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**STATEMENT OF FINDINGS  
THE PROPOSED SHAFT 33B  
TO CITY TUNNEL NO. 3 STAGE 2- MANHATTAN LEG**

**CEQR NO. 05DEP010M**

**January 31, 2006**

Pursuant to the State Environmental Quality Review Act (SEQRA) (Section 8-0113, Article 8 of the Environmental Conservation Law) and implementing regulations as set forth in 6NYCRR Part 617, and the City Environmental Quality Review (CEQR) process as set forth in Executive Order 91 of 1977 and its amendments establishing the City Environmental Quality Review (CEQR), the New York City Department of Environmental Protection (NYCDEP), acting as lead agency, issued a Notice of Completion of the Final Environmental Impact Statement (EIS) for the proposed Shaft 33B to City Tunnel No. 3, Stage 2- Manhattan Leg on January 20, 2006.

NYCDEP, on behalf of the City of New York, proposes to construct and place in to operation a vertical water supply shaft, Shaft 33B, to bring water from City Tunnel No. 3 to the local water distribution system in East Midtown and the Upper East Side in Manhattan. City Tunnel No. 3, Stage 2- Manhattan Leg is currently under construction beneath Manhattan. Once constructed, the shaft would be an unmanned, underground facility capable of conveying water from the new City Tunnel No. 3 to the surface distribution system that serves East Midtown and the Upper East Side. The proposed site for Shaft 33B is located on the northwest corner of E. 59<sup>th</sup> Street and First Avenue in Manhattan. The Shaft 33B project would also involve water main construction required to connect the new shaft with the existing subsurface water distribution system that serves the East Midtown and Upper East Side areas. Two water main connections would extend from the Shaft 33B Site beneath the City streets, connecting the shaft to a trunk main at Third Avenue.

The EIS was prepared to assist decision makers in selecting a location for Shaft 33B by providing assessment of the potential environmental impacts of constructing and operating Shaft 33B and its associated water main connections. Four sites were evaluated in the Final EIS as potential locations for Shaft 33B including: the preferred Shaft Site located at E. 59<sup>th</sup> Street/ First Avenue and three alternate sites, the E. 59<sup>th</sup> Street/ Second Avenue Shaft Site, the E. 61<sup>st</sup> Street Shaft Site and the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site. Three potential water main connection routes to the Third Avenue distribution system connection point were also evaluated in the Final EIS: the First Avenue Route, the Sutton Place Route and the E. 59<sup>th</sup> Street/ E. 61<sup>st</sup> Street Route. The Final EIS thoroughly evaluated the potential environmental impacts at each site and along each water main route. It also



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identified measures to minimize, avoid or mitigate potential significant and temporary adverse environmental impacts to the maximum extent practicable.

NYCDEP, by its Commissioner, Emily Lloyd, has considered the Shaft 33B Final EIS and finds that all CEQR/ SEQRA requirements have been met. NYCDEP finds that consistent with social, economic, and other essential considerations of State and City policy, from among the reasonable alternatives, the action is one that minimizes or avoids potential significant adverse environmental impacts to the maximum extent practicable. In addition, the potential significant and temporary adverse impacts disclosed in the Final EIS for the preferred Shaft Site and potential water main connection routes will be minimized or avoided by incorporating as conditions to this decision those mitigation measures that are identified as practicable, as well as further measures to reduce the effect of the project on the public.

NYCDEP, by its Commissioner, hereby approves the construction of the Shaft 33B project at the preferred Shaft Site at E. 59<sup>th</sup> Street and First Avenue, including the mitigation and impact avoidance measures set forth in the Final EIS. The social, economic, environmental, and other factors that form the basis of this decision are discussed below.

**I. Shaft 33B and its associated water main connections are necessary to provide redundant and continued reliable water distribution capabilities for the East Midtown and Upper East Side areas of Manhattan**

City Tunnel No. 3 (and/ or Tunnel) is currently under construction beneath Manhattan as well as in Brooklyn and Queens. The new Tunnel is being constructed in part to facilitate inspection and repair of City Tunnel No. 1, which is currently the primary source of Manhattan's water supply. City Tunnel No. 1 has been in continuous operation for almost 90 years, but before it can be inspected or repaired, an additional supply of water (City Tunnel No. 3) must be provided. The new City Tunnel No. 3 will also provide other important benefits, by increasing distribution system redundancy and maintaining sufficient water pressure in neighborhoods it serves. For the East Midtown area east of Park Avenue, the new water supply from City Tunnel No. 3 will improve water pressure reliability as well, addressing an important problem in this area.

The proposed Shaft 33B would be a critical component of the City's water supply and distribution system. It is needed to deliver water from the new City Tunnel No. 3 to the local water distribution system in the northern part of East Midtown east of Park Avenue. City Tunnel No. 3 is also being designed and constructed to help address local supply issues, such as a lack of redundancy in the local network.

The primary area that would be served by the Stage 2, Manhattan Leg of the new Tunnel, via Shaft 33B, is the Middle Intermediate Pressure Zone (MIPZ). In addition, this leg of the Tunnel is being designed so that redundant water supply capacity will also be provided for the adjacent water pressure zone, the Northern Intermediate Pressure Zone (NIPZ), via Shaft 33B. The MIPZ is located in Midtown Manhattan, bounded roughly by

Tenth Avenue to the west, the East River to the east, approximately 34<sup>th</sup> Street to the south, and approximately 54<sup>th</sup> Street to the north. Immediately to the north of the MIPZ, the NIPZ spans the width of Manhattan between approximately 54<sup>th</sup> Street and approximately 102<sup>nd</sup> Street. According to NYCDEP estimates, the average water consumption in the MIPZ is 30 million gallons per day (mgd) per square mile, a very high water consumption rate in comparison to the rest of the City.

The Manhattan Leg of City Tunnel No. 3, Stage 2 is intended to address the problems of water pressure reliability and supply in the northeastern portion of the MIPZ, while providing redundancy for the southeastern portion of the NIPZ. The north leg of City Tunnel No. 3's Stage 2 Manhattan Leg will follow a crosstown route from the MIPZ's southern boundary and continue north up Manhattan's East Side to a terminus in northern East Midtown at Shaft 33B, near the boundary with the NIPZ. A new water supply shaft for City Tunnel No. 3 is critical for these two areas, to address water supply problems, maintain pressure reliability, provide adequate supply to meet the neighborhoods' heavy demand, and to provide redundancy to the existing water supply system. Shaft 33B would be the primary source of the water supply from City Tunnel No. 3 to the northeast portion of the MIPZ. It would be one of ten water supply shafts along the Stage 2 Manhattan Leg, and is the final shaft to be sited.

The new shaft is also critical to ensure that there would be no service disruptions or dramatic changes in pressure in the MIPZ in the event of a planned or unplanned shutdown of City Tunnel No. 1. Shaft 33B would be one of two sources of water supply from City Tunnel No. 3 to the eastern section of the MIPZ. Having two sources of water supply to the pressure zone is important in terms of redundancy, to protect the water supply in the event that repairs must be made at one of the shafts. Shaft 33B would similarly improve redundancy in the eastern section of the NIPZ, which would also have two shafts connected to City Tunnel No. 3 once Shaft 33B is complete. Locating Shaft 33B in the northeastern portion of the MIPZ would also improve water pressure reliability in the MIPZ. Pressure reliability is critical for such water supply needs as fire-fighting capabilities. Finally, with Shaft 33B in place in this area, there would be no service disruptions or dramatic changes in pressure when City Tunnel No. 1 is taken off-line for maintenance upon completion of City Tunnel No. 3.

