Manhattan. Further, it is Verizon's intent that the enclosed comments are reviewed collectively by the NYSDOT and the Port Authority in order to ensure that the two projects are planned in a cooperative and efficient manner.

Verizon supports the reconstruction and revitalization of Lower Manhattan. However, for the reasons outlined in the attached comments, if Verizon's concerns are not adequately addressed, and if the major projects proposed for Lower Manhattan are not properly coordinated, the plans proposed by the NYSDOT and the Port Authority as outlined in the respective Draft Environmental Impact Statements could:

- Delay the restoration projects planned for Lower Manhattan
- Disrupt telecommunications service to Lower Manhattan
- Waste millions of dollars
- Adversely affect the quality of life for the residents of Lower Manhattan

The enclosed comments outline the actions necessary to mitigate these concerns. If our concerns are addressed in a timely manner, we believe the construction of the Route 9A and the Permanent PATH Terminal projects will be expedited and that Lower Manhattan's telecommunications needs will continue to be met with the quality and reliability demanded by businesses and residents.

Very truly yours,

Enclosures

cc: See attached list

cc:

The Port Authority of New York and New Jersey
225 Park Avenue South
New York, New York 10003
Attention: Anthony G. Cracchiolo, Priority Capital Programs Director

Lower Manhattan Development Corporation
One Liberty Plaza, 20th Floor
New York, New York 10006
Attention: Kevin Rampe, President

Federal Highway Administration, New York Division
Leo W. O'Brien Federal Building, Room 719
Clinton Avenue and North Pearl Street
Albany, New York 12207
Attention: David M. Hart, Senior Operations Engineer

Empire State Development Corporation
633 Third Avenue
New York, New York 10017
Attention: Charles A. Gargano, Chairman

Office of the Mayor
City Hall
New York, New York 10007
Attention: Daniel L. Doctoroff, Deputy Mayor for Economic Development and Rebuilding

New York City Department of Transportation
40 Worth Street
New York, New York 10013
Attention: Iris Weinshall, Commissioner
Andrew Salkin, Lower Manhattan Borough Commissioner

New York City Department of City Planning
22 Reade Street
New York, New York 10007-1216
Attention: Amanda M. Burden, Chair
Vishaan Chakrabarti, Manhattan Office Director

New York City Department of Design and Construction
30-30 Thomson Avenue
Long Island City, New York 11101
Attention: David J. Burney, Commissioner

New York City Economic Development Corporation
110 William Street
New York, New York 10038
Attention: Andrew M. Alper, President
Josh Sirefman, Executive Vice President

Community Board No. 1
49-51 Chambers Street, Rm. 715
New York, New York 10007
Attention: Madelyn Wils, Chair
Paul Goldstein, District Manager

Silverstein Properties, Inc.
530 5th Ave.
New York, New York 10036
Attention: Larry Silverstein
Jack Klein

Brookfield Properties Corporation
One Liberty Plaza
165 Broadway, 6th Floor
New York, New York 10006
Attention: John Zuccotti

VERIZON NEW YORK INC.
EMPIRE CITY SUBWAY COMPANY (LIMITED)

CONSOLIDATED COMMENTS

TO

ROUTE 9A

Draft Supplemental Environmental Impact Statement

AND

PERMANENT WTC PATH TERMINAL

Draft Environmental Impact Statement

July 21, 2004

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I. SUMMARY

Verizon New York Inc. and its wholly owned subsidiary, Empire City Subway Company (Limited) (collectively, for purposes of this document, "Verizon") support the redevelopment of the Lower Manhattan area, including the World Trade Center site ("WTC"), Route 9A, and the permanent WTC PATH Terminal (the "Terminal") and do not wish to impede or delay those efforts. Verizon is submitting these consolidated comments to the Route 9A Draft Supplemental Environmental Impact Statement ("Route 9A EIS") and the Permanent WTC PATH Terminal Draft Environmental Impact Statement ("PATH EIS"; Route 9A EIS and the PATH EIS are collectively, "EIS") for the purpose of alerting the New York State Department of Transportation ("NYSDOT"), the Federal Highway Administration, the Port Authority of New York and New Jersey ("PANYNJ"), the Lower Manhattan Development Corporation ("LMDC") and other New York State and New York City agencies whose decisions will be based on the EIS to certain issues which must be addressed in planning for the Route 9A reconstruction, the Terminal construction and for other public projects in Lower Manhattan. In view of the interdependence of the Route 9A Project and the PATH Terminal Project, and the impacts that both projects will have on the ability of Verizon and other infrastructure service providers to deliver utilities to the residents and businesses of Lower Manhattan, the following comments are addressed to both the Route 9A EIS and the PATH EIS so that all of the agencies involved can adequately plan for construction in a cooperative and efficient manner. By working together, we can decrease the risk that the restoration projects planned for Lower Manhattan are delayed or disrupted.

After review of the EIS, Verizon is concerned that telecommunications service, including emergency services, to Lower Manhattan may once again be disrupted or degraded unless:

(1) PANYNJ and the applicable New York State and New York City agencies ensure that the underground pedestrian concourse connecting the WTC site to the World Financial Center (WFC), to be located beneath Route 9A, does not unduly disrupt or prevent Verizon's current and future use of Route 9A as a utility pathway;

(2) NYSDOT ensures that the reconstruction of Route 9A, whether at-grade or below grade, accounts for the Verizon utilities located beneath Route 9A;

(3) NYSDOT promptly notifies Verizon as to the selected Route 9A alternative, because the relocation route of the conduits will vary considerably depending on the chosen alternative;

(4) The PANYNJ ensures that the underground pedestrian concourse connecting the Terminal to Liberty Plaza, to be located beneath Church Street, does not prevent Verizon from utilizing Church Street as a utility pathway;

(5) The applicable New York State and New York City agencies promptly designate one of the routes proposed herein by Verizon for the location of its sub-surface infrastructure;

(6) The location of the designated route is not changed once it is approved;

(7) PANYNJ, NYSDOT and the applicable New York State and New York City agencies ensure that the Route 9A entry point for Verizon conduits is not impeded, to accommodate network diversity for future tenants at the WTC site;

(8) Verizon is granted a permanent easement for its sub-surface infrastructure, to the extent the designated route is located on private property, or on any property (including Port Authority property) that is not within New York City mapped streets or New York State highways;

(9) Verizon is given uninterrupted and unimpeded access to all conduits and manholes located within the project areas in Lower Manhattan, both during construction and thereafter;

(10) PANYNJ, NYSDOT and the applicable New York State and New York City agencies that issue "order out" mandates provide Verizon with sufficient time to plan, remove its existing infrastructure and install the new infrastructure;

(11) There is greater coordination between Verizon and the government agencies involved in the planning process for the rebuilding of Lower Manhattan; and

(12) NYSDOT, PANYNJ and LMDC support Verizon's efforts to recover its restoration costs resulting from the reconstruction projects under the Partial Action Plan.

The September 11, 2001 attacks on the WTC caused extensive damage to Verizon's 1.1 million square foot central office and switching facility located at 140 West Street, immediately north of the WTC site and west of 7 WTC. Through this facility, Verizon supplies telecommunications services to many large financial services firms, financial clearing organizations, government offices and residents in Lower Manhattan. When 7 WTC collapsed directly onto 140 West Street, Verizon's building was severely damaged and telephone and other communications services were cut off to large parts of Lower Manhattan. Verizon, through its wholly-owned subsidiary Empire City Subway Company (Limited), owns and maintains the conduits under the streets that carry the Verizon network (as well as the networks of other large telecom providers such as AT&T, Time Warner Cable and RCN) through the streets of New York City. The Verizon sub-surface infrastructure also suffered major damage when the WTC collapsed.

The financial impact to Verizon of the September 11 attacks has been over one billion dollars. In connection with its restoration efforts, Verizon has installed new conduits in large part based on the coordination and supervision of government agencies such as the City Department of Design and Construction and the City and State Departments of Transportation. As a result of the proposed Route 9A and Terminal projects, cables and conduits which have been installed will have to be moved and reinstalled at great cost and with the risk of additional service disruptions. To date, Verizon has been unable to get clear direction from the governmental agencies involved in the Lower Manhattan redevelopment regarding a permanent location for its cables and equipment. Relocating the sub-surface infrastructure of Verizon involves tens of thousands of lines which are routed through 140 West Street. Moving major cables and equipment is extremely time consuming and expensive, requiring the design and construction of duplicate facilities and the hand splicing of tens of thousands of telephone lines before the existing facilities can be removed. Verizon is appreciative that its comments to the WTC Memorial and Redevelopment Plan Draft Generic Environmental Impact Statement were reviewed and that some of the issues raised, including the need for greater inter-agency

coordination, are discussed in the latest EIS. However, our current comments address certain issues and inconsistencies found while reviewing the EIS, including the continued lack of certainty, feasibility and coordination. Our comments detail the impact that the planning process will have on Verizon's efforts to provide telecommunications service to Lower Manhattan, and our proposed mitigation of those impacts.

II. SCOPE OF SEPTEMBER 11 DAMAGES

A. Overview of 140 West Street Facility

Verizon's central office and switching facility located at 140 West Street is integral to Verizon's ability to provide telephone and other communications services to the thousands of large financial services firms, financial clearing organizations, government offices and residents of Lower Manhattan that comprise Verizon's customer base. The 140 West Street facility contains over a dozen floors of telecommunications equipment and cables, which are used to connect and route voice and data signals throughout the New York Metropolitan area and beyond.

The network equipment located at 140 West Street was comprised of 4 digital switches used to connect and route telephone calls, approximately 500 optical transport systems, 7,600 fiber optic strands of glass used to transmit voice and data, nearly 200,000 voice lines, 111,800 PBX lines which are used by companies to allow multiple employees to share voice lines, 11,100 ISP lines used for internet access, 4.4 million circuits used to transmit data and 500 copper cables. The telephone lines used to transmit voice and data are routed through the building, and then grouped together and encased inside cables. A total of 500 cables are located inside and fed out of 140 West Street through a cable vault in the building in order to provide service to Verizon customers. Each copper cable contains up to 3600 pairs of wires, for a total of up to 7200 individual wires per cable. Cables containing fiber optics would contain on average 216 strands of fiber per cable. Cables fed from 140 West Street through the cable vault to the street are placed inside conduits which are located underground throughout the streets of New York City and routed to customer locations to provide service. Verizon personnel gain access to the conduits via manholes located throughout the streets, and Verizon needs free access to its conduits and manholes in order to install, replace and repair cables, both during construction and thereafter.

B. Physical Damage and Network Disruption

The collapse of the WTC caused a tremendous amount of physical damage to 140 West Street and the phone lines and equipment contained inside the building. 140 West Street suffered major physical impact on 9 critical network floors, with numerous building breaches. Sensitive digital switching equipment, air pressure systems, power panels, cables and other equipment were either smashed, flooded or damaged by dust, smoke and soot from the burning of the WTC and the efforts to extinguish the blaze. The clean-up of 140 West Street was extensive and included debris removal, structural repairs, mechanical and electrical repairs, façade restoration and asbestos clean-up and abatement. Damage to Verizon's external wire network was also extensive. The sub-surface cable vault, conduits, cables, and manhole infrastructure suffered tremendous damage as the collapsing towers and steel beams penetrated the sidewalks and Verizon's underground infrastructure located outside of the building. The extensive damage and flooding of the cable vault located at 140 West Street impacted over 250 cables and caused tens of thousands of businesses and residents in Lower Manhattan to lose telephone service.

The collapse of 7 WTC onto 140 West Street resulted in severe contamination of Verizon's offices and Verizon had to relocate more than 2,200 displaced employees from the WTC and 140 West Street locations to temporary facilities in and around the New York City area. As a result of the attacks on the WTC, Verizon also suffered a sizable loss to its conduit and manhole system, which required the construction of 900,000 duct feet of mainline conduit and 25 new manholes, and extensive repairs to 20 manholes due to structural damage resulting from falling steel and concrete. The repair and replacement of the existing conduit system, and approximately 45 miles of fiber-optic cable and 22 miles of copper cables, was required and is still ongoing.

C. Emergency Management and Restoration Efforts

Verizon's post-September 11 restoration efforts included the repair, rerouting and relocation of extensive amounts of infrastructure, including the construction of duct pathway beneath Route 9A and Church Street. The location of these new conduits and cables, including the decision to by-pass the WTC site and relocate Verizon's infrastructure in the bed of Route 9A, was determined with the coordination and supervision of government agencies such as the New York State Department of Transportation. This work was done by Verizon at a cost of

millions of dollars and, if current proposals to reconfigure Route 9A and the Terminal come to fruition, much of the newly installed infrastructure will have to be replaced and removed. Because of the design of the proposed PATH underground pedestrian concourse between the WTC and WFC, Verizon is now faced with the prospect of expending precious time and resources to undo this work and relocate its Route 9A cables and equipment to locations which have not yet been confirmed with any degree of certainty or permanency. Verizon's cables and equipment located beneath Church Street may also have to be relocated due to the planned Liberty Plaza connection to the Terminal. Unless the mitigation proposed herein is implemented, the projects being contemplated for Lower Manhattan may have an adverse impact on the ability of Verizon to provide telecommunications services to tens of thousands of Lower Manhattan businesses, residents and governmental agencies. The mitigation proposed herein is submitted in order to avoid further negative impacts on these consumers of telecommunications services and on the revitalization of Lower Manhattan.

III. PROPOSED REDEVELOPMENT PLAN

A. Redevelopment Concerns

The pedestrian concourse planned by PANYNJ connects the WTC and WFC sites by an underground passageway under Route 9A in the vicinity of Fulton Street, allowing PATH customers to cross Route 9A without coming above ground. The PATH EIS indicates that the PANYNJ may choose to construct an above ground pedestrian bridge rather than the underground concourse. The PATH EIS seems to indicate that, since the Route 9A short bypass alternative would require Verizon to relocate its Route 9A conduits in any event, the construction of the underground concourse would cause no additional burden to Verizon. However, while the Route 9A short bypass alternative would lead to a temporary disruption of this vital north-south utility pathway during construction, the underground pedestrian concourse has the potential to permanently impair Verizon's use of the Route 9A pathway. We ask that PANYNJ design and construct the underground pedestrian concourse in a manner that preserves the integrity of the two banks of 96 ducts and 84 ducts running north and south along Route 9A.

The Verizon conduits located beneath Church Street provide a back-up system to the Route 9A conduits and are an important fail-safe utility pathway. While the Route 9A pathway is disconnected during the construction of the short bypass, the Church Street pathway will serve

as the primary north-south utility pathway. Unless designed and constructed in concert with the efforts of Verizon, other utility companies and other agencies involved in the Lower Manhattan redevelopment, the Liberty Plaza connection, as proposed in the PATH EIS, could cause interference to telecommunications service to Lower Manhattan.

The Cedar Street portal described in the Route 9A EIS is another area of concern, as the extension of the bypass tunnel would require that Verizon relocate an additional 85,000 duct feet of conduit. It would also require the construction of four additional blocks of conduit and four new manholes. The difficulty is increased by the layout of the city streets located south of Albany Street, as space for infrastructure is severely limited due to the already existing subsurface utilities therein and the narrow street widths. This extension alone could add at least 9 months to the time required to complete the relocation.

Both EIS fail to reveal adverse impacts that may occur unless the mitigation proposed by Verizon is implemented. These include timing delays, service disruptions, disruptions to vehicular and pedestrian traffic, inconvenience to the Lower Manhattan community and wasted costs, all of which can be mitigated if the measures proposed herein are implemented. These comments will address the foregoing adverse impacts and proposed mitigation so that the same will be considered by the public authorities responsible for the planning and coordination of the Route 9A reconstruction, the Terminal project and other proposed projects in Lower Manhattan.

B. Lower Manhattan Projects

In connection with the rebuilding of Lower Manhattan, several large scale projects are proposed. Each of the projects has an ambitious timeframe and, taken as a whole, the scope of the various projects is enormous. Given the magnitude of the projects, the various governmental agencies responsible for development will need to dedicate adequate time and resources in order to coordinate the projects. Currently, the major projects being planned include the WTC Memorial and Redevelopment Plan, the Route 9A Project, the PATH Terminal, the South Ferry Terminal and the Fulton Transit Hub.

The Route 9A Project involves reconstruction of the West Side Highway, which is located west of the WTC site, by either lowering the roadway past the WTC memorial or leaving

the highway at grade but creating a promenade above it to create new Lower Manhattan park space. Regardless of the final plans for the West Side Highway, the existing Verizon facilities below the surface of Route 9A will be greatly impacted. Under the coordination and supervision of State and municipal authorities, after September 11 a significant amount of conduit and cable and its supporting facilities was placed within the bed of Route 9A, which is now an important telecommunications artery that serves the areas south, west and east of the WTC site, including Battery Park City (See Tab 1). These conduits and cables may have to be removed and relocated at a considerable cost to Verizon as a result of the Route 9A Project. Before the existing conduits and cables can be removed, in order to avoid a disruption in telephone service, Verizon will first need to create a duplicate system along a newly designated route that does not yet exist.

The Permanent PATH Terminal Project is aimed at creating a transportation hub for Lower Manhattan. It is broad in scope and will impact multiple streets and consequently the Verizon conduits and the thousands of telecommunications lines located beneath those streets. This project will undoubtedly exacerbate the impact of the other projects that will be ongoing in Lower Manhattan and will likely result in the repetition of work unless the projects are properly managed, coordinated and designed. As discussed above, the underground pedestrian concourse beneath Route 9A and the proposed Liberty Plaza connection beneath Church Street have the potential to severely inhibit Verizon's ability to provide telecommunication services to the residents and businesses in the Lower Manhattan area.

While Verizon is supportive of the redevelopment of Lower Manhattan, the most troubling aspect of the proposed construction is the lack of actual coordination among the utility companies and the project sponsors regarding the relocation of various utilities such as telecommunications, electricity, gas, steam, water and sewer. In planning for these projects, Verizon requests that the applicable governmental agencies increase their communication with Verizon and the other utility companies, in order to increase the synchronization of the proposed projects and to minimize impacts to Verizon and the residents and businesses of Lower Manhattan. Because all of the foregoing projects will be constructed within a small radius, the projects must be managed with an appreciation for their interdependencies. In addition, several utilities will be affected by the various projects. Because Verizon and other service providers, both public and private, often share a common infrastructure for the placement of equipment, and

in fact compete for scarce space, a greater degree of coordination will be necessary to minimize delays and maximize the efficient use of available space.

Also of grave concern to Verizon is the lack of certainty involved in the redevelopment plans for Lower Manhattan. Since each alternative to each of the proposed projects requires a different relocation plan, it is imperative that the alternatives be narrowed, that a final decision regarding the relocation of the utilities be made and communicated to Verizon, and that the decisions made with respect to the relocation be final and permanent. The proposed projects are a difficult engineering challenge for Verizon and, if significant aspects of the plans for the proposed projects continue to change, it becomes impossible to design and complete construction in a timely fashion. In order for Verizon to provide service to its customers in Lower Manhattan without wasting additional funds and without considerable delays and potential disruption in service, the project sponsors must provide Verizon with concrete direction in a timely fashion, as further provided herein.

C. Network Relocation

The process of relocating the infrastructure of Verizon's underground network is a complicated engineering task. In order to replace and relocate existing conduits and cables, Verizon will first need to design and construct a completely new conduit and cable system along a yet to be designated route before the old system can be removed. The intricate nature of splicing the wires within cables requires that adequate time be allotted to perform the work. In the case of copper cables, each cable can hold up to 3600 pairs of wires for a total of up to 7200 individual wires per cable. Once the new cables are in place, Verizon will need to splice the existing wires inside of each cable from the old network and reconnect each individual wire to the corresponding wire with which it forms a matching pair (See Tab 2). In the case of fiber optic cables, the process of relocation is more complex as the cables contain strands of glass that must be spliced by a process called "fusion splicing" which requires heat to cut the lines and fuse them back together when relocated to the new conduit system. Although the cables containing fiber lines contain fewer lines per cable and the splicing is faster than it is with copper cables, each line carries far more high-speed data than the copper lines and splicing of fiber lines will often require Verizon to negotiate "down-time" with its customers. Because construction projects usually require Verizon to complete its work 18 to 24 months before the end date of the project, Verizon will need to receive, well in advance, adequate information regarding a finalized

permanent route and any other relevant factors from the various New York State and New York City agencies.