If Shaft 33B were not sited in the northeastern portion of the MIPZ, alternative water supply would have to be provided to the MIPZ without a new shaft. Without any new water distribution infrastructure, it would be difficult to maintain adequate pressure and accommodate the high water demand in the MIPZ once City Tunnel No. 1 is taken out of service for rehabilitation. In the event Shaft 33B could not be constructed in the area, lengthy new water mains would have to be laid from the two closest water supply shafts—at Second Avenue near E. 35<sup>th</sup> Street, and at York Avenue near E. 77<sup>th</sup> Street—to supply water to areas throughout the MIPZ and NIPZ. Thus, approximately 40 blocks of water main construction would be required to ensure sufficient water supply capability in the Midtown and Upper East Side areas of Manhattan. Although the Final EIS analyzed the potential impacts of this alternative, referred to as the “Water Main Only Alternative”, the alternative has no operational benefits to the City when compared with

addressing water distribution needs with a shaft, and would result in intrusive construction for a longer period than any of the Shaft Site alternatives analyzed. Similarly, because water distribution capabilities must be enhanced in this area in order for the City to move forward with the rehabilitation of City Tunnel No. 1, the “No Action” alternative described in the Final EIS could not be pursued by NYCDEP and is not considered in this document. As described in detail above, securing a site for Shaft 33B is critical to the future water distribution system reliability of this area.

Finally, Shaft 33B would feed two separate water main connections that would bring the water to the Third Avenue trunk main for distribution throughout the MIPZ and NIPZ. One water main would connect to the Third Avenue trunk main in the MIPZ, and the other would connect in the NIPZ. Having these two mains would allow Shaft 33B to serve both pressure zones, one of the critical goals for the project.

## **II. NYCDEP has conducted an exhaustive review of potential sites for Shaft 33B and analyzed each feasible site identified through this review in the Final EIS**

Construction of Shaft 33B would require a site of a certain size and configuration to accommodate the space required for construction. Assuming the need for minimal excavation support, a minimum site width of 39 feet is required for excavation of the distribution chamber, which has a minimum width of 26 feet, plus a 5-foot-wide workspace on either side of the excavation, and additional room for minimal excavation support. This minimum width assumes the presence of bedrock close to the surface; for sites where bedrock is deeper, a cofferdam would be constructed around the distribution chamber, adding to the width required on the site. With the minimum width of 39 feet, a corresponding site length of about 175 to 200 feet is necessary to accommodate shaft construction, construction staging area, and to provide room for maneuverability of equipment. In addition, a certain amount of overhead clearance would be needed for the crane.

A site screening process was undertaken to identify possible Shaft Sites in the general area where Shaft 33B must be located to meet its intended purpose. This is the general area within an acceptable distance from the boundary between the MIPZ and NIPZ at the Third Avenue trunk main. While Shaft 33B could be located at a greater distance from the MIPZ, the tie-in location to the distribution system would remain at the Third Avenue trunk main. NYCDEP thus restricted the review of available sites to those sites that are proximal to the northern portion of the MIPZ and southern portion of the NIPZ within an acceptable area from the Third Avenue trunk main.

During the site screening process, NYCDEP identified underutilized properties between E. 46<sup>th</sup> and E. 62<sup>nd</sup> Streets east of Third Avenue and evaluated them for their feasibility and suitability to serve as a Shaft Site. Nineteen locations were identified and each of these sites was evaluated to determine whether construction of the shaft would be feasible at that location. Sites were determined to be infeasible if one of the following conditions applied:

- The site would require condemnation of active private property, other than surface parking lots or vacant lots.
- The site would require closing an entire street or avenue for construction of the shaft.
- The site configuration would not accommodate the required space needed for construction of the shaft (assuming the minimum width of 39 feet and corresponding length of approximately 175 to 200 feet).

Based on the initial evaluation of each site, 15 sites were removed from further consideration for Shaft 33B. Insufficient site size was the most prevalent disqualifying factor in the screening of the 19 sites. A description of this preliminary site evaluation is provided in Appendix 1 of the Final EIS.

The four remaining sites were considered to be potentially feasible locations for Shaft 33B— E. 59<sup>th</sup> Street and First Avenue; E. 59<sup>th</sup> Street and Second Avenue; E. 61<sup>st</sup> Street between First and Second Avenue; and E. 54<sup>th</sup> Street and Second Avenue. For these four sites, a preliminary review of advantages and disadvantages of the site characteristics, engineering and environmental considerations was conducted to identify the preferred Shaft Site at E. 59<sup>th</sup> Street and First Avenue, and all four sites were then evaluated in the Draft and Final EIS. The preferred Shaft Site has several desirable characteristics over the other feasible sites which are discussed in more detail below.

### **III. The Final EIS demonstrates that the preferred Shaft Site at E. 59<sup>th</sup> Street and First Avenue is the most appropriate location for Shaft 33B based on a number of critical factors**

After careful consideration of the information and analysis contained in the Final EIS, including the needs of the City's water supply distribution system, siting issues such as property ownership, distance to sensitive receptors, construction efficiency and layout, and public comments received during the environmental review process, NYCDEP finds that the E. 59<sup>th</sup> Street/First Avenue Shaft Site is the appropriate location to site Shaft 33B.

As the operator of a public water supply system responsible for ensuring the continued reliability of the system, NYCDEP considered a variety of factors in determining what site, on an overall basis, would be the best site for Shaft 33B. In summary, the following reflect the most compelling reasons why the E. 59<sup>th</sup> Street/First Avenue Shaft Site is the appropriate site for Shaft 33B.

***Water Distribution System Dependability:*** The strength of New York City's water supply system can be attributed to many factors and one of the most important of these is the system's redundancy. Inherent to NYCDEP's overarching goal of providing water supply redundancy on a City-wide basis is the commitment to provide redundancy at the local and neighborhood level. The Shaft 33B project would provide redundancy within the MIPZ and the NIPZ by providing each with a new shaft capable of meeting their needs in the event the other shaft serving their area is out of service. Within the shaft itself, however, redundancy is also important and would be provided at the E. 59<sup>th</sup> Street/First Avenue Shaft Site by the provision of two riser pipes (risers).

Risers are the pipes within the shaft that physically transport the water from City Tunnel No. 3, several hundred feet below ground, to the surface distribution system. Having two risers in the Shaft is critical to redundancy needs and ensuring the ability of City Tunnel No. 3 to provide uninterrupted water distribution capability to a large portion of the Midtown and Upper East Side areas of Manhattan. With two riser pipes, water can continue to flow through this segment of City Tunnel No. 3 and the shaft if one of those pipes or one of the connecting water mains is taken out of service for repair or maintenance. With a single riser, if Shaft 33B must be shut down for maintenance, water would become stagnant in the portion of the Tunnel north of the nearest upstream shaft, Shaft 32B near E. 35<sup>th</sup> Street, necessitating lengthy and complex procedures to disinfect and reactivate this whole Tunnel segment once the riser is repaired. Further, with two risers, regular maintenance can be performed more effectively on the valves and equipment at Shaft 33B; without two risers maintenance procedures would be more complicated and less effective. The other terminal Shaft in Manhattan, Shaft 31B, will also have two risers, for the same reasons.

Of the four feasible sites analyzed in the Final EIS, only two, the E. 59<sup>th</sup> Street/First Avenue Shaft Site, and the E. 61 Street Shaft site, could accommodate the space for two risers within the Shaft. The E. 54<sup>th</sup> Street/ Second Avenue Shaft Site and the E. 59<sup>th</sup> Street/ Second Avenue Shaft Site are both constrained and irregularly shaped, making the provision of the two risers at those sites impracticable. With only one riser, the goals of the Shaft 33B project would not be fully realized were either of those sites pursued.

**Constructability:** For siting purposes, the issue of site constructability is important because the site must be able to accommodate the width of the shaft and also the placement and movement of large equipment and machinery on site. The E. 59<sup>th</sup> Street/First Avenue Shaft Site has a regular shape, sufficient size, and street access on two sides, which would allow for efficient construction layout and is, among the four feasible sites identified by NYCDEP, by far the one with the layout most accommodating in terms of shaft constructability. Two possible site layouts during construction were considered at this Shaft Site—the “base configuration” and the larger “alternate site configuration.” Construction at this site could be fully accommodated within the sidewalk area of this location under the base configuration presented in the Final EIS. However, the analysis of the alternate site configuration, which assessed the potential impacts of enlarging the site by including adjacent roadway space on both E. 59<sup>th</sup> Street and First Avenue, demonstrated that while construction could be safely and efficiently accommodated completely within the off street area, additional space could be made available if necessary for safe and efficient construction, without potential significant adverse impacts to area roadways or other environmental considerations such as noise. The alternate site configuration could only be used with NYCDEP’s approval. Under either site configuration, during 23 months of construction, the construction area at this Shaft Site would expand to include an 1,800-square-foot portion of an adjacent publicly owned parcel that is jointly used by NYCDOT as a bridge access area and by the public who generally use it for open space activities (the “multi-use area”).