The process of relocating network and equipment is extremely complicated, costly and time consuming if performed once, and unduly burdensome to Verizon to the extent work will need to be performed repeatedly due to the lack of coordination and certainty. Relocating the network once was unavoidable; however, Verizon should not be required to relocate the infrastructure again based on an absence of coherent planning by the relevant public agencies. As it stands, the cost of relocation in connection with the WTC Memorial and Redevelopment Plan and the Route 9A Project is estimated in excess of $90 million; this will be in addition to the millions of dollars that Verizon spent in connection with the initial placement of the infrastructure in Route 9A. If the proposed projects are not coordinated, the estimated cost to redo the work will be an additional $15 million to $35 million per occurrence. If a new route were designated today, the engineering and construction of the new conduits and cables, and the required splicing of dozens of cables and tens of thousands of lines, would not be complete until approximately 2 to 3 years from now.

Another important consideration is the subsurface space required for the new conduit infrastructure, which is approximately 16 square feet of unobstructed space for the entire length of the designated route. Verizon must have uninterrupted and unimpeded access to the conduit network via manholes, which will need to be suitably located to provide such access to Verizon personnel during construction and thereafter.

D. Impacts of the Route 9A and PATH Terminal Plans

The Route 9A and PATH Terminal redevelopment plans, as well as other proposed projects for Lower Manhattan, will potentially have serious impacts on Verizon and the businesses and residents of Lower Manhattan. If the mitigation proposed herein by Verizon is not employed, the end result could be: (1) the loss of Route 9A and Church Street as viable utility pathways, (2) an impairment of the Verizon Building on 140 West Street as a telecommunication switching facility, (3) timing delays in project completion, (4) the risk of service disruption, including disruption to emergency services, to the crucial business and governmental entities and residents of Lower Manhattan serviced by Verizon and other

telecommunications providers who use Verizon facilities, (5) adverse effects on vehicular and pedestrian traffic in Lower Manhattan, (6) inconvenience to the businesses and residents of Lower Manhattan as a result of the continuous demolition and construction in the streets of Lower Manhattan, and (7) wasted financial resources.

The loss of the utility pathways beneath Route 9A and Church Street would severely limit the effectiveness of the telecommunication switching facility at 140 West Street, thereby requiring Verizon to relocate some of its central office operations in order to provide the current level of service to Lower Manhattan.

The collective effects of the proposed projects in Lower Manhattan will impact Verizon and result in timing delays. In order to effectively contribute to the revitalization of Lower Manhattan, the PANYNJ, NYSDOT and the other New York State and municipal agencies charged with responsibility for the various projects will need to consider the timing of work that Verizon must perform. While Verizon is appreciative of the Early Action Plan proposed in the EIS, the schedules that have been proposed for the projects in Lower Manhattan continue to be extremely ambitious considering the short windows of time allotted not only for Verizon to complete its work, but also for all of the other utility companies to move their imbedded infrastructure. While Verizon is aware of the collective momentum to rebuild Lower Manhattan, the decision-making process should not occur with an indifference to the complex problems of infrastructure installation and relocation.

E. Proposed Mitigation

Coordination: In order to mitigate the impacts that will occur as a result of on-going multiple projects, PANYNJ, NYSDOT and the government agencies responsible for the redevelopment of Lower Manhattan should establish a coordinated planning approach for the proposed projects that will allow all of the respective agencies to promptly designate and approve a new permanent telecommunications route. Verizon must be able to rely on this designation as definitive. If routes are changed or major features altered, replanning and redesign to accommodate these changes can add many months to the redevelopment process. The inclusion of representatives from Verizon and the other utilities in agency planning sessions

can improve the efficiency of the redevelopment process. While the EIS recognized the need for better coordination, such coordination has not yet occurred.

Establish Alternate Telecommunications Route: In order to assist in the designation of such a route in a timely fashion, Verizon proposes the following routes in order of preference, which routes are depicted by maps attached hereto[1]:

- Verizon Proposal #1:

  West out of 140 West Street across Route 9A, then south along the west side of Route 9A, then east on Albany Street, then north on Greenwich Street to Liberty Street (See Tab 3). To the extent this route is selected, the issue of the conflicts with the (a) PATH underground pedestrian concourse between the WTC and WFC, (b) Route 9A Cedar Street Portal short bypass tunnel extension and (c) the northern section of the Route 9A short bypass tunnel extension must be resolved.

- Verizon Proposal #2:

  West out of 140 West Street, then south along the east side of Route 9A (and west of the slurry wall on the west boundary of the WTC), then east on Albany Street, then north on Greenwich Street to Liberty Street (See Tab 4). To the extent this route is selected, the issue of the conflicts with the (a) PATH underground pedestrian concourse between the WTC and WFC, (b) Route 9A Cedar Street Portal short bypass tunnel extension and (c) northern section of the Route 9A short bypass tunnel extension must be resolved.

- Verizon Proposal #3:

  West out of 140 West Street, then north along the east side of Route 9A, then east on Barclay Street, then south on Greenwich Street (through the WTC site) to Liberty Street (See Tab 5). To the extent this route is selected, the issue of the conflict with the PATH Liberty Plaza connection must be resolved.

- Verizon Proposal #4:

  West out of 140 West Street, then south on along the west side of Route 9A, then east across Route 9A in the vicinity of Rector Street,

[1] The maps attached hereto at Tabs 3, 4, 5 and 6 reflect the overall proposed routes for illustrative purposes only, and do not contain engineering detail.

then north along the east side of Route 9A, then east on Albany Street, then, simultaneously, (a) north on Greenwich Street to Liberty Street, and (b) north on Greenwich Street, then east on Albany Street, then north on Church Street to Liberty Street (See Tab 6). To the extent this route is selected, the issue of the conflicts with the (a) PATH underground pedestrian concourse between the WTC and WFC and (b) northern section of the Route 9A short bypass tunnel extension must be resolved.

Grant Adequate Rights: In order to mitigate the impacts of the proposed Lower Manhattan projects, Verizon promptly requires rights to a designated route for the sub-surface placement of conduits and cables. To the extent that the new routes cross private property, and property that is not within New York City mapped streets or state highways (including Port Authority and LMDC property), Verizon's rights to place conduits and cables along a specified route should be granted pursuant to a permanent easement as opposed to a license, because a mere license does not afford Verizon the protection and certainty that it reasonably deserves in order to ensure that it will not continuously be forced to relocate and duplicate costs. Considering Verizon's efforts with respect to the restoration and revitalization of Lower Manhattan, and the sums it has expended in connection with such efforts, it is unreasonable to expect Verizon to install and maintain equipment on the basis of a mere license in such areas that are either privately-owned or not located in New York City mapped streets or State highways.

Establish Realistic Timeframes: Adequate timing is a key element of the mitigation proposed by Verizon in order to alleviate the impacts of the Route 9A reconstruction, Terminal construction and other proposed Lower Manhattan projects. Given the complicated nature of Verizon's network infrastructure, the timing of the proposed projects will be significantly delayed if the applicable government agencies, including New York City agencies that issue "order out" mandates, do not give Verizon adequate access to information and realistic timeframes to complete its work. Considering the quantity and overlapping nature of the various proposed projects, and the fact that Verizon's work will take approximately 2 to 3 years from the date it receives a designated route, Verizon is very concerned that significant project delays will occur. In order to effectively mitigate the impacts to Verizon as well as the developers and future occupants of the proposed Lower Manhattan projects, the applicable government agencies will need to be aware of timing concerns outlined herein and set realistic deadlines with

certainty. Currently, Verizon is forced to make assumptions and plan various alternate routes based on conjecture.

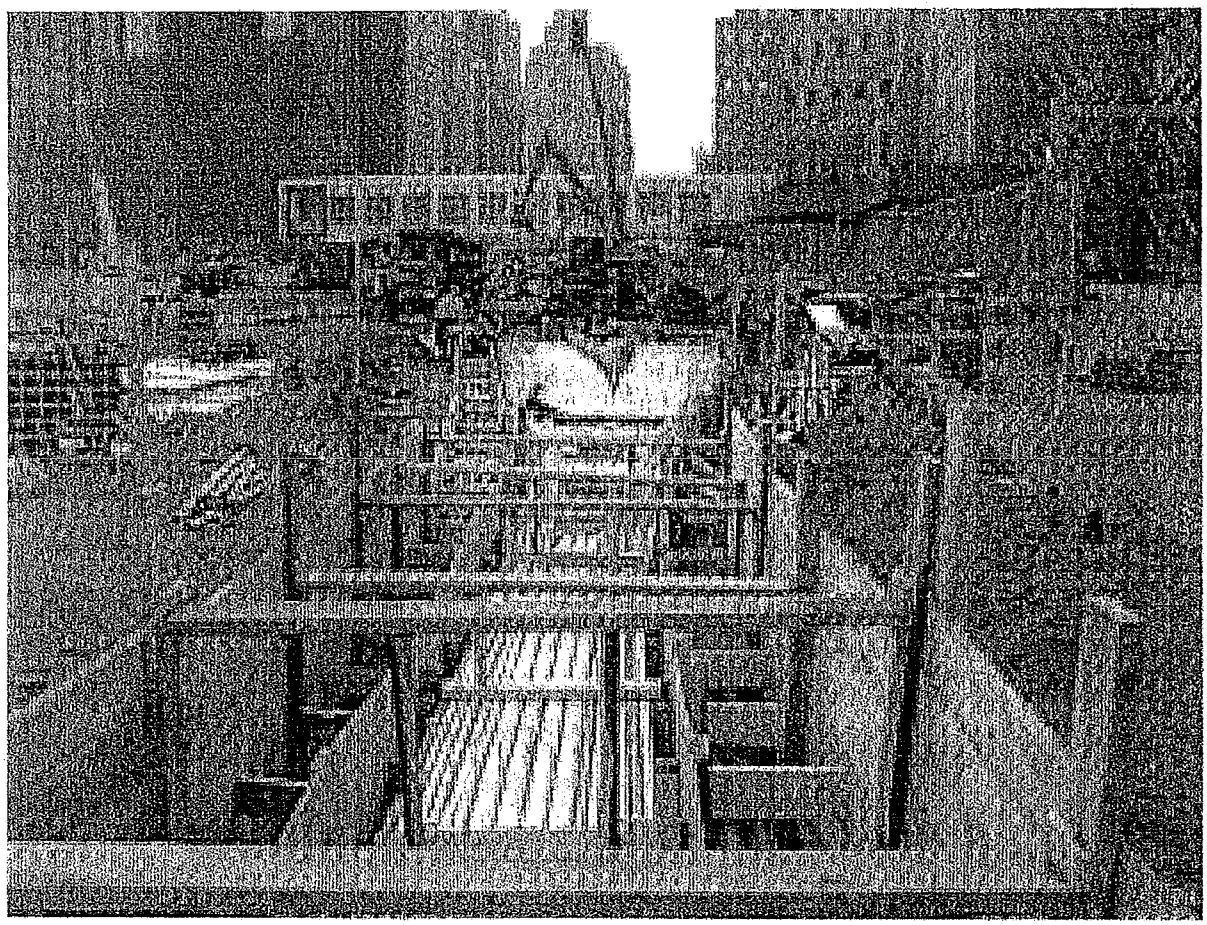
Mitigate Financial Impact – Extension of Tentative Deadline: In connection with the proposed relocation of the Verizon infrastructure due to the Route 9A and Terminal Projects, it is anticipated that Verizon will submit an application for funds from the Permanent Response category of the Partial Action Plan. The Partial Action Plan requires any permanent work to be completed before an application for Permanent Response funds is submitted. Because Verizon has not yet received a designated telecommunications route from the applicable government agencies, Verizon will not complete its permanent work prior to the tentative December 31, 2004 deadline for the submission of applications under the Permanent Response category of the Partial Action Plan. Verizon requests that NYSDOT, PANYNJ and LMDC support its request to the Empire State Development Corporation and the New York City Economic Development Corporation that they extend the tentative deadline for the Permanent Response category of the Partial Action Plan to a date which is 2 years from the date that Verizon receives a certain, permanent route for the relocation of its infrastructure, so as not to preclude Verizon from submitting an application for Permanent Response funds and recovering the costs of such work.

IV. IMPACTS SPECIFIC TO 140 WEST STREET

In furtherance of Verizon's commitment to the rebuilding of Lower Manhattan, Verizon is moving hundreds of its employees that were displaced as a result of the WTC attacks back to the Verizon Building at 140 West Street now that the restoration of the building is nearing completion. Verizon is concerned that potential vibrations due to construction activities, as discussed in each EIS, will have an impact on Verizon's ability to protect the safety of its equipment and personnel and its ability to access key locations. Both EIS state that due to the close proximity of the Verizon Building to the construction location, vibrations could potentially damage the Verizon Building and the sensitive equipment kept therein and result in telephone service outages. Verizon requests that it be kept abreast of the measures taken to mitigate the vibration effects, and that all reasonable safeguards be implemented to prevent injury to its employees or damage to the building and equipment located at 140 West Street.

V. CONCLUSION

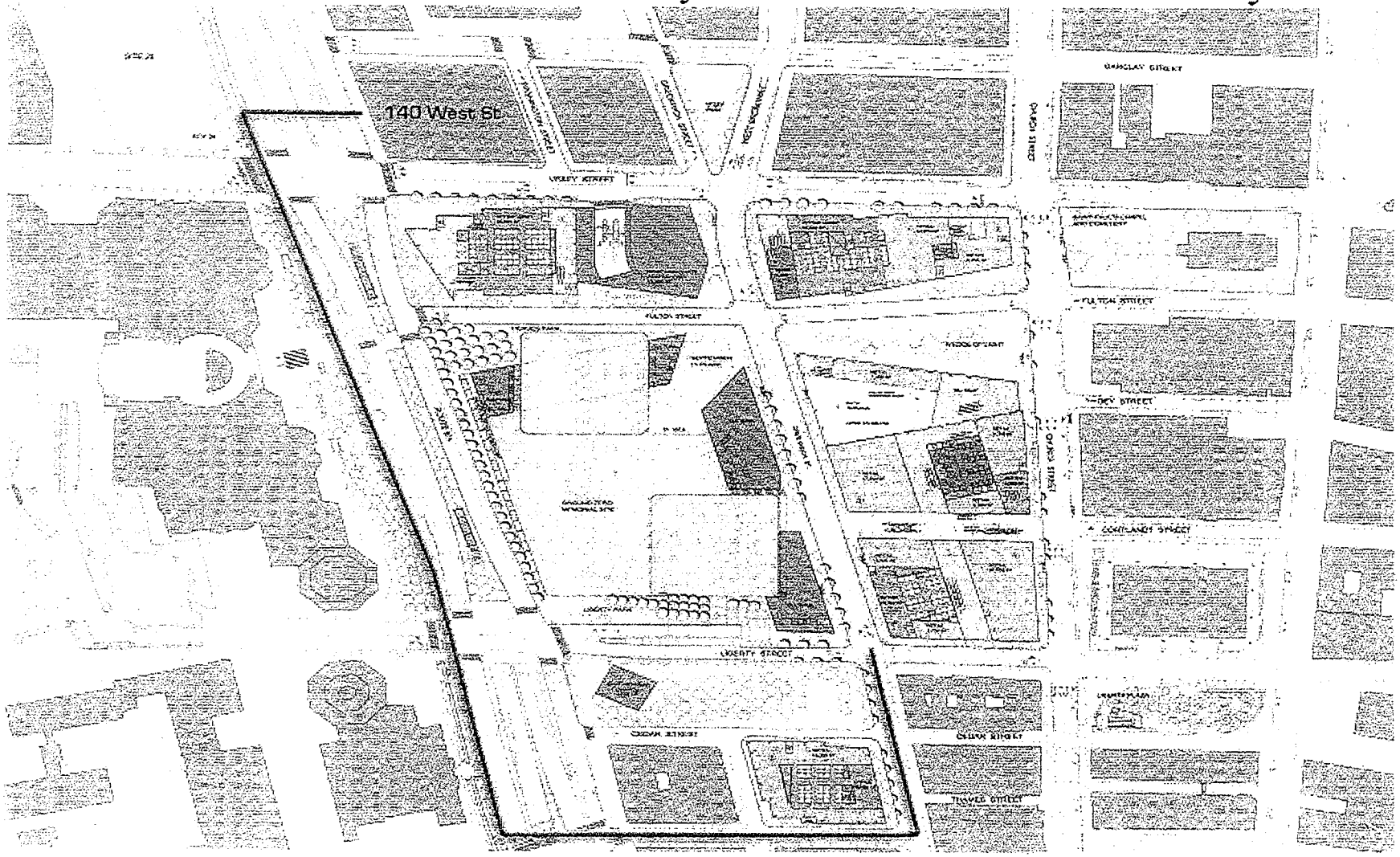
The reconstruction of Route 9A and the creation of a permanent PATH Terminal are important initiatives for the revitalization of Lower Manhattan and New York City. Verizon strongly supports the Lower Manhattan rebuilding effort and wishes to play an active role in that effort. However, if the redevelopment of Lower Manhattan is to be successfully completed without project delays and inconvenience to the Lower Manhattan community, PANYNJ, NYSDOT and the applicable New York State and New York City agencies will need to take into account the issues surrounding the telecommunications infrastructure and act together in order to quickly designate a telecommunications route for Verizon's infrastructure. The key elements going forward will be coordination, certainty, feasibility and timeliness. By adopting the mitigation measures proposed herein, PANYNJ, NYSDOT and the New York State and New York City agencies responsible for the rebuilding can avoid the delays and disruptions that have frustrated the Lower Manhattan community, and provide a higher level of assurance that major projects will proceed as planned and on schedule. The implementation of the mitigation proposed by Verizon will enable Verizon to provide telecommunications service with the quality and reliability demanded by the government offices, businesses and residents of Lower Manhattan and, at the same time, assist the PANYNJ, NYSDOT and other New York State and New York City agencies in their efforts to make Lower Manhattan a premier New York City destination.



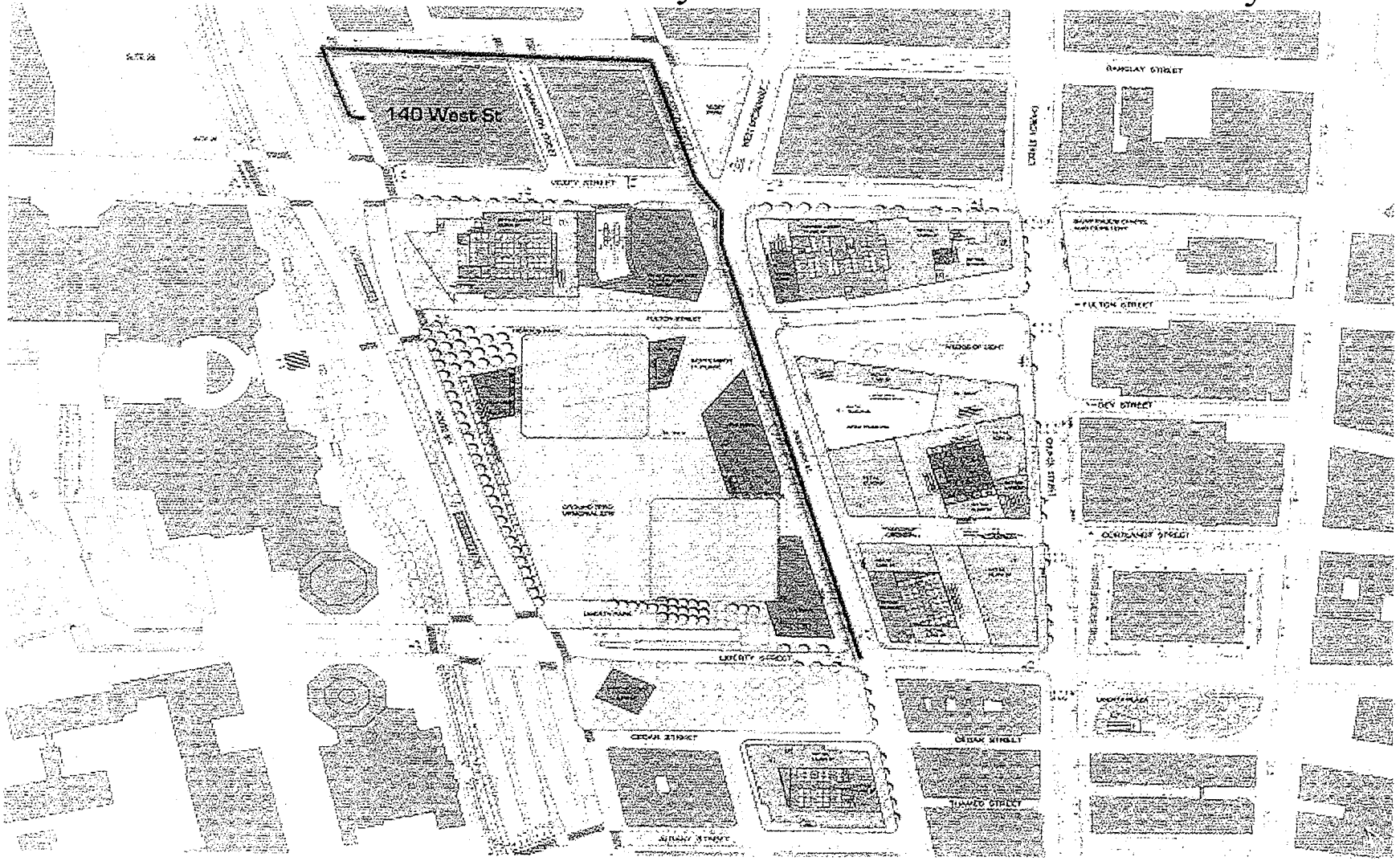
Conduit under Route 9A
(from NYS DOT Route 9A website)

Splicing a copper cable

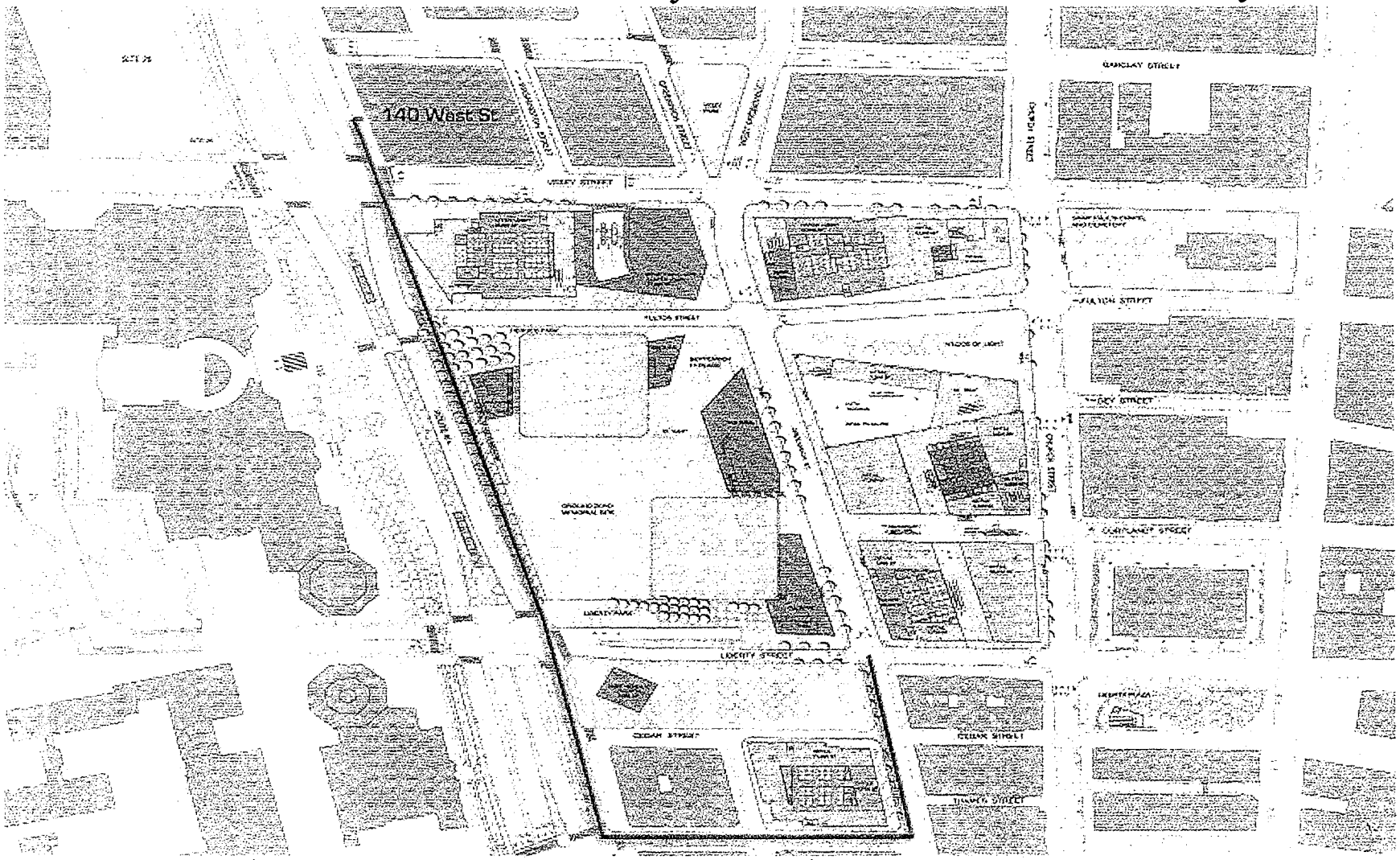
Route 9A and World Trade Center Conduit Map
Verizon Proposal #1
West Side of Route 9A to Albany St to Greenwich St to Liberty St



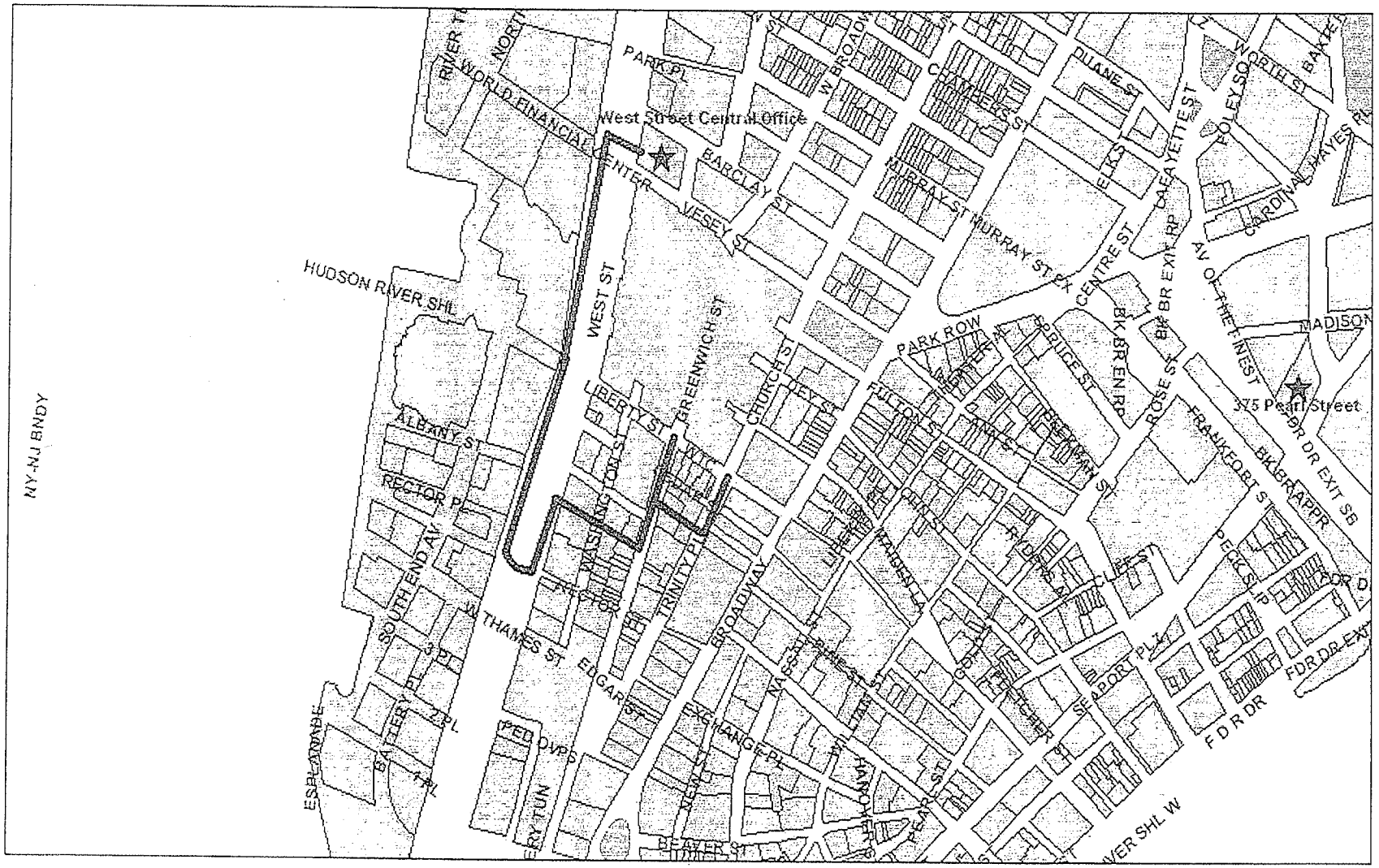
Route 9A and World Trade Center Conduit Map
Verizon Proposal #3
East Side of Route 9A to Barclay St to Greenwich St to Liberty St



Route 9A and World Trade Center Conduit Map
Verizon Proposal #2
East Side of Route 9A to Albany St to Greenwich St to Liberty St



Route 9A and World Trade Center Conduit Map
Verizon Proposal #4 for future Service Requirements
Route 9A South



THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	07/21/04	**Type:**	E-mail
Contact Details:	Tal Barzilai	**Location:**	
	P ; **F** ; **E** hacproffdigimon@yahoo.com		

Comment:
This station should be concentrated more on rather than on the plan by Daniel Libeskind. His plan will make this station almost impossible to use as it does right now. Please do not make the thing so expensive. People will take any kind of station that is being built.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received: 07/08/04 **Type:** Email

Contact Details:
Laura Blackman
Deputy Counsel
Hudson River Park Trust
Pier 40, 2nd Fl. West St. & Houston
New York, NY 10014
P (917) 661-8740; **F** ; **E** lblackman@hrpt.state.ny.us

Location:

Comment:
Having reviewed the Draft Environmental Impact Statement for the World Trade Center PATH Terminal, Hudson River Park Trust has no objections to the document. We would like to remind you that Hudson River Park Trust requests to be included in any discussions involving the exact placement/location of pedestrian bridges, escalators and/or staircases adjacent to the Hudson River Park (which, of course, includes the bikeway west of Rte. 9A). Similarly, the Trust would like to be included in future discussions related to any impacts to the bulkhead and consistency with the existing Programmatic Agreement.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	07/21/04	**Type:** E-mail
Contact Details:	Alexander Butziger **P** ; **F** ; **E** ambutziger@hotmail.com	**Location:**

Comment:
Ladies and gentlemen, the $2 billion price tag of the new WTC PATH Terminal building seems excessive. It would be much wiser to build a simpler terminal and redirect most of these funds to rebuilding 110-story office towres. After all, the terminal is just a means to get to a place. It is the place that has to be great in order to attract tenants, customers, visitors, and tourists, not the railroad depot used to get to the place. Rebuilding office towers by no measurement shorter than those that were taken from us is the sensible thing to fund. It is a moral imperative - the greatest towers in the world must not be replaced with a stumpy 70-story building with a pole on top. It is the right business decision too - build them and we will come.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	07/14/04	**Type:** Letter
Contact Details:	Timothy S. Carey President & CEO Battery Park City Authority One World Financial Center New York, NY 10281-1097 **P ; F ; E**	**Location:**

Comment:
Letter dated 7/14/04 from Battery Park City Authority – Scanned

RECEIVED
JUL 21 2004
PRIORITY CAPITAL PROGRAMS

TIMOTHY S. CAREY
PRESIDENT & CEO

HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY

July 14, 2004

Mr. Shawn T. Lenahan
Program Manager
WTC Transportation Hub
DEIS Comments
115 Broadway, 10th Floor
New York, NY 10006

Re: WTC PATH Terminal – Comments

Dear Mr. Lenahan,

The Battery Park City Authority strongly supports the World Trade Center Transportation Hub, as we support all endeavors to improve the connectivity and the quality of design in Lower Manhattan. The architecture is excellent and we support preserving what is meaningful from the site without encumbering Lower Manhattan's capability as a place to live, work and play. The improvements to PATH will be critical in redevelopment efforts to achieve this goal.

Our concern for this project, and for all of the downtown projects, is that there needs to be a coordination of effort, particularly in the planning of the transportation projects. Without a composite drawing of all projects, it is difficult to know if the projects will mesh. It would be advisable to produce such a plan and include it in the review documents for all lower Manhattan projects. Ideally, the connection between the World Trade Center Transportation Hub and the Fulton Street Center would be seamless. The reintroduction of Fulton and Greenwich Streets and the bypass alternative of the Route 9A project are signs of the overall trend of the area to emphasize pedestrian access. Yet without general decisions made for the Memorial site and the Route 9A project and how they relate to the PATH station, pedestrian access to and from Battery Park City is not yet defined. It is logical to put all these projects together to understand the complete vision of the area.

Because there will be so much construction downtown, it will be important for the viability of the existing communities that there be coordination of construction and that the community be informed on a day to day basis of what is going on. They need to know what works and what doesn't and where they can walk and where they can't.

The Port Authority needs to ensure the implementation of the aggressive environmental program established in the DEIS. We support the stated objectives of detailed monitoring and equipment retrofits. This project as well as all the downtown projects should all respond in a cohesive way to potential problems of noise, air quality and vibration.

Each of these details reflects the strong influence the project has as a vital piece of the redeveloped site for the residents, workers and visitors of Battery Park City. An efficient, coordinated construction process provides the chance to reconnect downtown neighborhoods and allow the entire area to function well as a whole.

Sincerely,

Timothy S. Carey

July 21,2004

R.D. 2
Carmel,New York
10512

I would like,as the comment period closes,to reiterate my views on permanent WTC PATH Station.

This is an important infrastructure project and must be done properly. m not quite convinced that the additional platform is best placed to the t,rather than reclaiming some of the old Hudson Terminal location to the t to extend capacity and shorten the travel to the Fulton Street transit ter in whatever form that is built.

Of the highest importance however is minimizing accomodation of the rageous Daniel Libeskind site plan,regularly and widely beaten in public lls and imposed by Governor Pataki after even his committee of cronies licated to the inappropriate priorities it was designed for had voted ainst it.

Toward this end the more extravagant visible features of the Calatrava sign would best be foregone if the money can be put toward ensuring that e office space on the site is concentrated into fewer,taller buildings an proposed my Mr. Libeskind,along lines more strongly evocative of the st Twin Towers and of no lesser scale.

With regard to the support for the present proposal voiced by various mbers of the construction trades,please be mindful that their primary ncern is securing construction jobs,and that they would rather see this ilt than unbuilt does not mean they would not support a better site plan re it put on the table.A plan with bigger buildings would mean better bs for them.

Governor Pataki's entire approach toward the redevelopment of the World rade Center site has been to do the wrong thing as fast as possible so as o maximize the difficulty for anyone seeking to correct his mistakes.The ATH terminal planning has on the whole been the least error-riddled facet f these endeavors,compared to the site plan,memorial,and West Street redevel- pments.But the choices are still here as to whether the integration of this ransit station into the site hinders or helps the plans many of us are very etermined to see discarded.

On behalf of those of us who think the dead are honored by reclaiming he ground on which they fell for the purposes to which and for which they ave their lives,not by perpetuating the emptiness muderously decreed by heir killers,I'd like to thank you for restoring the PATH tracks to the ld Tower footprints,and hope you will resist pressure to extend the killers' and on our city planning deep underground.

Louis Epstein

World Trade Center Restoration
Movement

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	07/16/04	**Type:** Letter
Contact Details:	Anthony Gardner Coalition of 9/11 Families 223 Abingdon Avenue Staten Island, NY 10308 **P** 973-839-7610; **F** ; **E**	**Location:**

Comment:
Letter dated 7/16/04 from Coalition of 9/11 Families – Scanned

Coalition OF 9/11 FAMILIES

July 16, 2004

Mr. Bernard Cohen
Director
Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green, Suite 436
New York, New York 10004

RE: WORLD TRADE CENTER TRANSPORTATION HUB
(PERMANENT WTC PATH TERMINAL)
DRAFT FINDING OF EFFECTS PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Dear Mr. Cohen:

The Coalition of 9/11 Families (the Coalition) has prepared the following comments on your draft document entitled *Permanent World Trade Center PATH Terminal Finding of Effects Pursuant to Section 106 of the National Historic Preservation Act* (the Draft Finding). Detailed line-by-line comments are attached. However, the Coalition has a number of general concerns that can be grouped as follows:

- The description of the undertaking is not detailed enough to permit an independent evaluation of how, and to what degree, the historic resources with the project's Area of Potential Effect will be affected. While the figures in the Draft Finding provide some information, it is not possible to relate how what is being proposed will affect individual resources that contribute to the significance of the WTC Site. Much more detailed descriptions are necessary. For example, in referring to the E-Train passageway, the Draft Finding only says that the station will be reconfigured and that certain elements may be relocated. No description or drawings of the planned reconfiguration are provided, and no mention is made of which elements "may" be relocated. The fact that the FTA and the Port Authority cannot state with certainty which elements are proposed for relocation suggests that any finding of effect is premature.

- The Draft Finding presumes that a final alternative for the project has been selected. In doing so it fails to consider the need for FTA to comply with Section 4(f) of the Department of Transportation Act. As you know, Section 4(f) requires the FTA to avoid harming historic properties unless it can demonstrate that there is no feasible and prudent alternative to the use of the historic property. It also requires that 4(f) evaluations address location alternatives and design shifts that avoid the historic property. FTA's draft 4(f) evaluation included in the Draft Environmental Impact Statement for the project considers only major alternatives to the proposed project. It does not consider variations

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of, or design alternatives to, the proposed project that would reduce or eliminate use of the various elements that contribute to the historic significance of the WTC Site. We are particularly concerned that project alternatives do not include or evaluate construction of a fourth platform.

- The Draft Finding fails to take into account the other planned and on-going projects at the WTC Site that are associated with the PATH project. The relationship between these various projects, and the involvement of the FTA and the Port Authority in them is especially unclear. Of special concern is the relationship between the PATH project and LMDC's World Trade Center Memorial and Redevelopment Plan. For example, under the terms of the Programmatic Agreement between LMDC and the Advisory Council on Historic Preservation, LMDC is legally bound to provide "reasonable and appropriate access" to the Twin Towers footprints. Neither FTA nor the Port Authority is a signatory to the Programmatic Agreement, even though the final design of the PATH project will be a major factor in determining the extent and quality of access to the footprints. The failure to more adequately consider the cumulative effect of the various projects affecting the WTC Site must be rectified.