The E. 59<sup>th</sup> Street/ Second Avenue Shaft Site and E. 54<sup>th</sup> Street/ Second Avenue Shaft Site both have irregular shapes which could constrain construction activities on site and would not afford the contractor with a layout as efficient as that for the E. 59<sup>th</sup> Street/First Avenue Shaft Site. While the E. 61<sup>st</sup> Street Shaft has a favorable regular shape, vehicular access is available only along one side which would complicate the construction lay out on site.

One of the primary disadvantages of several of the sites studied, including the E. 59<sup>th</sup> Street/First Avenue, E. 59<sup>th</sup> Street/ Second Avenue and E. 61<sup>st</sup> Street Shaft Sites is the constructability of the water mains. Water main construction from these sites would require lane closures on important routes to and from the Queensboro Bridge, an area which currently experiences frequent traffic congestion. When compared to the water main construction at the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site, these sites are all disadvantageous with respect to water main construction because they are located within close proximity to the Queensboro Bridge. In contrast, although water main construction from the E. 54<sup>th</sup> Street/ Second Avenue Shaft site would similarly require lane closures on Second Avenue, a critical arterial roadway in Manhattan, those mains would travel a shorter distance to the Third Avenue connector and their construction would be less disruptive to traffic because they would affect Second Avenue several blocks south of the Bridge, after traffic headed for the Bridge has already exited the avenue.

As noted in Table 11.2-2 of the Final EIS, the water main routes with the shortest construction duration would be the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route (31 months) from the E. 59<sup>th</sup> Street/First Avenue Shaft Site, the E. 59<sup>th</sup> Street/Second Avenue Shaft Site, and the E. 61<sup>st</sup> Street Shaft Site, as well as the water main route from the E. 54<sup>th</sup> Street Shaft Site (22 months). The estimated construction duration for the First Avenue route (41 to 47 months) and Sutton Place route (51 to 57 months) would be longer.

***Project Schedule:*** One of NYCDEP's primary goals is to enhance the City's water supply system and in doing so, thus better protect the health and welfare of the 8 million New Yorkers who rely on that system each day. As part of this effort, it is NYCDEP's intention to have City Tunnel No. 3 operational and in use as soon as possible and NYCDEP is thus pursuing the completion of construction of this monumental public works project with minimal delay. The City Tunnel No. 3 project is crucial to ensuring the continued reliability of the water distribution network in New York City; Shaft 33B would provide water from Tunnel No. 3 to the east Midtown and Upper East Side areas of Manhattan and would be a secure component of the distribution system for these areas for many years to come. As described in the Final EIS, NYCDEP intends for the construction of Shaft 33B to coincide with the construction of City Tunnel No. 3, so that the Shaft can be constructed using the 'raise bore' method of construction described in the Final EIS and so the Tunnel can be used for the removal of the rock during the construction of the Shaft. Once concrete lining of the Tunnel has begun, it will no longer be available for rock removal. At this time, based on current Tunnel progress, it is estimated that the Tunnel and Shaft 26B (the shaft where rock and debris are removed from the Tunnel) will not be available after July 2007. The E. 59<sup>th</sup> Street/First Avenue

Shaft Site clearly meets the overall City Tunnel No. 3 construction schedule where as each other alternate site analyzed has significant lead time constraints before construction can begin, thus jeopardizing their timely completion and possibly making the use of the ‘surface excavation’ method of construction necessary. Surface excavation, in addition to being more costly, would involve lengthier construction periods at each of the sites in addition to additional truck traffic and blasting.

***Site Ownership and Future Usage:*** The E. 59<sup>th</sup> Street/First Avenue Shaft Site is located on a City-owned parcel that is mapped City street (sidewalk) and currently used for municipal purposes by the New York City Department of Transportation (NYCDOT) and the New York City Department of Sanitation (DSNY). The use of a City-owned site is preferred to a privately owned site, because this reduces the complications, potential delay and costs associated with acquiring private property and does not require displacement of active commercial or residential uses. Sidewalks are generally considered appropriate locations for utilities. Similar conditions exist at the E. 59<sup>th</sup> Street/Second Avenue Site. The E. 61<sup>st</sup> Street Shaft Site is located on privately owned property, and placement of the shaft there would likely require condemnation and would preclude future development of the property. The E. 54<sup>th</sup> Street/Second Avenue Site is located in the public right-of-way (street and sidewalk) but could require acquisition of a temporary construction easement through private property.

***Distance to Receptors:*** In the densely developed area where Shaft 33B must be located to meet its intended purpose, sites that offer distance between the construction site and the nearest residential receptor are considered beneficial. This provides distance between the potentially disruptive activities on the construction site and sensitive residential land uses. The E. 59<sup>th</sup> Street/First Avenue Shaft Site is buffered from the nearest residential receptor by 77 feet, which provides far more distance than the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site (11 feet) and the E. 61<sup>st</sup> Street Shaft Site (38 feet) but slightly less than E. 59<sup>th</sup> Street/Second Avenue Shaft Site (86 feet). At the E. 59<sup>th</sup> Street/First Avenue Shaft Site and the three alternative Shaft Sites, construction of Shaft 33B would at times be disruptive to the surrounding land uses. Disruptions would include increased activity, noise, and changes to traffic patterns at each site. Among the sites, the E. 59<sup>th</sup> Street/First Avenue Shaft Site is buffered from nearby sensitive uses by a combination of distance from those uses, the presence of the Queensboro Bridge north of the site, which completely separates it from the area beyond the Bridge, and the site’s greater distance to the nearest high-rise residential building.

***Noise Attenuation:*** All sites, with the exception of the E. 54<sup>th</sup> Street/ Second Avenue Site, could accommodate a 20 foot high construction barrier constructed around the perimeter of the site. It is preferred to provide the 20 foot barrier, to better enclose construction activities and attenuate noise. At the E. 54<sup>th</sup> Street/Second Avenue Site, only ten foot high barrier could be provided.

***Environmental Considerations:*** Construction at any site would include appropriate measures by NYCDEP to minimize or avoid potential environmental impacts. This

section describes differences in the potential for environmental impacts and other notable environmental considerations among the sites and their water main connections.

### *Land Use and Public Policy*

At the E. 59<sup>th</sup> Street/First Avenue Shaft Site and the E. 59<sup>th</sup> Street/Second Avenue Shaft Site, constructing a shaft would lead to continuous use of the affected site for City construction activity, although the construction work for Shaft 33B would be more noticeable, for example, in terms of level of activity and noise, than the NYCDOT Queensboro Bridge staging work for construction occurring on those sites today. Although some NYCDOT parking and construction staging uses would be displaced for Shaft 33B construction, these could be accommodated at other NYCDOT facilities in the vicinity of the Bridge and the uses underneath the bridge would continue in much the same manner they do today. The E. 59<sup>th</sup> Street/First Avenue Shaft Site would also accommodate the protection of both the Shaft and the Queensboro Bridge through construction of new piers to the Bridge. At the E. 61<sup>st</sup> Street Shaft Site, construction and permanent placement of Shaft 33B on the site would preclude the Archdiocese of New York's planned residential structure for priests. At the E. 54<sup>th</sup> Street/Second Avenue Shaft Site, use of the site would temporarily convert street lanes and sidewalk areas for construction activity. An enclosed sidewalk café extending from an adjacent building would have to be removed at the Shaft Site, and a temporary easement through a landscaped area would have to be acquired to provide a sidewalk area during construction.