- In discussing the "Elements of the WTC Site," the Draft Finding never discusses the footprints of the Twin Towers as a holistic entity. The tower perimeter column bases are discussed separately from the other features located within the footprints proper. Only a single sentence is devoted to the latter. The discussion of how the footprints will be affected must discuss them in total. This is essential if effects are to be properly evaluated, and is especially important if 4(f) considerations are to be properly evaluated. In the absence of an evaluation of the project's effects on the footprints as a single holistic feature, LMDC will not be able to define its Memorial Access Commitments.

- When attempting to discuss the project's effects on specific historically significant elements of the WTC Site, the Draft Finding in many cases employs words such as "could" and "may" suggesting uncertainty as to exactly if and/or how various elements will be affected. This is partially a result of the insufficiently detailed description of the project (noted above), but also because a complete inventory (with maps) of the historically significant elements at the WTC Site has never been prepared as part of the Coordinated Determination of Eligibility which was coauthored by FTA.

- The inclusion of a discussion of the "Northwest Remnant Subgrade Structures" as part of the project would seem to contradict numerous statements by the Port Authority that demolition of these structures is *not* part of the PATH project.

- There is no discussion of what mitigative measures the FTA is proposing to avoid or minimize adverse effects to the WTC Site. Mitigative measures that have been considered and discarded, if any, should be identified.

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Mr. Bernard Cohen
July 16, 2004
Page3

We appreciate the opportunity to provide these comments. We hope they will be of help in preparing a revised Finding of Effect, and we look forward to working with you and the Port Authority in regard to those revisions.

Sincerely,

Anthony Gardner, Executive Board Member, Coalition of 9/11 Families

Mary Fetchet, Voices of September 11th

Sally Regenhard, Skyscraper Safety Campaign

cc: A. Cracchiolo (Port Authority)
K. Rampe, (LMDC)
J. Nau (ACHP)
C. Vaughn (ACHP)
R. Pierpont (OPRHP)
C. Shull (NPS)
A. Ferster, Esq.

Attachment: WORLD TRADE CENTER TRANSPORTATION HUB (PERMANENT WTC PATH TERMINAL), DRAFT FINDING OF EFFECTS PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

ADDITIONAL COMMENTS OF THE COALITION OF 9/11 FAMILIES

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WORLD TRADE CENTER TRANSPORTATION HUB (PERMANENT WTC PATH TERMINAL). DRAFT FINDING OF EFFECTS PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

ADDITIONAL COMMENTS OF THE COALITION OF 9/11 FAMILIES

Page 1, P3, line 9. The word "help" should be eliminated. The truncated box-beam columns do not "help" define the perimeter of the former Twin Towers, they *do* define it.

Page 2, P5. It is unclear where the ventilation which may be constructed "adjacent to Route 9A" would be located. A graphic showing the location would be helpful, as would a description of the ventilation structure.

Page 3, P2. The discussion of the tower perimeter column bases implies that it is the column bases that constitute the footprints of the Twin Towers. As noted in our transmittal letter, the footprints must be viewed as holistic entities that include the entire area defined by the perimeter columns. Further, we cannot stress the urgent need to remove the few inches of dirt that obstruct the remains of the footprints so that they can be properly inventoried, identified, documented and photographed.

Page 3, P2, line 5. The word "would" should be eliminated.

Page 3, P2, line 12. This sentence needs to be rewritten. The statement that "all of those Tower perimeter columns were removed" is incorrect and contradicts the following phrase which that the bases of the columns remain.

Page 3, P3. This paragraph seems to be saying that physical disturbance of the truncated box beam columns is the only way they will be affected. The statement that the project would impact "some" of the columns is incorrect. They will all be affected in that their associated setting will be altered. The statement that some of the column bases while being made inaccessible could remain *in situ* is not very meaningful. If they become inaccessible they will be adversely affected. (The use of the word "could" is also disturbing. If the FTA and the Port Authority are unable to state with certainty exactly how these features will be affected than the Draft Finding is premature).

Page 3, P3, lines 9-10. How many box beam column bases will be "temporarily" covered during construction. For how long? How will they be affected/protected during construction?

Page 3, P4. The fact that construction of various proposed infrastructure elements will not physically destroy any of the truncated box beam columns is not meaningful in itself. The Draft Finding notes that proposed infrastructure "may somewhat impact visibility and accessibility." Exactly what does this mean? Much more specific information is needed. The inadequacy of existing baseline information is noted in our cover letter.

Page 3, P5, line 3. All of the slurry walls should be considered equally significant.

Page 3, P6. Identify whose undertaking is associated with the west slurry wall.

Page 4, lines 7-9. FTA must determine whether or not bathtub wall reinforcement is or is not part of their project. If it is not, then presumably it is part of LMDC's project. Yet LMDC never discussed it in their FGEIS or ROD for the Memorial and Redevelopment Plan.

Page 4, P1. The discussion of the Northwest Remnant Subgrade Structures would seem to indicate that the "deconstruction" of these remains is part of this project (as would a reading of FTA's Section 4(f) evaluation in the PATH project DEIS. However, on July 9, 2004 the Port Authority advised the Coalition's counsel that there is no FTA involvement in the removal of these structures. This again highlights the need to consider cumulative effects, and clearly identify which agency is responsible for which aspects of the work at the WTC Site.

Page 4, P2. The removal of the recovery and reconstruction ramp, although necessary and unavoidable, should be acknowledged as an adverse effect. Preservation plans for the ramp should be considered.

Page 4, P5. The discussion of how the remains of the Hudson and Manhattan tubes and terminals will be affected needs to be much more detailed. A much more detailed description of these remains than is included in the Coordinated Determination of Eligibility will be needed before this can be done.

Page 5, P2. As already noted, the Draft Finding only says that the station will be reconfigured and that certain elements associated with the E train passageway may be relocated. No description or drawings of the planned reconfiguration are provided, and no mention is made of which elements "may" be relocated. The fact that the FTA and the Port Authority cannot state with certainty which elements are proposed for relocation suggests that any finding of effect is premature.

Page 5, P4. The removal of the Vesey Street stairs is an avoidable adverse effect. The non-functionality and current instability of the Vesey Street stairs is given as a justification for their removal. This is not acceptable. Their non-functionality doesn't diminish their historical significance. FTA should identify the feasibility of stabilizing these remains and consider design modifications that would permit their preservation in place so that they will not be adversely affected.

Page 5, P10. In discussing the setting of the WTC Site, the Draft Finding fails to distinguish between the APE for historic remains and archeological remains. A discussion of the setting associated with the World Trade Center ruins and remains should be included.

Page 6, P2, line 2. Clarify whether the proposed undertaking will or will not require alteration or removal of historically significant features. The use of the word "may" is again indicative of the lack of detail in project description.

Page 6, P2, lines 3-4. Exactly what alterations that would be "additive in nature" are being referred to? While they may not "result in diminution of the physical characteristics of features," they still may adversely affect these features in other ways.

Page 6, P2, lines 6-8. The Coalition strongly disagrees with the statement that "obscuring the features from public view would not necessarily diminish the site's integrity of feeling." The ability to see and possibly touch the remains of the World Trade Center is integral to the feeling associated with the site.

Page 6, P3, line 4. The words "could potentially" should be replaced with "will."

Page 6, P5. The Draft Finding should include "setting" among the characteristics of the WTC Site that will be diminished.

Page 7, P2, line 1. Change the word "may" to "will."
Figure 2. It is unclear exactly what this figure is attempting to show.

Figure 4. This figure should clearly identify the entire area occupied by the footprints of the Twin Towers as a historic resource.

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THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received: 07/27/04 **Type:** Letter

Contact Details:
Anthony Gardner
Coalition of 9/11 Families
17 Gove Street
Wayne, NJ 7470
P ; F ; E

Location:

Comment:
Letter dated 7/27/04 from Coalition of 9/11 Families – Scanned

Coalition of 9/11 FAMILIES

July 27, 2004

Mr. Bernard Cohen
Director
Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green, Suite 436
New York, New York 10004

RE: WORLD TRADE CENTER TRANSPORTATION HUB
(PERMANENT WTC PATH TERMINAL)
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Dear Mr. Cohen:

Attached please find the comments of the Coalition of 9/11 Families (the Coalition) on the Federal Transit Administration (FTA)/Port Authority of New York and New Jersey (the Port Authority) DEIS for the Permanent World Trade Center PATH Terminal (the Project). In addition to the attached detailed comments, the Coalition has a number of major, more general concerns about the DEIS. We have previously mentioned some of these in our July 15, 2004 correspondence concerning FTA's draft effects finding prepared as part of your National Historic Preservation Act Section 106 compliance process. As the draft effect finding is part of the DEIS, all of the Coalition's July 15 comments also apply to the DEIS. The Coalition's general comments include the following:

- The description of the undertaking is not detailed enough to permit an independent evaluation of how, and to what degree, the historic resources with the project's Area of Potential Effect will be affected. There are virtually no graphics or drawings in the body of the DEIS at a scale sufficient to clearly show the relationship between components of the Project and the historically significant features at the WTC Site. The various documents that comprise Appendix B (Cultural Resources) of the DEIS are similarly deficient. For example, as we noted in our July 15 correspondence, in referring to the E-Train passageway, the DEIS only says that the station will be reconfigured and that certain elements may be relocated. No description or drawings of the planned reconfiguration are provided, and no mention is made of which elements "may" be relocated. Some of this information was informally presented to the Coalition and others on July 20th. It should be incorporated into the DEIS.

- The DEIS does not include or discuss an evaluation of any of the many feasible and constructible design alternatives that would result in the avoidance or reduction of effects to historic properties. Instead, the alternatives analysis (Chapter 2) is largely confined to "mega" alternatives including three alternate site locations. The evaluation of alternatives to avoid or minimize Project impacts to the E-Train passageway, noted above, is an

excellent example of the kinds of alternatives that should be considered in regard to other historically significant features at the WTC Site, notably the footprints of the Twin Towers. For example, revisions to the DEIS and the project's 4(f) Statement should include discussions of alternatives that do not include a fourth (new/additional) platform and which include variations of the fourth platform that would reduce or minimize impacts to the footprints.

One obvious alternative that is briefly discussed and discarded in Chapter 2 is replacement of the temporary PATH facility with a permanent facility with the same passenger capacity. This should have been treated as the baseline condition for analyses. The Coalition asked the Port Authority during our July 20th meeting what pre-September 11 plans the Port Authority had for dealing with projected increases in passenger ridership. We were advised that the only possible way to allow for an increase in service was improvements in signalization that would permit an increase in the number of trains during peak hours. The DEIS contains no analyses that we can find discussing the increase in system capacity that would result from improved signalization, or the degree to which improved signalization might affect (reduce or eliminate) the need for a fourth platform.

Two factors that dictate the need for a fourth platform, and the configuration of all the platforms, are the need to maximize the number of trains/passengers that can be accommodated during peak hours, and the need to provide for safe passenger entry and egress to-and-from the platforms. Although the pre-9/11 PATH Terminal could accommodate 10-car trains, only 8-car trains were employed because of limitations on other parts of the PATH system. The proposed facility will accommodate 10-car trains, and modifications to other stations would permit 10-car operation for the first time. The effects of this change on system capacity are not described or discussed in the DEIS. Likewise, there is no discussion of how the proposed facility differs from the original facility in terms of the ability to allow for passenger access to and from the platforms (e.g. size, number, and capacity of stairways, escalators, and elevators). The projected number of 2025 peak hour weekday alightings is only 4,045 (18%) more than the pre-9/11 figures. The degree to which this relatively modest increase can be accommodated through improved signalization, use of 10-car trains, lengthening of platforms (beyond pre-9/11 lengths), widening of platforms (beyond pre-9/11 widths), and increase in the size, number, and capacity of stairways, escalators and elevators (beyond 9/11 numbers), *without the need for a fourth platform*, must be evaluated.

The DEIS assumes that proposed facilities must be designed to meet anticipated ridership in the year 2025. However, no information is provided in the DEIS to support the ridership projections provided. It is impossible for a reviewer to evaluate the legitimacy of the methodology or assumptions used to arrive at the ridership projections in the DEIS. An accurate estimate of projected ridership is crucial since it the basis for the proposed expansion of the existing (temporary) and pre-9/11 track and platform configurations. The principal justification for this expansion, especially the addition of a fourth platform which will constitute the only impingement of any kind on the historically significant footprint of One World Trade Center (the north tower), and will significantly increase the size of the impinged area within the historically significant footprint of Two World Trade Center (the south tower), is the projected increase in ridership. Significantly, the DEIS

acknowledges that the new PATH Terminal is not expected to induce ridership beyond the growth projected prior to 9/11.

- On June 17th the Port Authority announced that it has issued a Request-for-Proposals to design and fabricate 246 new rail cars for the PATH system. The announcement did not discuss passenger capacity of the new cars. However, it did note that the new cars would have "three doors on each side to allow for faster loading and unloading." The DEIS fails to take into account how (if) the new cars would allow for an increase in passenger capacity, or the degree to which improved passenger loading and unloading made possible by the new cars would help address this issue. Both changes may affect the need for a fourth platform.

- Several sections of the DEIS, including Chapter 6 (Cultural Resources), the Draft Section 4(f) Evaluation, the Draft Effects Finding Pursuant to NHPA Section 106 (Appendix B-2) assume that the Coordinated Determination of National Register Eligibility (Appendix B-1) are based on the assumption that the determination of eligibility provides a proper basis for subsequent analyses of the Project's impacts on the WTC Site. The Coalition, as we have for many months, continues to reject this assumption. It is our position that the Coordinated Determination is faulty in many regards, including a failure to properly define the period of significance of the WTC Site, the failure to acknowledge the significance of the site under more than one National Register eligibility criterion, and the improper application of the concepts of integrity. In response to an inquire from the Advisory Council on Historic Preservation, the Keeper of the National Register has recently addressed the last of these items and is in substantial agreement with the Coalition. The Keeper has also indicated that she would provide a formal determination of eligibility if requested to do so. **The Coalition strongly urges the FTA to make such a request so that the Coalition's concerns about the Determination of Eligibility can be resolved in a timely manner.**

- The draft Section 4(f) Evaluation included in the DEIS falls far short of demonstrating that that there is no "prudent or feasible alternative" to the proposed alternative that would avoid or minimize use of the historically significant components of the WTC Site—notably the footprints of the Twin Towers. As noted above, the avoidance alternatives to the apparently preferred (Terminal with Liberty Plaza Connection) alternative are "strawmen" that are clearly non-viable on their face. All of the alternatives discussed are described as either failing to meet project goals or of having an exhorbitant cost. Section 4(f) of the Department of Transportation Act requires the FTA to avoid harming historic properties unless it can demonstrate that there is no feasible and prudent alternative to the use of the historic property. It also requires that 4(f) evaluations address location alternatives and design shifts that avoid the historic property. FTA's draft 4(f) evaluation included in the DEIS considers only major alternatives to the proposed project. It does not consider variations of, or design alternatives to, the proposed project that would reduce or eliminate use of the various elements that contribute to the historic significance of the WTC Site. We are particular concerned that project alternatives that do not include construction of a fourth platform have not been evaluated.

Although, as noted above, Chapter 2 of the DEIS briefly discusses and discards the Location 1 WTC "Bathtub" option. The alternatives analysis concludes that the "hybrid" location (subsequently named the Terminal with Liberty Plaza Connection Alternative) is preferable even though it is more expensive, will take longer to construct, would have more below-grade infrastructure in the WTC bathtub, and would not allow for as much commercial development as the Location 1 alternative. No mention is made in the side-by-side comparison of these alternatives in Chapter 2 that the Location 1 alternative would have fewer impacts to historic resources than the Terminal with Liberty Plaza Connection Alternative. **The Location 1 alternative, which would not impinge upon the footprint of One World Trade Center (the north tower) is clearly a "feasible" alternative and must be evaluated in detail as part of the Section 4(f) evaluation of the project.**

The DEIS fails to adequately take into account the cumulative effects of other planned and on-going projects at the WTC Site. The relationship between these various projects, and the involvement of the FTA and the Port Authority in them is especially unclear. Of special concern is the relationship between the PATH project and LMDC's World Trade Center Memorial and Redevelopment Plan. For example, under the terms of the Programmatic Agreement between LMDC and the Advisory Council on Historic Preservation, LMDC is legally bound to provide "reasonable and appropriate access" to the Twin Towers footprints. Neither FTA nor the Port Authority is a signatory to the Programmatic Agreement, even though the final design of the PATH project will be major factor in determining the extent and quality of access to the footprints. As a result, actions taken by the FTA and Port Authority to minimize disturbance to the Twin Tower footprints, enhance the amount and quality of access to the footprints, and avoid or minimize "use" of the footprints in accordance with Section 4(f) may be rendered moot by LMDC's ability to determine access to the footprints. The FTA should have insisted on being signatory to the Programmatic Agreement and should have insisted that the FTA/Port Authority have a more proactive roll in the matter of determining access to the footprints.

Another example of both the failure to adequately consider cumulative effects and the failure to adequately integrate the PATH Project with other projects affecting the WTC Site is found in the DEIS' discussion of the No Action Alternative. The DEIS notes that under that alternative the temporary station would remain in operation until elements of the WTC Memorial preclude operations, the station cannot accommodate passenger demand, or the station exceeds its useful life. The incorporated Draft 4(f) Statement also claims that resulting necessary future modifications would be constrained by the WTC Memorial and Redevelopment Plan. This statement highlights the need for better coordination between FTA and LMDC, and a more thorough consideration of cumulative effects. The FTA has assumed (most likely correctly) that the Memorial may limit options for additional access and egress locations and the construction of ventilation structures. This may be true, but since the LMDC has not yet completed detailed design, FTA should coordinate with them to insure that any Memorial design leaves open options for future improvements to the existing temporary facility so as not to unreasonably eliminate any alternative from the list of viable FTA options.

The Coalition would also note that, to a large extent, this problem has been created by the lack of detailed design information about LMDC's project. The Coalition recognizes that FTA and the Port Authority find themselves in the unusual position of having to assess the effects of a project design that must take into account presently unknown design constraints of a project being proposed by another entity. Had there been better coordination between the FTA/Port Authority and LMDC, it might have been possible to place constraints upon the Memorial design that would not have resulted in the limitation of viable design alternatives for the PATH Project. That having been said, the Coalition does not believe that the need to preserve the maximum amount of the Twin Tower footprints should be compromised because of the failure of FTA/Port Authority and LMDC to properly coordinate their respective undertakings.

When attempting to discuss the project's effects on specific historically significant elements of the WTC Site, the DEIS consistently employs words such as "could" and "may" suggesting uncertainty as to exactly if and/or how various elements will be affected. This is partially a result of the insufficiently detailed description of the project (noted above), but also because a complete inventory (with maps) of the historically significant elements at the WTC Site was never prepared as part of the Coordinated Determination of Eligibility which was coauthored by FTA. The Coalition is pleased that during our July 20th meeting the Port Authority finally committed to clean off the footprints and adequately inventory and document all of the features at the WTC Site that contribute to its significance.

In a July 19th letter to the Advisory Council on Historic Preservation, the Keeper of the National Register of Historic Places noted that the World Trade Center Site "in its entirety in combination with *a complete inventory of its significant features and artifacts* present during the period of significance should be considered in making decisions about the historic property" (emphasis added). The Coalition has been asking since last fall for complete inventories of both site features and off-site artifacts. In the absence of complete inventories any assessment of effects or proposals for mitigation are premature. The DEIS cannot be finalized until thorough an evaluation of project effects based upon complete inventories is prepared. Complete inventories are also necessary precursors to the development of any Programmatic Agreement for the project and for preparation of an adequate Section 4(f) analysis. The results of the inventories may also necessitate the need for a Supplemental DEIS.

In discussing the "Elements of the WTC Site," the Draft Finding never discusses the footprints of the Twin Towers as a holistic entity. The tower perimeter column bases are discussed separately from the other features located within the footprints proper. Only a single sentence is devoted to the latter. The discussion of how the footprints will be affected must discuss them in toto. This is essential if effects are to be properly evaluated, and is especially important if 4(f) considerations are to be properly evaluated. In the absence of an evaluation of the project's effects on the footprints as a single holistic feature, LMDC will not be able to define its Memorial Access Commitments.

We appreciate the opportunity to provide these comments. We hope they will be of help in moving both the NEPA and NHPA process forward. Additionally, we appreciate the FTA's willingness to afford the Consulting Parties an additional week to prepare our comments and take into account the discussions that took place during our July 20th meeting. We look forward to working with you to resolve the issues and concerns raised here.

Sincerely,

Anthony Gardner Jr

Anthony Gardner, Executive Board Member, Coalition of 9/11 Families

cc: A. Cracchiolo (Port Authority)
J. Nau (ACHP)
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WORLD TRADE CENTER TRANSPORTATION HUB (PERMANENT WTC PATH TERMINAL), DRAFT ENVIRONMENTAL IMPACT STATEMENT

ADDITIONAL COMMENTS OF THE COALITION OF 9/11 FAMILIES

Chapter 2

The Coalition's principal comments concerning alternatives are included in our cover letter. We have the following additional comments:

Page 2-25, Table 2-7. The Consulting Parties in the Section 106 process should be added as parties included in future consultations concerning historic properties affected by the project.

Chapter 6

Page 6-4, P2, lines 6-7. The statement that "the bathtub has no potential for archeological resources" is incorrect. The DEIS, as did LMDC's GEIS for the World Trade Center Memorial, fails to acknowledge that the physical remains of the World Trade Center, including the truncated box beam columns that form the perimeter of the Twin Towers' footprints, are archeological features.

Page 6-4, P4. Avoidance of an archeological resource and data recovery are not the only forms of mitigation available for dealing with archeological resources.

Page 6-5. The various National Register criteria are noted and reference is made to the Coordinated Determination of Eligibility co-authored by FTA and included in Appendix B. The DEIS should acknowledge that the WTC Site was found to be eligible only under Criterion A and that consulting parties to the Section 106 process argued that other criteria applied as well. The DEIS should also note that a formal determination of eligibility, including a review of the Coordinated Determination of Eligibility, has never been made by the National Parks Service's Keeper of the National Register of Historic Places. It should also note that FTA has thus far refused to request a formal determination even though the Keeper has indicated a willingness to provide one.

Page 6-6, P2. FTA did not begin the Section 106 process in September 2003, as stated. The first steps in the Section 106 process are the identification of Consulting Parties and the definition of the Area of Potential Effect (APE). Consulting parties were not identified until January 2004, and an APE was not defined until March 2004. The contention of FTA that the earlier scooping process was part of the Section 106 process is not supportable. Section 800.8(c) of the Section 106 implementing regulations note that the NEPA process may be used to comply with Section 106 "if the agency official has notified in advance to SHPO/THPO and the [Advisory] Council [on Historic Preservation] that it intend to do so." No such notification was ever made by FTA.

Page 6-6, P4. The Coalition notes that FTA intends to execute an MOA before finalizing the DEIS. The Coalition has no objection to this provided that the consulting parties are given adequate opportunity for comment and consultation on the draft MOA prior to its finalization. While there is no requirement that an executed MOA be finalized prior to issuance of the FEIS we would hope that issuance of the FEIS would not take place until the consulting parties have had adequate opportunity for input.

Page 6-6, P5. The stated assumption that "the potential for archeological resources would be the same as in the pre-September 11 conditions analysis" is incorrect. As noted above, the remains of the Twin Towers and the World Trade Center complex became an archeological site on September 11, 2001.

Page 6-8, P2. The DEIS cites the various archeological studies (included in DEIS Appendix B) as the basis for assessing impacts to archeological remains. However, the Phase 1A studies are woefully deficient in that the address only the potential for pre-9/11 archeological remains. They never even mention, let alone properly inventory, the remains of the World Trade Center which were readily apparent during the site visits conducted by FTA's archeological consultants. The 1A reports contain no photos of most of the visible features, and cannot be considered to comply with the *Standards for Cultural Resources Investigations and the Curation of Archeological Collections in New York State* issued by the New York Archeological Council.

Page 6-8, P 3-6. Neither the DEIS nor the archeological assessments on which it is based make reference to the most recent reports of geoarcheological research in lower Manhattan (e.g. studies conduoted in connection with the Foley Square Federal Courthouse, and 107-111 Worth Street). Those studies have resulted in the identification of a buried soil horizon that is believed to extend across lower Manhattan and which is a dated to approximately 2000 BP (Before Present). Determining if this soil horizon is present or has been intersected and removed by modern construction is essential to evaluating the archeological sensitivity of the Project Area outside the limits of the bathtub. Unfortunately, the archeological assessment upon which Chapter 6 is based, and which claims to be based in part on an analysis of soil boring data, does not reference or discuss any such data. There is no evaluation of boring data collected for LMDC's World Trade Center Memorial project.

The Coalition made a similar comment in regard to LMDC's GEIS. The LMDC responded that there was no proof that this soil horizon exited at the World Trade Center Site and noted that artifacts had not been recovered from other locations where it is known to exist. While true, that statement is very misleading. Both the New York City Landmarks Commission and the State Historic Preservation Office consistently recommend archeological field investigation of locations where there is reason to believe intact buried land surfaces are extant. The presence of the potentially significant soil horizon cannot be proved or disproved because no one has looked for it. For these reasons the statement that "the Project Site is not considered sensitive for prehistoric archeological resources" is not supportable.

Page 6-9, P1, P4, P5. The DEIS mentions the discovery of the remains of the seventeenth century vessel Tyjger during subway construction across what later became the WTC Site. Only the forward portion of the *Tyjger* was recovered, but it was the subject of considerable study (including subsequent radiocarbon dating of recovered timbers confirming the age of the ship). The DEIS also notes that an unsuccessful attempt was made to discover the remaining portions of the *Tyjger* during the excavation of the WTC "bathtub" using detailed maps made at the time of the original find. It does not consider that it is possible that remains of the *Tyjger* remain might exist between the slurry wall and the wall of the IRT subway. In responding to a similar comment on the LMDC DGEIS, LMDC stated that their consultants reviewed Port Authority drawings that show the slurry wall abutting the subway wall. This seems unlikely on its face since if true it would mean that the east side of the slurry wall trench was the west wall of the IRT subway tunnel. If there is any space between the slurry wall and the subway tunnel wall there is a possibility that some portion of the *Tyjger* may still exist in the intervening area. This needs to be discussed in the DEIS.

Page 6-11, P3. The DEIS states that "the remaining portions of the former H&M Terminal and the cast-iron tubes leading from the station do not meet the criteria for listing on the National Register due to a loss of historic integrity." This statement is not consistent with other findings and is based upon a faulty premise. The remains of the H&M Tubes and Terminal are noted in the Coordinated Determination of Eligibility for the World Trade Center Site but their significance is not discussed or evaluated because they are not associated with the events of September 11. The Programmatic Agreement between LMDC, the State Historic Preservation Officer and the Advisory Council on Historic Preservation includes the remains of the H&M Tubes and Terminal among the "remnants" at the WTC Site that are covered by the terms of the Programmatic Agreement. The Programmatic Agreement states that "LMDC *and, where appropriate the Port Authority*, will seek to minimize or mitigate through reasonable and practicable steps, any potentially adverse effects to such Additional Remnants [including the H&M Tubes and Terminal] . . ."(emphasis added). Finally, the Coalition wishes to point out that the period of significance of the H&M Tubes and Terminals pre-dates the period of significance for the WTC Site discussed in the Coordinated Determination of Eligibility. The Keeper of the National Register of Historic Places, the final authority on matters of eligibility, in a July 19, 2004 letter to the Advisory Council stated that "features within a property do not necessarily need to be functional to convey their significance and to possess aspects of integrity." This effectively negates the State Historic Preservation Officer's basis for the non-eligibility of the H&M Tuibes and Terminal provided in their October 16, 2003 correspondence. (The H&M remnants are also included on DEIS page 6-20 among the historic features that would be affected by the project).

Page 6-12. The description of the elements of the WTC Site that contribute to its significance identifies the "truncated box beam columns that help define the perimeter or 'footprints' of the former Twin Towers. There are several problems with this statement. The Coordinated Determination of Eligibility never addresses the significance of the footprints in their entirety, but it can be read to assume that their significance is not confined to the box beam columns. In addition, the box beam columns do not "help" define the perimeter–they do define it. The text of the DEIS should be revised accordingly. The inadequacy of the Coordinated Determination of Eligibility in regard to this matter is yet another reason that FTA should request a formal review of the determination from the Keeper of the National Register.

Page 6-18, P3. The DEIS states that "Adverse effects to the WTC site are expected under this [Terminal with a Liberty Plaza Connection] alternative, although the extent of these adverse effects has not yet been determined." No statement could more clearly demonstrate the premature nature of both the DEIS and the projects 4(f) statement. The purpose of the NEPA, NHPA Section 106, and DOT Section 4(f) processes is to identify impacts and discuss possible mitigation measures. Yet FTA has issued a DEIS and a Draft 4(f) statement without being able to identify the extent to which, what is arguably the most historically significant resource with the project's Area of Potential Effect, will be affected. Neither the DEIS nor the 4(f) Statement should be finalized until revised draft versions of both documents that do describe the nature of the project's effects on the WTC Site have been made available to the general public.

Page 6-18, P3, lines 11-14. This is the first mention anywhere, that the Coalition is aware of, that "During subsequent construction of the temporary WTC PATH station, all of the column bases within the PATH right-of-way were either obscured to some extent or removed for installation of track sheds, utilities, duct banks, conduits, and other PATH infrastructure". This statement further highlights the inadequacies of the Coordinated Determination of Eligibility, and supports the need for a complete inventory and description of the physical remains of the World Trade Center complex. It is clear from the statement in the DEIS that the WTC Site has already been adversely affected to an unknown degree by PATH-related construction.

Page 6-19, P1. The DEIS notes that WTC Site features within the footprint perimeters "may be covered over to meet infrastructure and other utility needs as part of this Project or other proposed separate undertakings." This again highlights the need for a more precise inventory and description of the WTC Site. What specific features are being referred to? Where are they located? Exactly how will they be affected? What alternatives are available to avoid or minimize impacts to each feature? Will FTA's project, LMDC's, or both affect them?

Page 6-19, P4. This paragraph discusses the remains of 6 WTC. The mere presence of this discussion in the DEIS would seem to confirm that the demolition of 6 WTC is part of the FTA/Port Authority project. There is no suggestion that this is part of a "separate undertaking" as is done in discussions of other aspects of the project. Yet the Port Authority continues to insist, most recently in a July 9, 2004 letter to the Coalition's counsel, that the demolition of 6 WTC is a separate and "private" undertaking and that "there is no FTA funding nor any decision making role for FTA in that undertaking." Leaving aside the matter of the Port Authority speaking for FTA, the resolution of this matter is still unclear. If the demolition of 6 WTC is in no way an FTA-associated undertaking why is it included in both the DEIS and the draft Section 4(f) analysis? Why isn't the construction of Freedom Tower (the reason 6 WTC is being demolished), included among the "Private Development Projects" discussed in the cumulative impacts chapter of the DEIS?

Page 6-20, P3. The DEIS states that remnants of the H&M terminal building and its powerhouse "may" be removed. However, the discussion of cumulative effects in Chapter 15 (page 15-8) and the draft 4(f) statement makes it clear that these remains "will" be removed. The Chapter 6 text should be revised to reflect this. The Coalition has raised numerous concerns about the treatment of the H&M remains in our cover letter, including the failure to properly evaluate its National Register eligibility.

Page 6-26, P1. FTA should explore the desirability of inviting LMDC to become a signatory to any Programmatic Agreement developed for the project. Given the highly inter-related nature of LMDC's Memorial and Redevelopment Plan Project and the PATH Project this will be the only way to insure that mitigation measures to protect or reduce impacts to historic WTC Site remains are not rendered moot by the independent actions of LMDC. It is the Coalition's belief that having LMDC as a signatory to any Programmatic Agreement is absolutely necessary for the Section 106 process for the PATH Project to reach a satisfactory conclusion.

Page 6-26, P8. the proposed photographic documentation of the entire WTC Site should be done to HABS/HAER Level I Standards. The documentation plan should be subject to review and approval by the National Park Service.

Page 6-26, P9. It is unclear what the phrase "to the maximum extent possible" means. Who will determine this? Is the implication that FTA may not be able to preserve the Twin Tower perimeter column bases? There needs to be an acknowledgement by the FTA and the Port Authority that they have committed to preserve a *minimum* of 97% of the area of the north tower footprint and 50% of the south tower footprint.

Page 6-27, P1. The discussion of the E train passageway should be revised to reflect recent alternative proposals to preserve this area.

Page 6-28, Table 6-3. Table 6-3 notes the commitment to coordinate among the various projects affecting the WTC Site to "minimize interruption in access to cultural and historic sites." It also

notes that the CMP for all of the Lower Manhattan Recovery Projects would coordinate the access to cultural resources." These statements are confusing in their use of the term "cultural resources." Common usage in environmental review would include historic properties such as the WTC Site and its significant components. If this interpretation is used than LMDC has already asserted its right to control access to the Twin Tower footprints. How can this be reconciled with the various agencies commitment to cooperate with one another?

Page 6-28, Table 6-3. The Consulting Parties in the Section 106 process should be added as parties included in future consultations concerning historic properties affected by the project.

Chapter 8

The Coalition's principal comments concerning impacts associated with PATH design alternatives are included in our cover letter. We have the following additional comments:

Page 8A-13, P2. The discussion of probable impacts associated with various design options must include a discussion of how the various alternatives will affect historic resources, especially the WTC Site.

Chapter 14

Pages 14-8 – 14-9. The discussion of the Project's consistency with New York City's WRP Policy 10 fails to address the historic WTC Site. A discussion is needed of the how the FTA's proposed action, which will adversely affect the WTC Site, will be consistent with the policy to "Retain and preserve designated historic resources."

Page 10-14, P2. The statement that the project "would not have an adverse impact on coastal resources" is incorrect and inconsistent with other statements in the DEIS. Historic properties are coastal resources in the context of WRP consistency review. The FTA has acknowledged that historic properties will be adversely affected by the project. The WRP consistency review should be revised to reflect this fact.

Chapter 15

The Coalition's principal comments concerning the DEIS' analysis of cumulative effects are included in our cover letter. We have the following additional comments:

Page 15-4, P9. The DESI states that "one set of [National Register] eligible resources" was developed for the study area, and that a coordinated Determination of Eligibility was developed. The Coalition has for many months been critical of the coordinated determination and continues to request that FTA, LMDC, and FHWA request a formal determination from the Keeper of the Register. The existing determination is a "lowest common denominator" document that is badly flawed by the reluctance of at least one of the agency/authors to even acknowledge that the WTC Site is historic in any way. The result is a document designed to eliminate or obscure aspects of the historic nature of the WTC Site that could prove troublesome to deal with during the Section 106 and NEPA processes.

Page 15-7, P3, lines 8-9. The statement that LMDC identified no adverse effects with respect to the WTC Site is incorrect. Although LMDC did make such a determination, it was effectively superseded when LMDC entered into a Programmatic Agreement with the SHPO and the

Advisory Council on Historic Preservation; the purpose of which is to address "adverse effects on historic properties."

Table 15-11. The table fails to note that LMDC's WTC Memorial and Redevelopment Plan project will also affect contributing elements of the WTC Site.

Chapter 16

This chapter should address the fact that the "use" of historic resources at the WTC Site constitutes a permanent, irretrievable and irreversible commitment of historic resources.

Draft Section 4(f) Evaluation

The Coalition's principal comments concerning the draft Section 4(f) evaluation are included in our cover letter. As noted, these relate principally to the failure of the 4(f) statement to even acknowledge, let alone evaluate, feasible alternatives that would result in a reduction of "use" of the historic WTC Site. The draft 4(f) statement discusses four (five if one counts a variation) "avoidance" alternatives. Three of these, the "no action" alternative, the relocation of the PATH projections, and relocating the terminal off-site, are clearly not serious alternatives. Real alternatives, including the Location 1 alternative described in Chapter 2 of DEIS, which according to the DEIS would have numerous advantages over the Terminal with Liberty Plaza Connection Alternative, and a variety of alternatives involving design variations to the latter, must be discussed. Although the DEIS never mentions it directly, all of these alternative would result in reduction of the "use" of the WTC Site.

We have the following additional comments:

Page 4(f)-2, P2, line 5. The word "may" should be replaced with "would." There is no uncertainty about the use of historic properties by the project as described.

Page 4(f)-2. The text notes that the Coordinated DOE states that some physical remnants of the WTC site possess integrity, and then provides an incomplete listing. All of the contributing elements at the WTC Site should be clearly identified. In addition, the list should be expanded to compensate for deficiencies in the Coordinated DOE resulting from the incorrect application of the integrity standard (as determined by the Keeper of the National Register of Historic Places, and noted above), and the failure to include the area within the Twin Tower footprint perimeters.

Page 4(f)-3. In discussing the "no action" alternative the 4(f) statement notes that it still has "the potential to remove or alter contributing elements of the WTC Site." However, this is the case only because it is assumed that the LMDC's Memorial project would result in the need for additional ingress and egress locations, and ventilation structures. If FTA/Port Authority are coordinating with LMDC as claimed, it should be possible to develop a "no action" alternative that would not require the "use" of historically significant WTC Site features *to accommodate the Memorial*. The Coalition recognizes that much of this problem can be attributed to the lack of information from LMDC about the detailed design plans for the Memorial.

Page 4(f)-4, P1. The statement that construction would not alter the setting of the WTC Site is incorrect. The present setting includes full access to and visibility of the north footprint and much of the south footprint. The post-Terminal-construction site will look very different from the site as it appears today. It will definitely evoke less of a feeling of the effects of the events of

9/11. The covering of portions of the footprints by tracks and portions of air space above the footprints by the terminal structure will alter the setting of the WTC Site.

Pages 4(f)-4 – 4(f)-6. This text is a copy of text included in Chapter 6, pages 6-18 – 6-21. All of the Coalition's comments on those pages in DEIS Chapter 6 also apply to these pages in the draft Section 4(f) evaluation.

Figure 4(f)-2. This figure should be modified to clarify that both Twin Tower footprints in their entirety, not just the perimeter box beam columns, are contributing elements to the significance of the WTC Site. Additional detailed figures showing remnant structures within the footprint perimeters should be included.

Figure 4(f)-3. Avoidance alternatives 4A and 4B are incorrectly labeled in the key.

Page 4(f)-13. The proposed "Measures to Minimize Harm" are identical to those presented on DEIS pages 6-26 and 6-27. All of the Coalition's comments on those pages in DEIS Chapter 6 also apply to these pages in the draft Section 4(f) evaluation.

Appendix B-2

Page 1, P3, line 9. The word "help" should be eliminated. The truncated box-beam columns do not "help" define the perimeter of the former Twin Towers, they *do* define it.

Page 2, P5. It is unclear where the ventilation which may be constructed "adjacent to Route 9A" would be located. A graphic showing the location would be helpful, as would a description of the ventilation structure.

Page 3, P2. The discussion of the tower perimeter column bases implies that it is the column bases that constitute the footprints of the Twin Towers. As noted in our transmittal letter, the footprints must be viewed as holistic entities that include the entire area defined by the perimeter columns.

Page 3, P2, line 5. The word "would" should be eliminated.

Page 3, P2, line 12. This sentence needs to be rewritten. The statement that "all of these Tower perimeter columns were removed" is incorrect and contradicts the following phrase which states that the bases of the columns remain.