In general, the construction activity would at times be disruptive to the nearest land uses, but would not result in potential significant adverse land use impacts except at the E. 61<sup>st</sup> Street Shaft Site, where the Final EIS analyses predict potential significant noise impacts would occur to the Manhattan Center for Early Education and Manhattan Center for Early Learning. This facility depends on a quiet atmosphere during the daytime so that special-needs children can learn and receive therapy. Elevated noise levels would severely interrupt the learning process, impede progress, and potentially result in cognitive regression. Therefore, the noise impact on this facility would result in a significant conflict with this noise-sensitive land use that could interfere with the proper functioning of the land use, and a consequently potential significant adverse land use impact would occur to this facility throughout the construction period.

Following New York City Fire Department (FDNY) requirements when blasting with explosives, up to two times per day, pedestrian and vehicular activity within approximately 100 to 150 feet of the Shaft Sites would be halted. This would occur during the initial period of blasting until a depth of approximately 100 feet below ground surface was reached (specifically, for approximately four months using the raise bore method at the E. 59<sup>th</sup> Street/First Avenue, E. 59<sup>th</sup> Street/ Second Avenue and E.61<sup>st</sup> Street Shaft Sites, for 12 months using the surface excavation method at the E. 59<sup>th</sup> Street/ Second Avenue and E. 61<sup>st</sup> Street Shaft Sites and two or three months at the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site under the raise bore and surface excavation methods, respectively). Blast events would likely occur only once or twice a day, with access

restrictions enduring for approximately up to five minutes for each blast, in accordance with the whistle warning protocol; however, NYCDEP would seek a waiver from the FDNY to reduce the whistle warning period to one minute. FDNY has indicated that it could issue this waiver after the initial start-up period.

Construction at any of the Shaft Sites would be consistent with applicable public policies, including Community Board 8's 197-a plan if it is adopted, which proposes a landscaped buffer around the E. 59<sup>th</sup> Street/First Avenue Shaft Site and which endorses a plan by the New York City Department of Parks and Recreation (NYCDPR) to improve the multi-use area. Use of the E. 59<sup>th</sup> Street/First Avenue Shaft Site would delay implementation of the buffer until shaft construction is complete. The NYCDPR improvement to the multi-use area is planned to occur in 2009, when Queensboro Bridge reconstruction is work is complete, and would not be delayed by the temporary use of the multi-use area for Shaft 33B. NYCDEP would restore the multi-use area consistent with the direction provided by NYCDOT and input from the community, as applicable.

Daytime construction work for the water mains could be disruptive to nearby residences, nearby institutional uses (including the high schools, elementary schools, and nursery schools in the Study Area), and commercial uses. Larger geographical areas would be affected by the adverse effects of street construction work, including increased noise and traffic, on the First Avenue route and Sutton Place route as opposed to the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route or the water main route from the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site. Overall, the effects from water main construction are not unique, but typical of road work required by most major utilities in Manhattan that involve construction in close proximity to sensitive land uses. The potential increases in noise levels and traffic congestion are not permanent environmental changes and no changes will occur from this project after it has been constructed.

### *Open Space*

Construction of Shaft 33B at the E. 59<sup>th</sup> Street/First Avenue Shaft Site would occur immediately adjacent to a space shared by NYCDOT and by the public as an open space (the multi-use area). For 23 months during the construction period, this space would be enclosed behind the construction barrier for use as a staging area. With either the base or alternate site configuration, no potential significant adverse impacts on open space are expected to occur. Following completion of this 23 month period (in 2008), the directly affected portion of the multi-use area would be restored in accordance with NYCDOT and community input as applicable.

At the E. 59<sup>th</sup> Street/Second Avenue and E. 61<sup>st</sup> Street Shaft Sites, construction activities for Shaft 33B would not result in potential significant adverse impacts to open spaces in the immediate area, because of the distance between those spaces and the construction site and because of the barrier wall around the site. At the E. 54<sup>th</sup> Street/Second Avenue Shaft Site, intrusive noise levels are anticipated at the Connaught Tower plaza across from the site, and potential significant adverse noise impacts are anticipated in this open space throughout the construction period. This construction-related noise could detract

from the quality of this open space, making the space less attractive for open space users. This potential adverse effect on the quality of this space during the construction period may result in a potential significant adverse open space impact.

At any of the Shaft Sites, NYCDEP would fund and support NYCDPR re-vegetation and greening efforts in the Study Area; these efforts could include the provision of additional street trees or support for other park or open space improvement initiatives intended to benefit the residents of local communities. NYCDEP would work with NYCDPR and the community to identify desired improvements in the general project area and would participate in a committee with the affected Community Boards committee chairs to determine how to most effectively spend those funds for the betterment of area open spaces.

No water main construction activities are anticipated to occur in open spaces. In general, the noise, dust, and disruption to traffic and pedestrian flows associated with water main construction could temporarily disrupt the use of nearby open spaces for the 10 to 12 week period when work occurs nearby. The construction noise would at times be intrusive and disruptive, resulting in temporary adverse noise impacts. At the open spaces adjacent to the construction zone, the noise and traffic congestion could make the plazas less attractive for open space users, and it is possible that fewer people would choose to use these spaces during the construction period or that they would be avoided altogether.

### *Noise*

Construction at each of the four feasible Shaft Sites analyzed in the Final EIS would result in potential significant adverse noise impacts that would be unmitigatable based on the relative distance from the noise sources to the sensitive receptors. Maximum predicted noise levels would be lowest at the E. 59<sup>th</sup> Street/First Avenue Shaft Site and the E. 59<sup>th</sup> Street/Second Avenue Shaft Site and highest at the E. 61<sup>st</sup> Street Shaft Site and E. 54<sup>th</sup> Street/Second Avenue Shaft Site because of the relative distance from the noise sources to the sensitive receptor and the lower construction barrier at the latter site. In addition, the numbers of affected sensitive receptors impacted would be far lower for the E. 59<sup>th</sup> Street/First Avenue Shaft Site and the E. 59<sup>th</sup> Street/Second Avenue Shaft Site. At the E. 59<sup>th</sup> Street/First Avenue Shaft Site, an estimated two apartment buildings would be affected, and at the E. 59<sup>th</sup> Street/Second Avenue Shaft Site it is estimated that three apartment buildings would be affected. In contrast, at the E. 61<sup>st</sup> Street Shaft Site, numerous receptors between the Shaft Site and First Avenue would be affected. The greatest extent of impacts would be generated at the E. 54<sup>th</sup> Street/Second Avenue Shaft Site where potential noise impacts could extend to buildings located between First Avenue and the midblock to Third Avenue along E. 54<sup>th</sup> Street and between E. 53<sup>rd</sup> and E. 55<sup>th</sup> Streets along Second Avenue.

Further, water main construction from each site would result in temporary adverse noise impacts. On any given block or construction segment, the duration of impacts to affected receptors would be similar for the three routes. However, because the overall length of each route differs substantially, there would be substantial differences in the geographic

area affected for the potential three routes. The geographic area affected along the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route from the E. 59<sup>th</sup> Street/First Avenue Shaft Site, the E. 59<sup>th</sup> Street/Second Avenue Shaft Site, and the E. 61<sup>st</sup> Street Shaft Site, as well as the water main route from the E. 54<sup>th</sup> Street/Second Avenue Shaft Site, would affect fewer sensitive receptors than the longer routes along First Avenue and Sutton Place. With respect to the First Avenue Route and Sutton Place Route for the E. 61<sup>st</sup> Street Shaft Site, an additional two and a half blocks would experience potential temporary adverse impacts from noise when compared to the geographic area affected by the E. 59<sup>th</sup> Street/First Avenue Shaft Site for those same routes. For the First Avenue Route and Sutton Place Routes from the E. 59<sup>th</sup> Street/ Second Avenue Shaft Site, an additional city block would experience potential temporary adverse noise impacts from water main construction over the area affected by water main construction from the E. 59<sup>th</sup> Street/First Avenue Shaft Site.