Page 3, P3. This paragraph seems to be saying that physical disturbance of the truncated box beam columns is the only way they will be affected. The statement that the project would impact "some" of the columns is incorrect. They will all be affected in that their associated setting will be altered. The statement that some of the column bases while being made inaccessible could remain *in situ* is not very meaningful. If they become inaccessible they will be adversely affected. (The use of the word "could" is also disturbing. If the FTA and the Port Authority are unable to state with certainty exactly how these features will be affected than the Draft Finding is premature).

Page 3, P3, lines 9-10. How many box beam column bases will be "temporarily" covered during construction. For how long? How will they be affected/protected during construction?

Page 3, P4. The fact that construction of various proposed infrastructure elements will not physically destroy any of the truncated box beam columns is not meaningful in itself. The Draft Finding notes that proposed infrastructure "may somewhat impact visibility and accessibility." Exactly what does this mean? Much more specific information is needed. The inadequacy of existing baseline information is noted in our cover letter.

Page 3, P5, line 3. All of the slurry walls should be considered equally significant.

Page 3, P6. Identify whose undertaking is associated with the west slurry wall.

Page 4, lines 7-9. FTA must determine whether or not bathtub wall reinforcement is or is not part of their project. If it is not, then presumably it is part of LMDC's project. Yet LMDC never discussed it in their FGEIS or ROD for the Memorial and Redevelopment Plan.

Page 4, P1. The discussion of the Northwest Remnant Subgrade Structures would seem to indicate that the "deconstruction" of these remains is part of this project (as would a reading of FTA's Section 4(f) evaluation in the PATH project DEIS. However, on July 9, 2004 the Port Authority advised the Coalition's counsel that there is no FTA involvement in the removal of these structures. This again highlights the need to consider cumulative effects, and clearly identify which agency is responsible for which aspects of the work at the WTC Site.

Page 4, P2. The removal of the recovery and reconstruction ramp, although necessary and unavoidable, should be acknowledged as an adverse effect.

Page 4, P5. The discussion of how the remains of the Hudson and Manhattan tubes and terminals will be affected needs to be much more detailed. A much more detailed description of these remains than is included in the Coordinated Determination of Eligibility will be needed before this can be done.

Page 5, P2. As already noted, the Draft Finding only says that the station will be reconfigured and that certain elements associated with the E train passageway may be relocated. No description or drawings of the planned reconfiguration are provided, and no mention is made of which elements "may" be relocated. The fact that the FTA and the Port Authority cannot state with certainty which elements are proposed for relocation suggests that any finding of effect is premature.

Page 5, P4. The removal of the Vesey Street stairs is an avoidable adverse effect. The non-functionality and current instability of the Vesey Street stairs is given as a justification for their removal. This is not acceptable. Their non-functionality does diminish their historical significance. FTA should identify the feasibility of stabilizing these remains and consider design modifications that would permit their preservation in place so that they will not be adversely affected.

Page 5, P10. In discussing the setting of the WTC Site, the Draft Finding fails to distinguish between the APE for historic remains and archeological remains. A discussion of the setting associated with the World Trade Center ruins and remains should be included.

Page 6, P2, line 2. Clarify whether the proposed undertaking will or will not require alteration or removal of historically significant features. The use of the word "may" is again indicative of the lack of detail in project description.

Page 6, P2, lines 3-4. Exactly what alterations that would be "additive in nature" are being referred to? While they may not "result in diminution of the physical characteristics of features," they still may adversely affect these features in other ways.

Page 6, P2, lines 6-8. The Coalition strongly disagrees with the statement that "obscuring the features from public view would not necessarily diminish the site's integrity of feeling." The ability to see and possibly touch the remains of the World Trade Center is integral to the feeling associated with the site.

Page 6, P3, line 4. The words "could potentially" should be replaced with "will."

Page 6, P5. The Draft Finding should include "setting" among the characteristics of the WTC Site that will be diminished.

Page 7, P2, line 1. Change the word "may" to "will."
Figure 2. It is unclear exactly what this figure is attempting to show.

Figure 4. This figure should clearly identify the entire area occupied by the footprints of the Twin Towers as a historic resource.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	07/06/04	**Type:**	Email
Contact Details:	Marilyn Gaull **P** ; **F** ; **E** mg49@nyu.edu	**Location:**	

Comment:
E-mail sent by Marilyn Gaull on 7/6 - Scanned

Morera, Margarita

From: Marilyn Gaull [mg49@nyu.edu]
Sent: Tuesday, July 06, 2004 2:41 PM
To: Morera, Margarita
Subject: Revised version

Thank you for sending this to me. I attended the meeting and made a simple but important point: the residents south of the site love the plans and believe that PA as done a brilliant and professional job -- with one major exception: your deference to the so-called "families." We don't know who these people are nor do we acknowledge their authority, emotional or artistic, to take over our lives and properties.They are a small group of representatives who seem to be unemployed, well-financed, and coached--who never show up unless they get face-time on tv and who have no concern for the pain they are causing in the names of the dead.

They have appropriated our tragedy and our neighborhood. Yet they are a minority of those who lost loved ones, and they do not represent the victims, the surviviors, or those of us who were there, escaped with our lives, and returned, bearing witness daily as we crossed the site, as we overcame the horrors that haunt us still.

The neighborhood is poorly represented in Section 106 in part because most of us were disabled by 9/11, some dislocated, and without financial assistance, forced to earn a living (if we were lucky enough to have a job) and therefore unable to attend your meetings, or maintain a web-site, or hang around the LMDC. Unlike these so-called families (are there more than thirty?), while we are not your friends and on a first-name basis, while we have no history of meetings and conversations, we have a much larger stake in your project than they do. We live there; we shall use it.

Speaking for the 10,000 or 15,000 residents in BPC and on the West Side of West Street, because of the memorial (about which none of us were consulted), there will be no access to the transportation center, no recognition that we even should have access. For the elderly and physically challenged, who moved there because of easy access to transportation, reaching the trains will be a major obstacle. That is a major problem now and it will get even worse. A member of the staff believed that we could cross over: in fact, no one will be able to cross the memorial which is nothing but a vacant pit.

At a recent meeting with DOT, we learn that they are considering a tunnel under West Street, which will depress your pedestrian underpass even further–a great hardship of those who are forced to use it to get to the subways.

I was particularly disturbed at the conclusion to the meetings when these so-called "families" began to bully the speakers about what happened to the remains,the debris, the state of the "footprints," and other remanants. I have been on other committees where they have raised similar issues. What I found disturbing were the defensive responses of the Port Authority. If these "families" are so concerned with what happened to the debris, they might have cleaned my apartment or any of the apartments which had a full array of dust, body parts, personal items, paper, and toxic waste and were uninhabitable for over a year.

What is left at the site is not what is valuable--merely what is left,

streaks of smoke or bits of metal or even to account for remains. In fact, it is unhealthy and pointless. History is well-served by the films and pictures, documented in real-time. No one will forget. The "remains" They are only sacred to the criminals who flew the planes into the towers in the mistaken belief that they were on a holy mission.

Again, you are all highly competent professional people, with great skills and a great vision. Have the courage to follow it and stop defending yourself against a handful of ignorant bullies who do not speak either for the living or the dead.

Sincerely,

Marilyn Gaull Howard

--
Dr. Marilyn Gaull
Editor, The Wordsworth Circle
Professor of English
New York University
19 University Pl., Room 536
New York, NY 10003
Phone: 212-998-8812

Morera, Margarita wrote:

> As a Consulting Party participating in the Section 106 process for the
> WTC Transportation Hub
>
> project (PATH Terminal and pedestrian connections), attached for your
> use is an unverified
>
> transcript and the slide presentation from the Consulting Parties
> meeting on June 14, 2004.
>
> These materials are for your reference only - - to inform your
> comments on the draft Finding of
>
> Effects document. The transcript and slide presentation are not meant
> for further distribution
>
> and remain as drafts for discussion purposes only.
>
>
>
> As discussed amongst those present at the June 14th meeting, the Port
> Authority would like to
>
> receive the written comments from the Consulting Parties to the draft
> Finding of Effects
>
> documents by close of business, Thursday, July 8, 2004.
> (Email mmorera@panynj.gov <mailto:mmorera@panynj.gov> or
>
> fax to (212) 435-5514.) As noted, provision of your comments by
> July 8th would facilitate the
>
> Section 106 process, and would not preclude further written comments

> on the draft Finding of
>
> Effects by Consulting Parties or the general public as part of the
> overall DEIS process that are
>
> due by Wednesday, July 21, 2004.
>
>
>
> We would also like to schedule the next Consulting Parties meeting on
> Tuesday, July 20, 2004
>
> at either 12 noon - 2pm or from 3pm - 5pm. Please respond with any
> preference for either of
>
> these times by Thursday, July 8, 2004. We will confirm the
> meeting date, time and place via
>
> e-mail by Friday, July 9, 2004.
>
>
>
> Thank you for your continued participation and input in the Section
> 106 process.
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>
> <cid:part1.07000404.04030808@netscape.com>
>

Fax: 212-995-4019

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

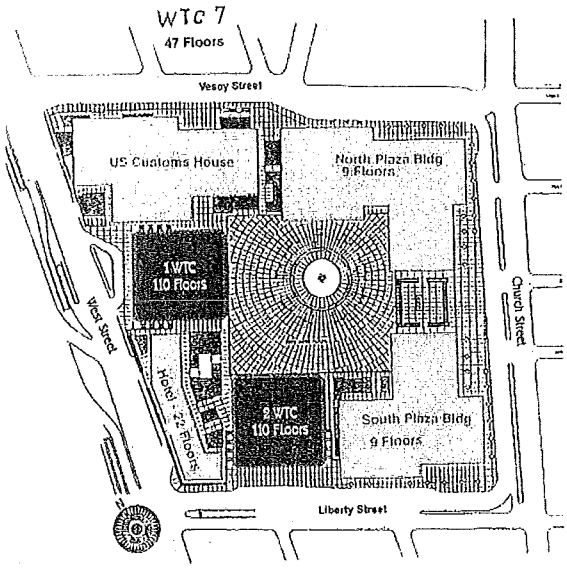
Date Received:	06/23/04	**Type:**	Written Comment
Contact Details:	Bernard Goetz 55 West 14th Street New York, NY 10011 **P** 212-243-7964; **F** ; **E** berniepie@aol.com	**Location:**	

Comment:
On the proposed official plan both Church and Fulton are narrow streets and do not allow for parking for buses. Please see attached site plans for detailed explanation. Diagrams with problems and suggestions for WTC site - Scanned

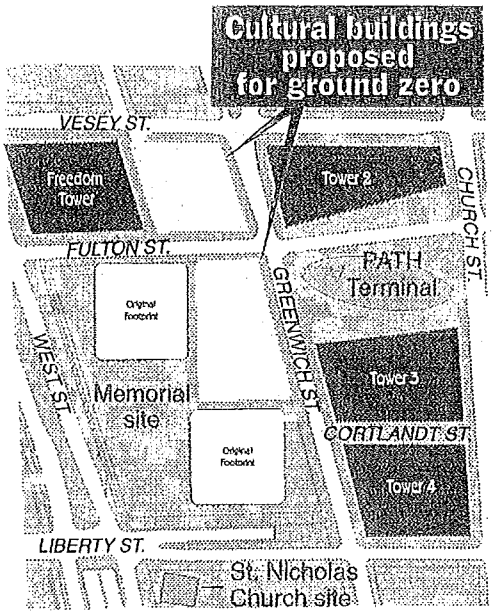
FULTON AND CHURCH STREETS COULD BE WIDER – COMPARISON OF SITE PLANS

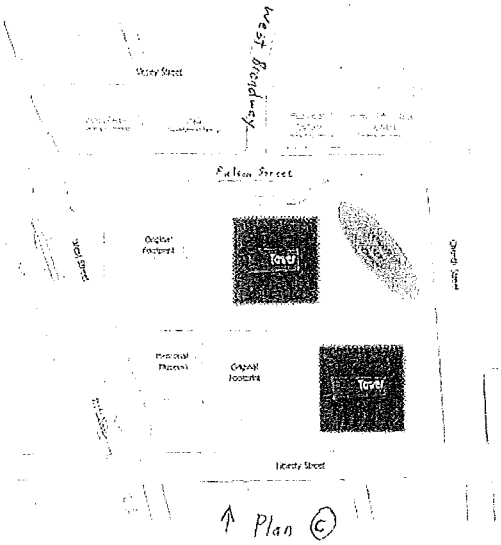
South of Fulton Street is a better place to build super-skyscrapers like the Freedom Tower

Plan (A), Original WTC Site by Yamasaki



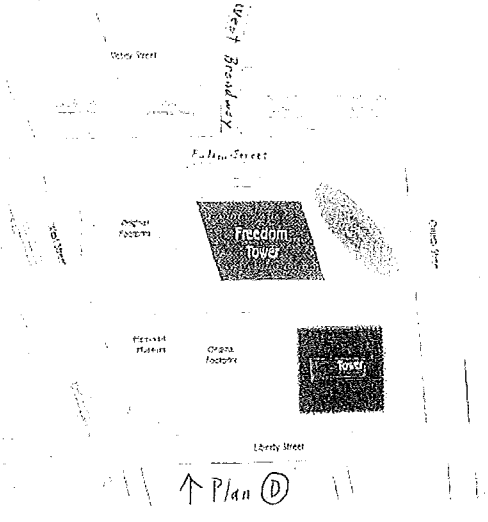
Plan (B), Official proposed plan (NY Times)





↑ Plan (C)

One revision of Gardner-Belton plan
www.MAKENYNYAGAIN.com
Ken Gardner cell: 732-887-9310



↑ Plan (D)

This plan shows the Freedom Tower south of Fulton Street. Fulton Street and Church Street are wider.

Problems with Plan (B)

1. On Plan (B) Church Street is made more narrow, and there is no room for buses to park on Church Street.
2. On Plan (B) Fulton Street is located farther south to accommodate the Freedom Tower, and hence Fulton Street is narrow and "squeezes" the WTC 1 Footprint Memorial.
3. Plan (C) and (D) do not have these problems, and both plans are very flexible north of Fulton Street. Fulton Street (or Vesey Street) could be made wider. North of Fulton Street is a good place for underground parking. If traffic permits, Fulton Street might go underground west of West Broadway. Greenwich Street had little traffic.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	06/16/04	**Type:**	Written Comment
Contact Details:	Steven Gorsky Barclay's **P** 212-412-2329; **F** 212-412-7386; **E**	**Location:**	

Comment:
I find that the sound system for announcements at the WTC facility is absolutely terrible. I cannot understand any of the messages.

Regional Rail Working Group
A Consortium of Transit Advocacy Organizations:
New Jersey Association of Rail Passengers
Empire State Passengers Association
Committee for Better Transit
Institute for Rational Urban Mobility, Inc.

George Haikalis, Chair
One Washington Square Village, Suite 5D
New York, NY 10012
212-475-3394
geohaikalis@juno.com

April 23, 2004

Mr. Lou Venech
Sr. Manager Transportation Policy Development
Port Authority of NY and NJ
233 Park Avenue South, 11th Floor
New York, NY 10003

Mr. William Wheeler
Director, Planning
Metropolitan Transportation Authority
347 Madison Avenue
New York, NY 10019

Re: Recommended Alignment for the PATH-Lex Connection

Dear Lou and Bill:

Thank you for arranging the March 26, 2004 meeting with representatives of our respective organizations to discuss the geometric characteristics of the proposed PATH-Lex connection. Based on suggestions made at the meeting, the Regional Rail Working Group (RRWG) has carefully reworked its plan and produced a revised alignment, which is feasible using design practices that are well within the parameters of the existing subway and PATH systems. This "Basic Alignment (2.8)" is shown in the attached drawing. Clearly, Lower Manhattan's colonial era street pattern and its densely developed structures prevent an alignment that completely meets the "best practices" for building new rapid transit routes. None of the existing rapid transit lines serving this area, including the newly rebuilt PATH line, meets these ideal standards.

The substantial benefits of this connection were enumerated at the RRWG's October 22, 2003 meeting with Congressman Jerrold Nadler, and are described in statements made by several of the group's member organizations at the environmental hearings for both the new PATH station and the World Trade Center redevelopment. Given the unanticipated opportunity to achieve these benefits, because of the extraordinary and tragic losses resulting from the 9/11 terrorist attack, taking some liberties from the "best practices" standards is certainly justified.

Alignment issues

The Regional Rail Working Group's proposed connection uses a minimum 200 foot radius curve and a minimum *bottom of rail to bottom of rail* clearance of 17 feet where the new line passes under the existing A and C line at Church Street, and 14 feet where it passes over the existing 2 and 3 line at Beekman Street.

The RRWG's plan is a considerable improvement over the "no build" plan, which leaves both PATH and NYC Transit operating on existing 115 foot and 147 foot radius curves, respectively at the WTC terminal and the City Hall loop. Note also that the PANYNJ's recently completed AirTrain at

Kennedy International Airport includes a 225 foot radius curve. This line was built to handle specially-designed "one-seat-ride" trains that could also operate on NYC Transit or the LIRR.

The RRWG plan requires a 4.5% grade, identical to grades experienced on the #7 Flushing subway line just west of Grand Central, and in Queens after crossing the East River approaching the Vernon-Jackson Station. NYC Transit operates very reliable service at two-minute headways through much of the peak hour on this busy line. Even steeper grades are found at several other locations in the NYC Transit subway system. The maximum grade on the Kennedy AirTrain is 5.35%.

Constructability

The attached drawing shows the proposed connection shifted slightly to the north at Church Street, avoiding the tube section of the A and C subway line. Clearly, this will require a careful underpinning and reconstruction of the cut-and-cover segment of the existing subway for 50 to 100 feet. This would be an ambitious, but not unprecedented effort, not unlike NYC Transit's recently completed local-express connection of the 63rd Street subway with the Queens Boulevard line. At Beekman Street the connection crosses over the 2 and 3 subway line. Since this construction would involve excavation downward from Park Row, a tight vertical clearance over an operating railroad is feasible. It is between these two crossing points, under the A and C line and over the 2 and 3, that the steepest grade is experienced. By minimizing the vertical clearances at these two points and by beginning vertical curves after these two critical crossing points are cleared, a 4.5% grade is achieved on this segment. The crossing under the 4 and 5 subway at Park Row is less constrained, with about 30 feet bottom of rail to bottom of rail clearance. A similar clearance is available for the crossing under the R and W lines at Vesey Street.

The City Hall loop of the #6 subway would be severed by the proposed southbound connecting track. This interruption would occur as a final step after all other work is completed. The connection would pass over the new temporary PATH terminal, cutting off the northern portion of the concourse. When the PATH-Lex connection is completed and placed in service, the existing PATH terminal could be removed and the space released to accommodate other subsurface activities at the WTC site. In this "basic alignment" all service would flow through Lower Manhattan, just as it now does on the 2 and 3 lines or the 4 and 5 lines. Instead of crossing the East River, the PATH-Lex connection crosses the Hudson River, greatly easing travel between the two states. Going beyond the "basic alignment", the RRWG has identified a wide range of more complex options, permitting turn-back of trains or including more platform tracks. The RRWG would be happy to share these concepts with you.

The December 11, 2003 Parsons Brinckerhoff plan distributed at the meeting calls for more generous clearances than suggested by the RRWG, resulting in a 10.8% grade. This grade is clearly unacceptable, and should not be attributed to the RRWG or NJ-ARP. The central issue is the feasibility of constructing these limited clearance crossings without disturbing service on these busy subway lines. RRWG would welcome an opportunity to discuss this matter with PANYNJ and NYCT engineers and planners.

Request for Additional Information

Finally, we would like to repeat our request for two studies conducted by PANYNJ. One is the study of possible extension of platforms at the Hoboken PATH Station to accommodate longer

trains, done in the mid-1980s. The other is the analysis of procurement of new PATH cars similar to NYC Transit 'A" Division subway cars, done prior to 9/11. At the meeting we also asked if we could obtain detailed vertical elevations that were described in the Parsons Brinckerhoff analysis distributed at the meeting.

Conclusion

This revised plan for the PATH-Lex connection offers substantial benefits for the riding public. While it does not adhere to current "best practices" design standards, the proposed alignment is well within the parameters of existing transit facilities operated by PANYNJ and NYC Transit. The connection is feasible and the question to be decided is whether the benefits are significant enough to outweigh the costs.

Thank you for your assistance.

George Haikalis
Chair, Regional Rail Working Group

cc Norman Silverman, NYCT
John Dean, MTA
Shawn Lenahan, PANYNJ
Kevin Lejda, PATH
Kieran Spillane, Parsons Brinckerhoff
Members of RRWG
Congressman Jerrold Nadler

Regional Rail Working Group
A Consortium of Transit Advocacy Organizations:
New Jersey Association of Rail Passengers
Empire State Passengers Association
Committee for Better Transit
Institute for Rational Urban Mobility, Inc.

George Haikalis, Chair
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Comments on Draft EIS for Permanent WTC PATH Terminal -- June 23 , 2004

New rail transit options should be considered with the tragic loss of the World Trade Center

The tragic events of 9/11 have created an extraordinary opportunity to reconfigure the region's rail transit system to better serve Lower Manhattan. With a replacement plan for the World Trade Center under review, it becomes possible to consider linking the Downtown PATH line with the #6 Lexington Avenue local subway line – **the PATH-Lex connection**. Both rapid transit lines, which are nearly identical in most physical characteristics, terminate at stations in Lower Manhattan less than 3,000 feet apart. Most other rapid transit lines *pass through* Lower Manhattan, making multiple stops reducing walking time and improving service for transit passengers.

The Regional Rail Working Group, a consortium of transit advocacy groups and individual transit professionals, has developed a wide range of options for **the PATH-Lex connection**. Two representative examples are shown in the attached drawings:

(1) a simple two-track track connection, where PATH is consolidated into the much larger NYC Transit system with trains from Manhattan's East Side coming directly to the World Trade Center site and then continuing to Newark or Hoboken (Alignment 2.8)
(2) a cross platform transfer, where the #6 line is extended from the Brooklyn Bridge Station to the WTC site (Alignment 4.1), easing the connection while still maintaining two separate rail systems.

The PATH-Lex Connection benefits transit riders and the public at large

The advantages of this connection are significant for transit passengers. Residents from Manhattan's Upper East Side, Murray Hill, Gramercy Park, Union Square, NoHo, SoHo and Chinatown neighborhoods could use the less congested #6 Lexington Avenue local to reach workplaces in the World Financial Center and the rebuilt World Trade Center without transferring to congested #4 and #5 express trains at the Brooklyn Bridge Station. Residents from these neighborhoods could also more easily reach the growing workplaces on New Jersey's waterfront in Jersey City, Hoboken and Newark. In turn, this access also benefits New Jersey residents who could access the many workplaces and retail districts that are well served by the #6 local. Extending the reach of the PATH line to East Midtown will also ease travel to Newark Liberty International Airport.

Businesses on both sides of the Hudson would also benefit from this improved access. A direct link from Manhattan's East Side will be an important incentive to market the substantial amount of office space planned for the WTC site and along the New Jersey waterfront. Stores and restaurants in Chinatown in SoHo would gain vastly improved access to customers filling the many new residential towers on the New Jersey waterfront.

The PATH-Lex Connection is feasible from an engineering and operating perspective

PANYNJ and MTA officials have argued that **the PATH-Lex connection** is not feasible because it requires steeper grades and sharper curves than are considered "best practice" for new construction. It also requires underpinning of subway structures, which adds to the cost. Yet, leaving the existing system in place means that trains must negotiate far sharper curves at the WTC terminal and the City Hall loop just south of Brooklyn Bridge Station. Grades of 4.5% are found at many locations in the NYC Transit system and the PANYNJ's recently completed Kennedy AirTrain has even steeper grades. The underpinning proposed for the connection is quite similar to that required for the recently completed local-express connection of the 63rd Street tunnel in Long Island City.

Thru routing subway trains from Brooklyn to the Bronx by way of the Manhattan business district has been the operating practice for new lines built in NYC since the five boroughs were consolidated in 1898. This is the norm for most rapid transit systems throughout the world. **The PATH-Lex connection** would simply apply this practice to trains crossing the Hudson River.

Consolidating the PATH system with the much larger NYC Transit system could produce annual operating cost savings of $10 to 20 million, which would be shared equally by the two states. Capital cost gains could be realized through unified procurement of rolling stock and other supplies. These gains could be realized only after agreements with managers and labor leaders were made and a satisfactory plan for the PANYNJ to compensate the MTA for the incremental costs of operating the PATH service was devised. Similar agreements are already in place between MTA and the States of New Jersey and Connecticut for commuter rail service. Jurisdiction of the PATH system could be readily shifted from the FRA to FTA oversight, since PATH no longer operates on mainline railway tracks.

Better planning can produce projects that benefit transit riders and the region's economy

After the economic downturn resulting from the calamitous events of 9/11, transit advocates expected public agencies to collaborate on improving transit systems serving Lower Manhattan. Exactly the opposite has happened. While the Downtown PATH line was out of service, many passengers had to use more circuitous routings and often had to pay double fares. Because of the potential revenue loss, the PANYNJ and MTA chose not to integrate the PATH fares into MTA's citywide MetroCard system to offset this burden.

Furthermore, PANYNJ and MTA officials have been less than responsive to efforts by the Regional Rail Working Group to consider connecting the two systems. It was only through the efforts of U.S. Representative Jerrold Nadler that both agencies even agreed to participate in a nominal discussion of **the PATH-LEX Connection.**

We can, and must do better! The Governors of the two states must call upon the MTA and the PANYNJ to override institutional prerogatives and cooperate through a comprehensive regional planning process with an opportunity for meaningful public input. Only then can the region make up for the terrible loss that occurred on 9/11.

PATH–Lex Connection

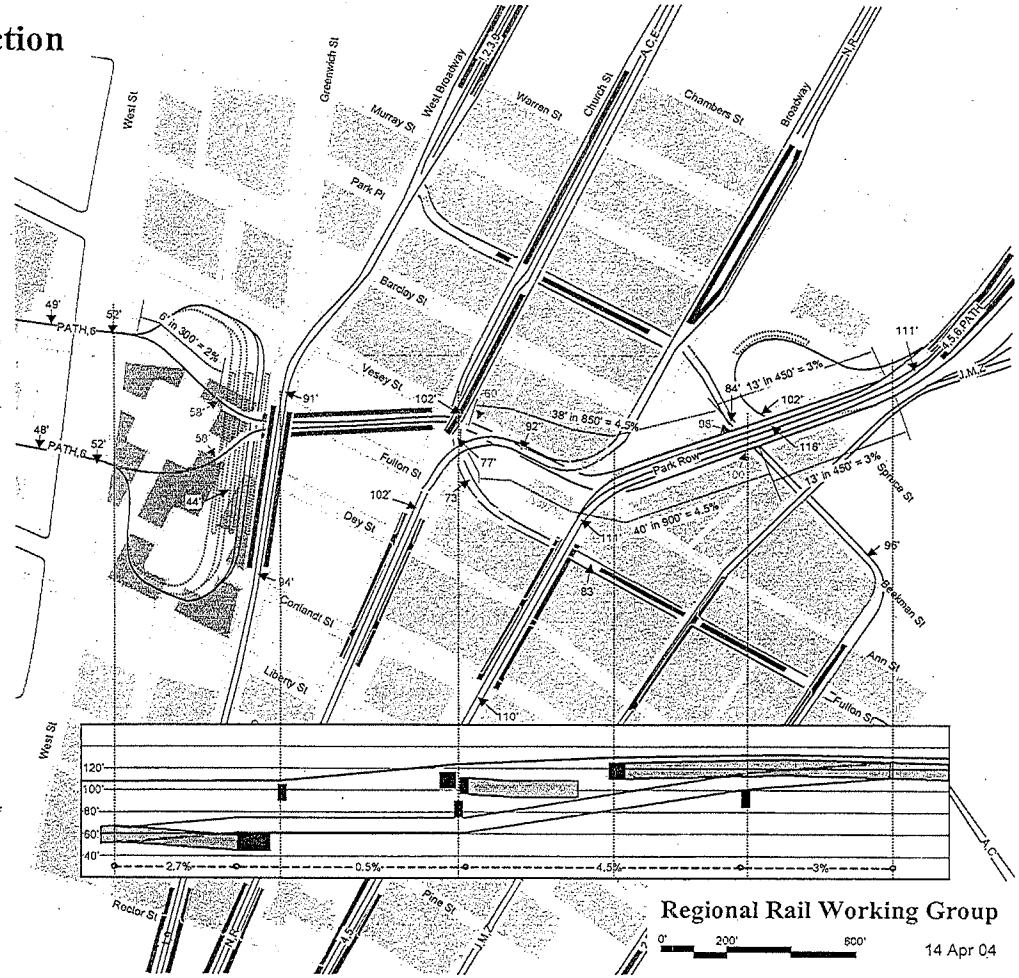
Basic Alignment (2.8)

This alignment connects the PATH tracks at the west side of the World Trade Center cellar with the Lexington Avenue local tracks just south of the Brooklyn Bridge - City Hall station. The new tracks rise from the PATH tunnel portals, pass over the tracks and platforms of the temporary PATH station, under the 1 & 9 in Greenwich Street, under the A & C at Church and Vesey Streets, the northbound track passes under the 4 & 5 at Broadway and Park Row, the tracks then rise on either side of the 4 & 5, pass over the 2 & 3 at Beekman Street, sever the loop used by the 6 at City Hall and connect to the local tracks just south of the station.

The critical points are to pass as high as possible under the A & C and as low as possible over the 2 & 3 in order to achieve a slope of not more than approximately 4.5%.

The new PATH – Lex station at Fulton Street is shown as a basic two track , side platform facility. It is close to and formally aligned with the proposed station entrance just south of Fulton Street.

The alignment avoids the footprints of the World Trade Center towers. The temporary PATH station could be removed or partially retained for reversing and storing PATH trains.



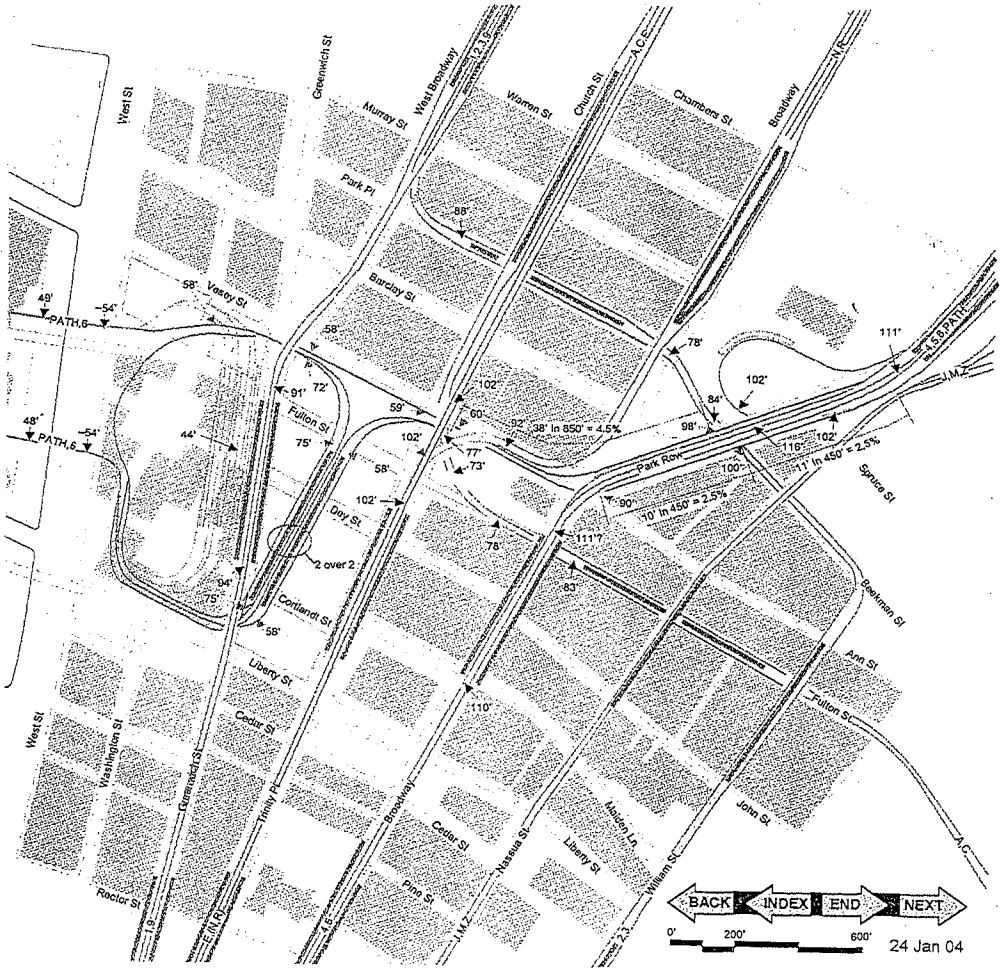
PATH - Lex

Alignment 4.1

The new PATH-Lex station allows service from New Jersey to be split. Trains using the west side of the station return to New Jersey; trains using the east side continue north on the Lexington Avenue line. Trains from Manhattan loop around the north tower footprint and use the west side of the station before continuing to New Jersey or the east side before returning north. (For clarity the platforms are shown next to each other; however they are stacked.)

East of Church Street the track alignment is shown along Park Row, which severs the City Hall loop. Alternatives include an alignment through City Hall Park and one split between the park and Park Row.

This sketch also shows an extension of the IND (E) connecting to the BMT south of Fulton Street.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

# of pages ▸ 4	
Paul Lebrun	From D. CARLSO
Department FTA / MRO	Phone # 212 637 350
Fax # 212 637 2505	Fax #

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JUL 21 2004

Rating: EC-2

Bernard Cohen, Director
Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green, Room 436
New York, New York 10004

Dear Mr. Cohen:

The Environmental Protection Agency (EPA) has reviewed the draft environmental impact statement (EIS) for the Permanent World Trade Center (WTC) Port Authority Trans-Hudson (PATH) Terminal project (CEQ #040257). This review was conducted in accordance with Section 309 of the Clean Air Act, as amended (42 U.S.C. 7609, PL 91-604 12(a), 84 Stat. 1709), and the National Environmental Policy Act (NEPA).

The draft EIS states that the metropolitan transportation system lost a significant portion of its capacity to serve commuters throughout New York and New Jersey as a result of the terrorist attacks on September 11. The purpose for the project is to replace the current temporary station, prepare for ridership growth, and assist in the economic recovery of lower Manhattan. Based on our review of the draft EIS, we have the following comments and concerns:

The draft EIS discusses the impacts that could be anticipated from the proposed action in very good detail. We are particularly pleased with the level of discussion on the impacts to air quality and cumulative impacts from construction activities, and particularly appreciate the mesoscale analysis of the direct impacts from the project on regional pollutant levels of nitrogen oxides (NOx), volatile organic compounds (VOCs) and particulate matter (PM_{10} and $PM_{2.5}$). We also appreciate the map and the description of the modeled receptor locations. The draft EIS presents a good discussion of mesoscale analysis in terms of the build and no build emissions and though the draft EIS states that emissions from both on-road sources and off-road sources, such as construction equipment, are included, a breakdown of each categories emissions contribution would have been helpful. We suggest that the final EIS provide that breakdown of the on-road emission and the off-road emissions.

We are concerned with the direct and cumulative impacts to air quality from the construction of this project and all of the projects occurring in lower Manhattan. In particular, we are very concerned with the projects PM_{10}, $PM_{2.5}$, and the NO_2 emission impacts that are predicted to occur at certain receptors. The draft EIS indicates that individually the impacts to $PM_{2.5}$, and cumulatively the concentration of PM_{10}, $PM_{2.5}$, and NO_2 will come close to or exceed the national ambient air quality standards (NAAQS) in the peak construction years. Though the draft EIS states that the NO_2 concentrations are conservatively high, we don't have the technical background data that would enable us to understand that statement, such as the NO to NO_2 conversion rate. Also, the draft EIS states that even with the mitigation measures the emissions of $PM_{2.5}$ will still exceed the of 65 micrograms/cubic meter NAAQS. The final EIS should

contain a more detailed discussion of the NO_2 emissions and the technical data used to support the conclusions as well as describe which other measures can be implemented to further minimize the emissions of $PM_{2.5}$.

Given the possibility for significant impacts, we strongly support the proposed Environmental Performance Commitments, which were developed as mitigation by the Metropolitan Transit Authority, the Port Authority of New and New Jersey, and the New York State Department of Transportation. To address the air quality impacts, the draft EIS suggests the implementation and use of equipment with Tier II diesel engines, particulate filters, and possible electrification of certain equipment. We support and agree with all of those measures and we noted that the draft EIS is rather definitive in its discussion of the ability of the particulate filters to greatly reduce the emissions of particulate matter, as indicated by tables 9-10 and 9-11. However, the emissions of NO_2 are not affected by this technology and there is still the potential for the $PM_{2.5}$ threshold to be exceeded even with mitigation. We believe that a scenario that implements all of the identified mitigation measures, in addition to others, will significantly reduce particulate matter pollution and will also minimize emissions of not only NO_2 but also of NOx.

To address our concerns with NO_2 emissions, the final EIS should be as definitive on opportunities to reduce the emissions of NO_2 as it was for PM reductions, inasmuch as discussing how much and which equipment can be electrified and to what degree such measures would reduce NO_2 emissions. However, there is a concern with the feasibility and availability of the needed electrical equipment and power sources such that we believe other mitigation techniques, such as fuel emulsions should be explored. We appreciate the willingness of the project sponsor agencies to meet with us to discuss these other mitigation techniques and to begin to investigate their availability. Our discussions thus far have been very fruitful and we look forward to future conversations and hope for a mutually agreeable solution. We are also pleased with FTA's and the Port Authority's discussion of the implementation plan for the EPCs and believe that this is an excellent step towards solidifying those commitments in the Record of Decision.

While the draft EIS addresses the cumulative impacts from PM_{10}, $PM_{2.5}$, and NO_2, it did not provide a discussion of NOx or VOCs. Given that the New York Metropolitan Region is a nonattainment area for ozone, a cumulative inventory of the emissions of NOx and VOC, as precursors to ozone formation, would have been appropriate. The final EIS should contain such analyses and also discuss other projects outside of lower Manhattan that will have an impact on regional air emissions. Additionally, in order to facilitate our understanding of the air quality issues, we would like to review the emission factors, technical background data, and the assumptions used for the air pollutant modeling, in both the No Action condition and in the with project condition for the years analyzed.

In summary, EPA has rated the draft EIS as EC-2 (see attached rating sheet), indicating that we have environmental concerns with the impacts to air quality and that additional analysis of the cumulative impacts to air quality (NOx and VOC), will be necessary as well as more information regarding the mitigation proposals and commitments. Nonetheless, we commend the project sponsors on this draft EIS, which was well written and disclosed the quite a bit of information in concise and appropriate detail.

Thank you for the opportunity to comment on this draft EIS. If you have any questions, please contact David Carlson of my staff at (212)-637-3502.