### *Traffic*

Shaft Site construction would not generate a substantial amount of peak hour truck or construction worker trips. However, all potential Shaft Sites, to different extents, would result in disruptions to adjacent roadways. The analysis conducted to evaluate such disruptions revealed that adequate traffic operations would generally be maintained because such disruptions would be intermittent during construction, and therefore potential significant adverse traffic impacts are not anticipated from the construction at any of the potential Shaft Sites. Traffic disruptions during construction involve truck delivery activities at the potential Shaft Sites. While expected to be infrequent, traffic halting for up to two minutes during truck movements could take place intermittently at all potential Shaft Sites, except for the E. 54<sup>th</sup> Street/Second Avenue Shaft Site. Extensive queuing resulting from this operation could be most prevalent for the E. 59<sup>th</sup> Street/First Avenue and the E. 61<sup>st</sup> Street Shaft Sites, based on the existing traffic volumes on streets adjacent to those sites and their use as access roadways for the Queensboro Bridge. Truck movements are not anticipated to be as disruptive at the E. 59<sup>th</sup> Street and Second Avenue Shaft Site because on the eastern side of Second Avenue, E. 59<sup>th</sup> Street is one-way eastbound and a substantial volume of traffic exits E. 59<sup>th</sup> Street before that location either by entering the Queensboro Bridge (directly adjacent to this site) or by heading south on Second Avenue.

Blasting would result in temporary traffic stoppages adjacent to all potential Shaft Sites. Blast events would likely occur only once or twice a day, with traffic stoppages enduring for approximately one to five minutes for each blast in accordance with the whistle warning protocol; however, NYCDEP would seek a waiver from the FDNY to reduce the whistle warning period to one minute. FDNY has indicated that it could issue the waiver after the initial start up period. Blasting requiring halting of vehicular traffic would likely occur over a four-month period at the E. 59<sup>th</sup> Street/First Avenue Shaft Site, and this would include stoppages on certain approaches to the Queensboro Bridge and, potentially, east of the blast site on the upper level of the Bridge as described in the Final EIS. Similar traffic stoppages on the Queensboro Bridge would also be required at the E. 59<sup>th</sup> Street/Second Avenue Shaft Site for a four-month (with raise bore) to 12-month (with surface excavation) period. At the E. 54<sup>th</sup> Street/Second Avenue Shaft Site, the

period when traffic stoppages from blasting would occur would be reduced to a two-month (raise bore) to three-month (surface excavation) period. This is due to the alternate construction techniques that must be used there, techniques which — although reducing the period of traffic stoppages due to blasting — would result in a longer and noisier overall construction period. The most pronounced effects from traffic stoppage due to blasting could be experienced at the E. 59<sup>th</sup> Street/First Avenue and the E. 59<sup>th</sup> Street/Second Avenue Shaft Sites, if raise bore construction is used. However, the E. 59<sup>th</sup> Street/Second Avenue Shaft Site and the E. 61<sup>st</sup> Street Shaft Site have the potential to require the use of surface excavation, which would require 12 months of traffic stoppages during blasting.

While both truck access/egress maneuvers and blasting at the potential Shaft Sites could cause pronounced traffic congestion, these occurrences would be intermittent and/or temporary and not result in the potential for significant adverse traffic impacts. At all potential blast sites, flag persons and one or more traffic enforcement agents (TEA) funded by NYCDEP would be present to facilitate safe and efficient execution of these truck access/egress maneuvers and blasting events.

For the water main construction, potential temporary adverse traffic impacts would be most pronounced from the E. 59<sup>th</sup> Street/First Avenue Shaft Site, E. 59<sup>th</sup> Street/Second Avenue and E. 61<sup>st</sup> Street Shaft Sites, because water main routes would be longer than from the E. 54<sup>th</sup> Street/Second Avenue Shaft Site and because of these three sites' proximity to roadways leading to and from the Queensboro Bridge. These conditions would be temporary and not persist beyond the respective construction periods. The construction of the water main connections would be coordinated with NYCDOT Office of Construction Mitigation and Coordination (OCMC) and would incorporate conventional mitigation and other traffic attenuation measures to minimize the potential temporary adverse impacts that would result from water main construction.

In comparing the three representative routes, only the Sutton Place route would not likely result in traffic diversions to other corridors because the potential temporary adverse impacts here were markedly less than those predicted for the other routes. For both the First Avenue route and, in particular, the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route, traffic management strategies that include identifying viable detour routes, implementing temporary capacity improvement measures, and providing appropriate signage, frequent public announcements, TEAs, and traffic enforcement are likely to be necessary to facilitate effective traffic flow.

Comparable water main connections and construction periods are required for the water main connections from the E. 59<sup>th</sup> Street/First Avenue, E. 59<sup>th</sup> Street/Second Avenue, and E. 61<sup>st</sup> Street Shaft Sites, and therefore potential temporary traffic impacts would be similar in severity and duration for the water main connections from all three of those sites. As shown in Table 11.2-2 of the Final EIS, the First Avenue and Sutton Place Routes from the E. 59<sup>th</sup> Street/ Second Avenue and E. 61<sup>st</sup> Street Shaft Sites, would take longer to construct (six and five months respectively for each route) than the E. 59<sup>th</sup> Street/First Avenue Shaft Site duration of construction of those same routes. With respect

to the First Avenue and Sutton Place routes for the E. 59<sup>th</sup> Street/Second Avenue Shaft Site, some additional disruptions would occur on E. 59<sup>th</sup> Street between First and Second Avenues, where for the short period of time when construction takes place on the eastbound E. 59<sup>th</sup> Street approach to First Avenue, some additional restriction of traffic en route to the Queensboro Bridge outer roadway is anticipated from the temporary elimination of one westbound lane. For the E. 59<sup>th</sup> Street/ E. 61<sup>st</sup> water main route, the construction period would be equal among these three sites and thus the potential temporary adverse impacts would be consistent among them. A substantially shorter connection route would be required of the E. 54<sup>th</sup> Street/Second Avenue Shaft Site. Therefore, the anticipated duration and the extent of temporary construction-related adverse traffic impacts from the construction of water main connections would be measurably less with the E. 54<sup>th</sup> Street/Second Avenue Shaft Site.

### *Urban Design and Visual Resources*

At the E. 59<sup>th</sup> Street/First Avenue Shaft Site, two honey locust trees would be removed from the adjacent multi-use area to facilitate construction. No trees would be removed at the E. 59<sup>th</sup> Street/Second Avenue or E. 61<sup>st</sup> Street Shaft Site. At the E. 54<sup>th</sup> Street Shaft Site, a total of 11 street trees and other street furniture would be removed on Second Avenue and on both sides of E. 54<sup>th</sup> Street at the Shaft Site. This change would not be anticipated to result in potential significant adverse urban design impacts.

During construction of the water main connections, the sidewalk area would be reduced, street pavement would be cut up, and construction equipment would be located in the street. These changes are typical of construction projects in Manhattan. Every effort would be made to protect and maintain street trees before and during construction. However, it is possible that several street trees along the water main route would be removed.

The numbers of street trees located in the sidewalk areas that could potentially be affected are listed in Table 11.3-4 of the Final EIS. As shown in the table, for a given water main connection route, the E. 59<sup>th</sup> Street/Second Avenue Shaft Site would have the potential to affect the greatest number of trees and the water main connections from the E. 54<sup>th</sup> Street/Second Avenue Shaft Site could potentially affect by far the fewest (although, as noted above, up to 11 street trees would also have to be removed at the construction zone for this site). For water main connections from the E. 59<sup>th</sup> Street/Second Avenue site, a potential traffic detour for eastbound traffic on E. 59<sup>th</sup> Street adjacent to the Shaft Site could require removal of three trees in a traffic island that is within the multi-use area under the jurisdiction of NYCDOT. Among the water main connection routes, the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route and the route from the E. 54<sup>th</sup> Street/Second Avenue site could potentially affect the fewest trees (not including the 11 trees at the E. 54<sup>th</sup> Street/Second Avenue Site).

Where possible along the water main routes, the New York City Department of Design and Construction (NYCDDC) would replace any removed street trees in accordance with the requirements of NYCDPR, which administers the street tree program in New York

City. The replacement trees would in most cases be smaller than the trees that were lost. The potential elimination of mature street trees, in the numbers described, would have a temporary adverse impact on urban design that would be offset by additional tree planting in the community.

#### *Socio-Economic*

The Shaft 33B project would not directly displace any existing businesses or residents. However, at the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site, a portion of an active business adjacent to the site in a sidewalk café would have to be removed, and businesses adjacent to the site on Second Avenue would be behind the construction zone barrier. Due to a combination of noise, vibration, pedestrian access, and visibility issues at this site, there could be possible indirect displacement of businesses on or near the northeast corner of E. 54<sup>th</sup> Street and Second Avenue. Businesses located farther from this area would be expected to fare better. No indirect displacement effects are expected in the vicinity of any of the other Shaft Sites.

For the other Shaft Sites, although local economic conditions in the immediate vicinity of construction could decline somewhat during intense construction periods, the net effect on the economy of the surrounding areas would be negligible. Overall, the effects of the project are not unlike the effects from other major construction in Manhattan that involve the use of heavy construction in close proximity to residential and commercial uses. Given the Shaft Sites' locations in well-established neighborhoods of Midtown Manhattan, large-scale neighborhood character or socioeconomic changes would not be expected to occur.

The estimated additional monthly rate charge to City water rate payers from construction and operation at the shaft would be negligible ranging from 21 cents at the E. 54<sup>th</sup> Street/Second Avenue Shaft Site to 34 cents at the E. 61<sup>st</sup> Street Shaft Site, with the E. 59<sup>th</sup> Street/First Avenue site at the lower end of this range at 24 cents.

Along all potential water main routes, construction would occur in a segmented fashion and residences and businesses would be exposed to potential impacts on a temporary, short-term, and transient basis. Access to the residents and businesses would be maintained throughout the construction period. No potential significant environmental impacts on these businesses or residents would occur. Although local economic conditions in the immediate vicinity of the construction site could decline somewhat during intense construction periods, the net effect on the area's economy would be negligible.

#### **IV. Costs**

Table 11.3-3 of the Final EIS presents a comparison of socioeconomic issues for the Shaft Sites including costs of the project and socioeconomic effects on residents and businesses. The cost estimates provided vary from site to site, since the variability of costs from site to site is affected by site conditions such as differences in construction

techniques that would be required, geological conditions, and size limitations. Construction costs would be highest at the E. 61<sup>st</sup> Street Shaft Site (approximately \$103 million for the shaft alone) due primarily to land acquisition costs. Costs at the E. 54<sup>th</sup> Street/Second Avenue Shaft Site and E. 59<sup>th</sup> Street/Second Avenue Shaft Site would be lowest (approximately, \$67 million and \$63 million respectively) primarily because the shafts at these constrained sites would need to be smaller and would only be able to accommodate one riser; these sites would not meet a primary goal of the project for the project, i.e., redundancy. Compared to these two sites, costs would be somewhat, but not substantially, higher for the E. 59<sup>th</sup> Street/First Avenue Shaft Site (approximately \$71.5 million). In addition, the E. 59<sup>th</sup> Street/First Avenue Shaft Site is the only site that would not potentially require the additional costs associated with the use of the surface excavation technique rather than raise bore. At approximately \$5 million, the water main costs would be by far lowest at the E. 54<sup>th</sup> Street/ Second Avenue Shaft Site. The water main costs from the other three sites would be almost twice that, as depicted in Table 11.3-3.

### *Conclusions*

Since each of the sites presents potential environmental impacts as well as disturbances to the surrounding community that are important factors to be considered, and each will involve appropriate measures by NYCDEP that are expected to mitigate, avoid or minimize to the extent practicable those impacts and disturbances, potential environmental impacts must be balanced and considered in concert with project goals, engineering complexities, ease of operations and costs when selecting the location of Shaft 33B.

After a thorough consideration of environmental consequences discussed in the Final EIS including those associated with construction of the water mains, and consideration of the public comments received on the Draft EIS, on balance, the site at E. 59<sup>th</sup> Street and First Avenue remains the preferred site for Shaft 33B. As described above, the site is by far the one that offers the most benefits in terms of shaft constructability because it has a regular shape, sufficient size and street access on two sides, it would accommodate future uses of the site by other City agencies and importantly, can accommodate two risers and would allow the City to proceed with the completion of City Tunnel No. 3 in accordance with the current construction schedule. In addition, siting a shaft on City-owned off street property ensures ease of access to the Shaft for operation and maintenance.

Realizing that construction activities can be disruptive, NYCDEP has proposed many measures to alleviate potential project disturbances to the local community and is firmly committed to implementation of these measures throughout the construction at the E. 59<sup>th</sup> Street/First Avenue Shaft Site and during water mains construction. Specific measures that are committed to for construction of Shaft 33B at the E. 59<sup>th</sup> Street/First Avenue Shaft Site and the water mains inherent to the decision to move forward with the project are discussed below.

**V. Potential Environmental Impacts from Construction of Shaft 33B at the E. 59<sup>th</sup> Street/First Avenue Shaft Site and water mains from this site to the Third Avenue trunk main will be mitigated and addressed to the extent practicable**

Pursuant to the requirements of CEQR and SEQRA, the environmental review process must identify potential significant adverse impacts and those impacts must be minimized or avoided to the extent practicable. Appropriate mitigation measures must also be identified and evaluated. As demonstrated in the Final EIS, there would be no potential significant adverse impacts from the operation of Shaft 33B or the water mains. Taking a conservative approach, the Final EIS has analyzed construction period impacts in great detail and has proposed mitigation and attenuation measures to alleviate potential significant and temporary adverse impacts during construction of both the shaft and the water mains.

During construction, there would be no potential significant adverse impacts from the shaft construction at the preferred Shaft Site in the areas of land use, zoning, public policy, open space, socio-economic conditions, urban design and visual resources, historic resources, neighborhood character, infrastructure and energy, traffic and parking, transit and pedestrians, air quality, vibration, hazardous materials, or public health. During shaft construction, potential significant adverse noise impacts are anticipated.

During construction, there would no potential significant adverse impacts from the water main connections in the following CEQR technical areas: land use, zoning, public policy, open space, socio-economic conditions, historic resources, visual resources and urban design, neighborhood character, infrastructure and energy, traffic and parking, transit and pedestrians, air quality, noise, vibration, hazardous materials, or public health. During water main construction, potential temporary adverse impacts are anticipated in the CEQR technical areas of urban design, traffic and noise.

The following sections describe the construction and operation of Shaft 33B at the preferred Shaft Site, and discuss mitigation measures and attenuation strategies as well as other measures proposed to reduce the potential impact of the project on the public.

***Project Description for Shaft 33B at the E. 59<sup>th</sup> Street/First Avenue Shaft Site***

The E. 59<sup>th</sup> Street/First Avenue Shaft 33B Site is located adjacent to the Queensboro Bridge approach structure at the northwest corner of E. 59<sup>th</sup> Street and First Avenue within an the area mapped as street (sidewalk) adjacent to the Queensboro Bridge. The site is under the jurisdiction of NYCDOT, and most of the site is currently fenced and used by NYCDOT for vehicle parking and access to the adjacent Queensboro Bridge Engineer's Office beneath the Bridge. The 29-foot-wide Shaft 33B would be located in the eastern portion of the site.

Shaft 33B would consist of a shaft, approximately 450 feet deep, that would house two 48-inch riser pipes to bring water from City Tunnel No. 3 up to the neighborhood water distribution system. In addition to the riser pipes, the Shaft 33B Site would also contain

several other below-grade structures required for distribution of water from City Tunnel No. 3 to the local distribution system. These would include the riser valve chamber and distribution chamber, each located below ground level around Shaft 33B. Above the shaft, two hatchways would provide access to these underground chambers. In addition, a ten foot high air vent, 14 inches in diameter, would be located permanently on the site (above ground) to provide air into the shaft for maintenance workers, and two standard three-foot-high hydrants would provide air relief from the piping during activation. The hydrants could also be used for fire protection. Several other below-grade chambers would be located in close proximity to the shaft, providing access to valves and equipment that regulates and monitors the flow to the water main connections that would extend from the shaft.