Sincerely yours,

Robert W. Hargrove, Chief
Strategic Planning and Multi-Media Programs Branch

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

79 Sullivan St., 6A
New York, NY 10012
(212) 925-6133

July 20, 2004

Via mail and facsimile (212) 435-5514

Public Comments
Draft Environmental Impact Statement
Permanent WTC PATH Terminal
The Port Authority of N.Y. & N.J.
115 Broadway, 5th Floor
New York, NY 10006

Attn: Mr. Anthony Cracchiolo

Dear Mr. Cracchiolo:

I would like to submit the following comments and questions regarding the Port Authority's Draft Environmental Impact Statement ("DEIS") for the permanent WTC PATH Terminal in the hope that the Port Authority will address some important issues that seem to have been either unaddressed or glossed over in the current DEIS. These issues concern the impact of the proposed permanent WTC PATH Terminal on the aesthetic, social and economic environment of Lower Manhattan and how the proposed permanent WTC PATH terminal, especially as currently planned, could very well have unintended negative – rather than positive – impacts on New York City in general, and on the World Trade Center district of Lower Manhattan in particular.

I. Regarding the so-called "need" for the proposed project

1) **The DEIS does not seem to explain why a more permanent version of the current temporary terminal – one that would in essence be an attempt to modestly upgrade the original pre-9/11 terminal concept and rework it so that it would fit into the present day plans for the site – was not also analyzed for its environmental impacts and used as a point of comparison with the proposed actions.**

By instead comparing the proposed alternatives only to a clearly unacceptable "no build" temporary alternative (i.e., a bare bones temporary terminal that was built hastily and will apparently "fall apart" after "x" number of years), this DEIS seems to be creating a no build alternative that is just a "straw man." Thus, the resulting comparisons between the suggested proposals and this "straw man" no build alternative would seem to be a methodological sham. These comparisons would seem to be structured so as to fail

to illuminate – or perhaps even mask or disguise – the negative environmental affects of the proposed alternatives.

2) **While the DEIS more or less seems to assert that an enlarged and "enhanced" terminal facility is necessary for the recovery and continued growth of Lower Manhattan, such assertions do not appear to be backed up with data or reasoning – or to be borne out in fact by Lower Manhattan's extensive actual history of unplanned, spontaneous, market-based neighborhood re-invention and re-vitalization. Shouldn't the DEIS have included an examination of spontaneous re-inventions and re-vitalizations in Lower Manhattan (e.g., SoHo, Tribeca and even already, to a lesser degree so far, Wall St.) and used that analysis to evaluate any so-called "need" for an enlarged or enhanced PATH terminal?**

Both pre-9/11 and post-9/11, areas of Lower Manhattan around the WTC site have re-invented and re-vitalized themselves spontaneously, and this has become increasingly become true of even the financial district itself – which has been witnessing the construction of residential units in what had previously been a virtually all-commercial district. This has occurred *without* an enlarged PATH Terminal facility and without the construction of a large, anti-urban terminal entry pavilion. In other words, the market-place has been working with what already exists in the area and is inventing new, marketable uses for it. Therefore, shouldn't the DEIS have examined the so-called "need" for an enlarged and "enhanced" PATH terminal facility in light of such spontaneous, market-based re-inventions and re-vitalizations? Might not such an examination have shown that, indeed, there is very little true "need" for the specific approaches suggested by the Port Authority?

3) **Furthermore, shouldn't the DEIS examined how a transformation to a more well-rounded, 24-hr district might actually lessen the need for peak hour transit capacity?**

The DEIS seems to claim that the area will need to accommodate more PATH riders than in the past, due to post-9/11 changes in the area. But even if this is so (and one wonders how overly optimistic such beliefs might be), if the area becomes more diverse as planned (e.g., becomes more residential and recreational, and less commercial) this would seem to indicate that the peaks and valleys of rush hour mass transit usage would become more spread out over a 24-hour day and 7-day week (and even more diverse in terms of transit modes chosen) – after all, this is one of the main benefits of creating a "24/7" district in the first place. Thus the logic of the anticipated changes to Lower Manhattan would seem to indicate less of need for an enlarged or enhanced facility, rather than more.

II. Regarding the impacts of the proposed transportation concourse

4) **Shouldn't the DEIS have noted how the proposed plans for a permanent PATH terminal would have a negative impact on passenger mobility and comfort when compared to the previous, pre-9/11, PATH terminal and transportation concourse that was on the site?**

The main concourse of the World Financial Center, to the west of the site, was built to correspond to the original WTC plaza and to Church St., which is approximately 18 feet higher than West St. The PATH terminal and transportation concourse that was beneath the plaza was street-level with West St., much of Liberty St. and was also virtually level with both the "E" train and the "N" / "R" trains beneath Church St. The pre-9/11 PATH terminal and transportation concourse cleverly utilized the site's unusual topography to provide convenient, comfortable, weather-protected access for transit passengers among the various transit facilities serviced by the transportation concourse and for pedestrians crossing through the site – especially those going in an east-west direction (which is a major Lower Manhattan route).

The proposed permanent PATH terminal, because it places the transit concourse truly below ground, beneath the No. 1 subway (rather than above-ground and into the side of a small "hill"), would appear to *reduce* passenger comfort and mobility for both transit passengers within the transit concourse itself and for pedestrians hoping to cross the site using the transportation concourse during inclement whether. While the pre-9/11 concourse could be conveniently entered without using any stairs from West St., Liberty St. and even from the poorly placed entrance on Vesey St. (if one used the handicapped ramps), this does not seem to appear to be possible at all in the proposed new facility. Everyone, including the handicapped and mobility impaired (and those carrying, bags, children, etc.), would appear to have to use either escalators or elevators to enter the new proposed transportation concourse. And during times of peak travel, these escalators and elevators would appear likely to create annoying bottlenecks – in addition to the shear inconvenience and annoyance of having to change grade in order to enter a truly underground transportation concourse. Shouldn't all of this have been discussed as negative impacts of the proposed new design as compared to the transit facility that existed on the site pre-9/11?

Another example of the negative impacts of the proposed alternatives: previously it was possible to enter the transportation concourse at street level on West and Liberty Sts. and to proceed virtually onto the "E" train platform using only a slight ramp situated to the south of the "E" train token booth. Shouldn't the fact that such ease of mobility would no longer be possible in the proposed new facility be cited as a negative impact with regard to mobility?

Yet another example: pedestrians using the transportation concourse as a weather-protected route between Church St. and the World Financial Center concourse (a major pedestrian route in Lower Manhattan) would have to make three changes of grade just to

get under West St, and then they would have to make a *very steep* three or four changes of grade in order to get to the elevator lobbies of the WFC – for a total of six or seven changes of grade altogether. (And it should be noted that the changes of grade on the WFC side of West St. would be a very steep zigzagging vertical egress.) In contrast, the pre-9/11 weather protected transportation concourse required only two changes of grade for the same trip! (That is, there was one change of grade from Church St. to the transportation concourse, and one change of grade to the North Bridge/WFC Concourse.) Shouldn't such negative impacts of the proposed new transportation concourse have been noted in the DEIS? (For instance, the steep egress from a possible permanent PATH terminal on Church St. was indeed noted and criticized as a negative impact in this DEIS.)

III. Regarding the proposed entry pavilion designed by Mr. Calatrava

5) **Shouldn't the DEIS have noted and examined how constructing a structure that is, in essence, a large, single story entry kiosk – or world's fair-like pavilion – on a full block of scarce buildable land would contribute to pressures to build oppressively large structures on the site's other buildable parcels?**

Looking at it from a slightly different perspective, the DEIS does not seem to consider whether a permanent PATH terminal that would be housed in a handsome commercial structure (similar to what existed on the site twice previously) would not, in fact, help create a better fit with the other structures and activities that are planned for the WTC site – and thus help create a redevelopment that would ultimately be more humanistically, and successfully, urban.

Neither does it note the that, unusually for Lower Manhattan, this site is already surrounded by plenty of open space (i.e., St. Paul's graveyard, the WTC memorial site, Liberty Park) and already surrounded by an unusually large number of relatively low (for Lower Manhattan) structures (e.g., Century 21, the Post Office, etc.), thus lessening the true usefulness of a low building on this site – especially a modern "free-form" one.

Furthermore, the DEIS does not seem to consider whether a more conventionally urban structure (one having a significant amount of commercial space above the passenger facility, and one of contemporary, but traditional, architectural design) would be less likely than a single-use, free form structure to distract from landmark structures situated near the site – including both the historic ones like St. Paul's Chapel and the art deco Century 21 building, and those scheduled to be built, namely the proposed memorial and the Freedom Tower.

6) **The DEIS didn't seem to examine how the proposed entry pavilion's lack of exterior street-level retail space would negatively affect street life in the area.**

When one looks at Grand Central Terminal (which has won world renown as a quintessentially urbane railroad terminal), one sees that its street-fronts are not empty,

economically sterile, architectural showpiece facades, but handsome, functional parts of the city – lined with retail stores, news dealers, weather protected cab stands (now sidewalk cafes), etc. In contrast, the proposed "arty" design of the entry pavilion is devoid of exterior street-level retail and is simply a flashy architectural showpiece better suited to a world's fair or to an airport, rather than to a vibrant city street. Shouldn't the absence of external street level retail, and its deadening effect on the area's street life, have been noted as a negative effect of the proposed terminal design?

7) **Shouldn't the DEIS have examined the negative effect that the construction of a low, free-form modern structure (the proposed terminal pavilion) would have on the flavorfully characteristic – and world famous – street walls of Lower Manhattan?**

As the DEIS notes, most traditional structures of Lower Manhattan are built out to the building line. But the DEIS does not seem to consider that this circumstance, along with the fact that such structures – whether designed in a modern or traditional style – usually have a "rectilinear" design, is what produces Lower Manhattan's flavorfully characteristic – and world famous – heritage of street walls (the concrete "canyons" of Lower Manhattan). The creation and maintenance of handsome street walls is a well-accepted criterion for successful urban design, yet the DEIS does not seem to discuss the negative effect that the proposed design (a modern, "free form" pavilion) would have on this very import aspect of the visual heritage of Lower Manhattan.

Because the free form design of the pavilion does not positively continue, reinforce or extend the area's street walls, it contributes towards their dissipation – and the destruction of the wonderful sense of enclosure that these street walls provide (i.e., outdoor hallways without ceilings). Thus, such a low, free form building as that which is being proposed would weaken, and thus hurt, the view corridors up and down Church St., Fulton St. and Dey St.

Furthermore, aside from the sheer clash of styles, such a free-form building does nothing to enhance the street wall surrounding the graveyard of St. Paul's Chapel – which ideally should have the feeling of a handsome large outdoor "room" but would instead have a large permanent gash knocked out of it by the strangely shaped voids created by the proposed terminal.

8) **The DEIS seems to provide only an extremely cursory, one-sided assessment – one that is based on highly dubious assumptions, at that – of the impact of the proposed terminal's "free form" modernism (more suitable to an airport or world's fair than a vibrant city) on the visual character and heritage of Lower Manhattan.**

The DEIS's very cursory evaluation of the impact of the terminal's "free-form" modern design on the essentially traditionally-designed cityscape of Lower Manhattan (where, for instance, even the modern buildings fit-in by being "right-angled," Bauhaus

modern) appears to be based on the highly questionable assumption that all the various styles of modern architecture (the various "-isms") have identical impacts upon the urban environment – and that they are all equally compatible with each other and with the city around them.

For instance, it justifies the construction of the proposed "free-form" terminal in "traditional" Lower Manhattan with the presence of other (but, in fact, more traditionally-based) modern structures like those found at the World Financial Center and Battery Park City. It assumes that "free-form" modernism, like that embodied by the proposed PATH terminal (which uncannily resembles a previously designed railroad terminal by the same architect that was indeed located at an airport!) is, in essence, interchangeable with more traditionally based "post-modern" modernism – which, in contrast, is an architecture that is consciously modeled upon traditional forms that have already been found to "work" in cities, in general, and in New York City, in particular.

So the question that the DEIS leaves unasked remains, "How and in what way does this proposed terminal fit in with the traditional cityscape of Lower Manhattan? If the proposed entry facility supposedly does no violence – has no negative impact – to the existing traditional cityscape, what does?"

9) **The DEIS doesn't seem to examine the negative effects of adding yet another visual "icon" (the proposed terminal's world's fair-like entry pavilion) to an area that is already brimming over with them – and one with yet even more on the way! The question may be stated as follows: does creating yet another visual icon have a positive -- or negative – impact on an area that already has probably more visual icons per acre than any other business district on earth?**

Lower Manhattan already is brimming with visual icons. Along Broadway alone, there is City Hall, the Woolworth Building, St. Paul's Chapel, the old ATT Building, the Noguchi cube and the original Marine Midland Building, Trinity Church and its graveyard, the Custom House and Bowling Green – just to name the "majors"! (And there are yet still many, many more throughout the rest of Lower Manhattan – Federal Hall National Memorial, the N.Y. Stock Exchange, and so on.) Does the addition of yet another visual "icon" (and one having an essentially alien, suburban character at that) add to – or diminish – the iconic power of Lower Manhattan's existing iconic (and historic) structures?

The DEIS doesn't seem to examine how the creation of yet another visual "icon" (the proposed entry pavilion) would contribute to what appears to be developing into a chaotic jumble of visual "icons" in Lower Manhattan (especially considering the addition of all the visual "icons" now planned for the World Trade Center area). Thus, the proposed entry pavilion should have been evaluated as a potential contributor to the negative transformation of Lower Manhattan, little by little, into something less than a genuine, functioning, urban district and into something more like a vacuous, anti-urban theme park or architectural world's fair.

The question is how many "iconic" foreground buildings can Lower Manhattan take without damaging its urbane, and well-beloved, arrangement of a large number of handsome "background" buildings providing a suitable context for a select few "iconic" foreground" buildings? Shouldn't the DEIS have also considered whether the negative contextual effects of the proposed entry pavilion (currently designed as a suburban "wow" structure) would not have been ameliorated somewhat had the facility been designed as a handsome, dignified and respectful urban "background" building instead?

Also apparently missing from the DEIS is an evaluation of the negative effects of the proposed entry pavilion on the historic and architecturally significant structures across the street from it – particularly St. Paul's Chapel. In many historic districts, such a flashy, world's fair-like pavilion would be seen as having flagrantly negative impacts upon a structure as historic and architecturally distinguished as St. Paul's Chapel. So the question remains, "If the proposed free-form entry pavilion is not deleterious to this 18th Century historic and architectural landmark, what is?"

10) **The DEIS seems to gloss over the limited benefits and significant problems posed by an entry pavilion whose major "benefit" is that it is an anti-urban, world's fair-like pavilion made up almost entirely of glass.**

I realize that the architect of the terminal plans to use openings in the roof, etc. to counteract the greenhouse effects of so much glass. But one wonders how much relief such a system would really provide. Plus, I don't believe the DEIS addresses the fact that much of the discomfort in New York summers is because of high humidity in the air. If left ignored and unaddressed, this humidity would have a significant negative impact on users of the terminal. Certainly in this regard the proposed terminal seems to have a negative impact when compared to the pre-9/11 terminal (which was delightfully temperature controlled).

One also wonders how much time, money and energy would have to be spent on keeping all this glass clean – especially considering the free-form shape of the pavilion which would appear to complicate efficient glass cleaning procedures.

Furthermore, shouldn't the DEIS also consider whether the benefits of a sunlit terminal, which would not get much sunlight when tall buildings block the sun, when whether is bad, during the night and during the short days of New York winters is really worth giving up all the benefits of having an equally aesthetically pleasing, but truly functional, "urban" building on the site. In contrast, a terminal such as Grand Central Terminal, uses glass much more judiciously – and perhaps to much greater effect -- and has many unheralded commercial spaces (tucked all throughout the building, including in the buildings' corners and above the waiting room) to boot!

11) The DEIS mentions as a benefit the energy savings generated by a glass pavilion having natural illumination. So shouldn't the DEIS also have mentioned as a negative impact the energy loses created by having an extensive transportation concourse that is truly underground (unlike the pre-9/11 terminal) and having an underground pedestrian tunnel beneath West St. (rather than a naturally illuminated pedestrian bridge, like the North Bridge).

Furthermore, shouldn't the DEIS also be mentioning the additional expenditures of energy needed to run all the additional escalators and elevators needed for the proposed transit concourse which – unlike the pre-9/11 concourse – is truly three or four stories beneath the ground-level of West St.? (See Point #4, above.)

The DEIS mentions how the steep egress from a possible Church St. terminal was a significant consideration. So shouldn't the DEIS also have considered and mentioned a similarly steep vertical egress on the World Financial Center side of the proposed transportation concourse as also having significant negative impacts?

Very truly yours,

Benjamin Hemric

Benjamin Hemric

Testimony of Jennifer Hensley
Director of Intergovernmental & Community Affairs
Alliance for Downtown New York
Before the Port Authority of New York and New Jersey

Public Comment on the Permanent PATH Station
at the World Trade Center Site
Draft Environmental Impact Statement
June 23, 2004

Thank you for the opportunity to speak here today on the draft Environmental Impact Statement for the permanent PATH Station at the World Trade Center Site. I am Jennifer Hensley, director of intergovernmental and community affairs for the Downtown Alliance, Lower Manhattan's business improvement district. We represent the thousands of property owners and businesses, and several hundred thousand workers south of Chambers Street.

The PATH Station at the WTC Site is an important part of Lower Manhattan's transportation network, providing convenient and affordable access to and from New Jersey for more than 30,000 commuters daily. The opening of the temporary PATH Station at the WTC Site last November marked a significant milestone in Lower Manhattan's recovery after the September 11th attacks, and the subsequent unveiling of Santiago Calatrava's magnificent design for the permanent PATH Station is further proof that Lower Manhattan's revitalization is well underway.

The Downtown Alliance is thrilled with the plans for the permanent PATH Station, which will undoubtedly serve as a grand point of arrival in Lower Manhattan and a spectacular 21st century transit center. Of course, a grand station deserves a grand train, and we encourage the Port Authority to continue your work with the LMDC, the city, and the state to bring direct, one-seat access from Long Island and Kennedy Airport to Lower Manhattan. These transportation improvements are critical to maintaining and enhancing Downtown's role as a central business district and a thriving part of the region's economy. In fact, there is no single issue that is more important to Downtown's major employers. We believe that Lower Manhattan's transportation infrastructure must be enhanced quickly and efficiently, with a focus on expanding service and connections to labor markets in the suburbs.

The Downtown Alliance does, however, have several concerns as the permanent PATH project moves forward. First, we believe that the construction of the permanent station should be coordinated through the forthcoming Lower Manhattan Construction Command Center. It is critical that issues such as worker transportation to and from the construction site, permitting, movement of materials, and other logistical concerns be coordinated with the many other development projects happening in Lower Manhattan at the same time.

Secondly, we believe that construction of the permanent station should occur with minimum disruption to existing PATH service, particularly during the weekday rush hours. The Downtown Alliance would also like to see the retail plan for the station complement the other retail components on the World Trade Center Site and in the surrounding areas. We envision a complete retail complex with shops and restaurants that serve the worker and residential populations Downtown, as well as commuters and the many visitors that will come to use the cultural and memorial spaces on the site, and other attractions throughout neighboring community.

Finally, I'd like to thank the Port Authority, for your hard work and vision, on both this permanent PATH Station, and on Lower Manhattan's broader revitalization. I look forward to working with you as this process continues.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received:	06/23/04	**Type:** Written Comment
Contact Details:	Don Jackson Local Union #3 IBEW 65-81 Parsons Blvd. Flushing, NY 16365 **P ; F ; E**	**Location:**

Comment:
Please make this city what it was and can be.

THE WORLD TRADE CENTER TRANSPORTATION HUB
Permanent WTC PATH Terminal and Pedestrian Connections
Environmental Review Process
DEIS Comments Summary

Date Received: 07/06/04 **Type:** Email/Written Comment

Contact Details: Robert Kornfeld, Jr., RA **Location:**
The Historic Districts Council
P ; **F** ; **E** rkornfeld@LZATechnology.com

Comment:
E-mail & Written Comment sent on 7/6 by Historic Districts Council - Scanned

Entered
7/30/04