Two water main connections would extend from the Shaft 33B Site beneath the City streets, connecting the shaft to a trunk main at Third Avenue. Near the Shaft Site the water mains would pass through the regulator, valve, and venturi chambers. Depending on the water main route selected, the regulator chambers are likely to be located beneath the sidewalk on the west side of First Avenue adjacent to the Shaft Site, with the water main valve chambers in the same location. From the regulator chambers, the water mains would pass through another set of chambers, the venturi chambers. The location of the venturi chambers also depends on the specific water main connection route selected. For the reasonable worst-case route analyzed in the Final EIS, the venturi chambers would be located on the east side of First Avenue between E. 58<sup>th</sup> and E. 59<sup>th</sup> Streets, at the beginning of that water main route. The underground water main chambers would be accessible for maintenance via manholes in the sidewalk.

### *Construction Overview*

Construction of Shaft 33B would be conducted in four stages; these were further broken down in to sub-stages as depicted in Table 2-1 of the Final EIS. During the first three stages, the shaft and its valve and distribution chambers would be excavated and constructed and the riser pipes would be installed. Following Stage 3, the Shaft Site would be secured and inactive for an 8-month period while specialized equipment is ordered. The fourth stage of construction would consist of equipment installation in the shaft and construction of regulator and valve chambers. During a portion of Stage 4 (referred to as Stage 4B in the Final EIS and consisting of construction of regulator and valve chambers associated with the water main construction), some construction activities would occur on the western portion of First Avenue, outside the boundaries of the E. 59<sup>th</sup> Street/First Avenue Shaft Site but within the area that would also be affected by construction of the new water main connections. This construction would occur for approximately three months and would require expansion of the site eastward to include adjacent sidewalk and roadway space on First Avenue. This additional area would be enclosed by a ten foot high construction barrier for this three month period. Separate from the shaft construction, water main connections would likely occur simultaneously with the other construction stages and would consist of installation of water main connections between Shaft 33B and the Third Avenue trunk main.

Before construction begins, the site would be enclosed with secure concrete barriers and fencing. In the initial phase, a 20 foot high construction barrier would be erected. During Stages 2 and 3, when the most intensive construction work would occur, the construction area would need to be larger than in Stages 1 and 4. Therefore, as described in the Final EIS, during this 23 month period, the construction area would include an 1,800-square-foot portion of the adjacent multi-use area.

The total construction period for Shaft 33B, including the 8-month period in which the site is secured and inactive while equipment is procured, is an estimated 52 months at the E. 59<sup>th</sup> Street/First Avenue Shaft Site. It is anticipated that construction at the Shaft Site would be conducted in two shifts, from 7 a.m. to 3 p.m. and from 3 p.m. to 11 p.m. The majority of the heavy work occurs during the first shift. During a three-month period in Stage 2 when underground raise-bore excavation would occur, a third (night) shift would occur which would require limited surface activity to monitor the raise-bore machine. An estimated ten to 15 workers would work at the Site per shift during the busiest stages.

The specific construction methods to be used for the water mains have not yet been determined. However, based on past NYCDDC practices, it is likely that water mains would be constructed using the “cut and cover” technique, which involves excavating small areas at a time and covering them once construction is complete. Using this technique, the water mains would likely be constructed in segments so that the entire construction route would not be disrupted simultaneously. Construction areas would typically be limited to a single block, not including its intersections, or a single intersection where a main must cross another street. To expedite the schedule, work could be conducted on several non-adjacent areas simultaneously. For example, for construction along north- and southbound avenues or Sutton Place, the area under construction at any given time (a “segment”) would be anticipated to include two non-adjacent City blocks or one or two street intersections.

Construction work for the water main connections would occur during one eight-hour shift per day. This would typically occur during the daytime, but work could also potentially occur during an evening shift (from 3:00 p.m. until 11:00 p.m.) if NYCDOT Office of Construction Mitigation and Coordination (OCMC) deems evening construction work to be necessary to avoid severe traffic tie-ups. It is also possible NYCDOT may require weekend work or water main construction during the overnight shift (11:00 p.m. to 7:00 a.m.). Given the residential nature of the surrounding area, it is not anticipated that OCMC would request overnight work; however, this Final EIS addressed the potential effects of such work in the relevant analyses.

### *Shaft Activation*

Once construction of the shaft and water mains has been completed, an activation procedure to disinfect the Tunnel and shaft and clear them of air and debris would be implemented before the shaft and connecting water mains can be used. Activation of Shaft 33B would likely occur at the same time as the activation for City Tunnel No. 3, Stage 2 Manhattan Leg. The conceptual activation procedure for Shaft 33B would consist

of three separate steps—shaft filling, shaft flushing, and shaft disinfection. Each step would last an estimated three to five days and the entire processes would last approximately one month.

### *Operation*

Shaft 33B is anticipated to be operational in 2012. The shaft would operate unmanned, 24 hours a day, seven days a week. Water flow from the shaft to the water distribution system would be automatically controlled by the regulators and valve chambers, which are manually set at a particular pressure setting. In addition to the underground shaft and distribution chamber, there would be some features of the shaft that would be above ground. These include two at-grade access hatchways to the shaft, a ten foot high by 14 inch diameter air vent located on the Shaft Site or sidewalk, and up to two air release hydrants (three foot high by six inch diameter). Neither air emissions nor above-ground noise would be generated by the shaft during normal operations.

Although regular operations of the shaft would occur unmanned, maintenance crews would routinely visit the site several times a week for inspection and maintenance activities. On average, one to three visits a week would be expected (roughly ten or 12 visits total in a month). The average crew of NYCDEP employees visiting the site would be anywhere from two to ten people, however, most often, crews on site would be in the two to four people range with one or two vehicles traveling to the site. Certain maintenance trucks would need to park directly over the shaft to facilitate access of mobile maintenance equipment directly to the shaft; other vehicles visiting the site, including city vehicles, are not permitted to violate parking regulations and thus would be expected to park legally on or in the vicinity of the site.

The regulator chambers associated with the water mains would be visited a minimum of once per week. Venturi chambers would be accessed approximately once per month. Equipment maintenance and repair would require potentially several weeks of activity at a given chamber and, similar to equipment maintenance and repair at the shaft itself, would be expected to occur on an infrequent basis over the course of many years.

### ***Land Use, Public Policy, Open Space, and Urban Design***

Although no potential land use or open space impacts are anticipated to occur as a result of the proposed project, NYCDEP would take several steps to ensure that access to land uses surrounding the E. 59<sup>th</sup> Street/First Avenue Shaft Site are maintained. Specifically, temporary pedestrian sidewalks (five feet wide, and conforming to the requirements of the NYCDOT Office of Construction Mitigation and Coordination [OCMC]) must be maintained along E. 59<sup>th</sup> Street and First Avenue adjacent to the construction site thus ensuring pedestrian access to the multi-use area would be maintained at all times during Shaft 33B construction (except for limited time periods when access is prohibited by FDNY regulations associated with blasting activities). No NYCDEP vehicles, or construction vehicles associated with the Contractor's activities would be permitted to park in the multi-use area that would remain open during the construction period.

Following completion of the 23 month period, the portion of multi-use area temporarily used for construction staging would be restored in coordination with the NYCDOT and the community as applicable. This would be consistent with the 197a plan of Community Board 8 and future NYCDPR plans for the area.

Where possible along the selected water main route, the NYCDDC would replace any removed street trees in accordance with the requirements of NYCDPR, which administers the street tree program in New York City. The replacement trees would in most cases be smaller and less mature than the trees that were lost. The potential elimination of mature street trees, in the numbers described above, would have a temporary adverse impact on urban design mainly because the replacement trees would provide less shade and aesthetic appeal than exists today. However, this potential temporary adverse impact would be offset by additional tree planting in the community.

### *Noise*

Based on a thorough evaluation, NYCDEP is committed to implementing a wide range of measures to minimize potential significant adverse noise impacts, as presented in the Final EIS (Section 4.12, "Noise"). NYCDEP will continue to investigate noise mitigation and attenuation measures and will work with NYCDDC to implement measures to further reduce noise at the Shaft Site and for the water main connections.

In advance of certain activities that are likely to result in high noise and vibration levels such as blasting, NYCDEP and its contractor would conduct extensive outreach to those in the vicinity of the E. 59<sup>th</sup> Street/First Avenue Shaft Site. This would include providing the nearby community with the expected start date for blasting operations, the general time pattern during the ensuing months, and the timing and significance of the warning whistles.

NYCDEP is committing to providing a number of measures that would be provided at the E. 59<sup>th</sup> Street/First Avenue Shaft Site to minimize potential noise impacts from construction. This includes a prefabricated 20 foot high concrete wall, covered with a sound absorptive fabric on the inside to reduce reflective noise, to be constructed around the perimeter of the Shaft Site during the initial stages of construction prior the onset of noisy construction activities. Since concrete operations during are among the noisiest operations, the concrete mixing trucks will also be enclosed in an acoustical sound enclosure providing 15 dBA attenuation during Stages 2, 3 and 4A. During a portion of Stage 4 (Stage 4B, for three months), the eastern end of the Shaft Site would be expanded eastward to include adjacent sidewalk and roadway space on First Avenue; this expanded area would have a ten foot high barrier wall. NYCDEP would work with NYCDDC, who will likely implement Stage 4B construction, to ensure appropriate noise attenuation measures are included within their construction contract. These could include the provision of a 20 foot high barrier as opposed to a ten foot high barrier and an additional truck enclosure to be provided within the additional 4B construction area.

While not assumed in the quantitative noise analysis conducted for this Final EIS, NYCDEP will undertake a number of other measures to minimize noise impacts from the project. The contractor will be required to have a noise monitoring program in place

during all construction activities. A high quality muffler will be used on the crane engine. NYCDEP will also require the contractor to use newer equipment (2003 or later for most equipment) and minimize idling. Other noise abatement measures that the contractor may be required to take as necessary include: soundproof housings or enclosures for noise producing machines and other facilities; use of electrically operated hoists and compressor plants; silencers on air intakes and exhaust mufflers on internal combustion engines; maximum-sized intake and exhaust mufflers on internal combustion engines; gears on machinery designed to reduce noise to a minimum; hoppers and storage bins lined with sound-deadening material; possible prohibition of the use of air- or gasoline-driven saws and similar equipment; and delivering and removing materials, and the loading and unloading of materials into or from various conveyances in such a manner that will keep noise to a minimum.

Through NYCDEP's authority under the construction contract, the Shaft Construction and Tunneling Permits, and the New York City Noise Code, NYCDEP can send inspectors to the Site, take enforcement action against the Contractor, and require further attenuation measures or shutdown construction on the site if the noise is determined to be excessive. In addition, NYCDEP will appoint a construction monitor to the site, who will be independently employed from the construction contractor and responsible directly to the NYCDEP, to ensure the contractor effectively implements all practicable noise abatement measures prescribed herein and continues to devise noise attenuation strategies that minimize construction noise throughout the construction period.

Despite noise attenuation measures that will be included as part of the project, and the continuing evaluation of other practicable and feasible noise mitigation strategies, certain potential significant noise impacts at the E. 59<sup>th</sup> Street/First Avenue Shaft Site would remain unmitigated.

During water main construction, based on the range of analysis conducted, there is the potential for temporary and transient adverse impacts to sensitive receptors along the potential water main connection routes from the E. 59<sup>th</sup> Street/First Avenue Shaft Site. These impacts would range from marginally perceptible to, at times, highly intrusive. Depending on the location, impacts to potential sensitive receptors could have an estimated duration of approximately 32 to 34 weeks. The water main construction would occur segment by segment and would not impact receptors along any given block for an extended period. Due to the short-term duration that potential adverse impacts could occur, these impacts are considered to be temporary adverse impacts.

NYCDEP will work with NYCDDC, who will be responsible for the water main construction work, to implement measures to minimize potential noise impacts. These measures could include use of newer equipment, mufflers and silencers, housings or enclosures for noise producing equipment, possible prohibition of the use of air or gasoline driven saws and similar equipment, and implementation of a noise monitoring program. Pursuant to the New York City Noise Code passed in late December 2005, NYCDEP will work with the Contractor to develop "mitigation plans" for water main construction. These plans will be developed based on specific types of work and types of equipment listed in the Noise Code. Nighttime work will require stricter plans, with

consideration given to distance to receptors. It is anticipated, however, that it will not be practicable to fully attenuate noise levels even with these measures in place. Overall, the effects from water main construction are not unique, but typical of construction projects in Manhattan that involve construction in close proximity to sensitive receptors. The potential increases in noise levels are not permanent environmental changes and no changes in the noise levels will occur from this project after it has been constructed.

### ***Historic Resources***

The Queensboro Bridge, a historic structure, would be immediately adjacent to the construction area at the E. 59<sup>th</sup> Street/First Avenue Shaft Site. The potential for structural effects to the Bridge was carefully evaluated early in NYCDEP's site selection process, before the site at E. 59<sup>th</sup> Street and First Avenue was identified as a feasible potential site, and NYCDEP will coordinate closely with NYCDOT and the New York City Landmarks Preservation Commission (NYCLPC) to ensure the Bridge's continued integrity. To ensure that no potential significant adverse impacts occur to the Queensboro Bridge as a result of any of the proposed construction activities, a construction protection plan, for implementation throughout construction, will be developed in consultation with NYCLPC. This will ensure that no damage would occur to the historic structure that would affect its integrity as a National Register and New York City Landmark property.

As part of the construction protection plan for the Bridge, protective measures would be taken during blasting to ensure that no potential significant adverse vibration impacts would occur to the Queensboro Bridge due to blasting. NYCDEP would work closely with NYCDOT as well as NYCLPC to ensure that the Bridge would not experience vibration levels exceeding a limit acceptable to NYCDOT. The steps to be taken would include the following:

- Inspect and report on current foundation and structural conditions;
- Establish a maximum permissible vibration level, to ensure that no architectural or structural damage would occur;
- Set up a vibration monitoring program to measure vertical and lateral movement and vibration within the previously identified zone of impact. Details as to the frequency and duration of the vibration monitoring program would be determined in consultation with NYCDOT and/or NYCLPC;
- Establish and monitor construction methods to limit vibrations to levels that would not cause structural damage to the Bridge, as determined by the condition survey; and
- Issue "stop work" orders to the construction contractor, as required, to prevent damage to the structure, based on any vibration levels that exceed the design criteria in lateral or vertical direction. Work would not begin again until the steps proposed to stabilize and/or prevent further damage to the structure were approved.

Thus, no potential significant adverse impacts would occur to historic resources at the E. 59<sup>th</sup> Street/First Avenue Shaft Site.

For the water main routes, NYCDEP will coordinate with NYCDDC prior to construction of future water main connections to ensure that appropriate measures to protect historic resources are undertaken in accordance with NYCLPC's established procedures with respect to archaeological resources. As set forth in NYCLPC's publication, *Landmarks Preservation Commission Guidelines for Archaeological Work in New York City*, dated April 12, 2002, these procedures involve initial review by NYCLPC to determine if archaeological work is necessary, an archaeological documentary study if warranted, archaeological field testing if warranted by the results of the study, and, for any archaeological resources identified using this process, measures to avoid significant adverse impacts such as monitoring during construction, data recordation, and/or excavation. The established procedures of NYCLPC would be adhered to in order to ensure that no potential significant adverse impact would occur to archaeological resources.

Construction of the water mains would not be anticipated to result in potential adverse impacts to architectural resources within the Study Areas, given the short duration of the work and the limited vibration. At locations where pavement breaking (with the use of jackhammers) is required, deep saw cuts would be made first. These saw cuts would minimize the transmission of vibrations from pavement-breaking operations to the foundations of nearby structures. For the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route, which would pass through the Treadwell Farm Historic District, NYCLPC will be consulted regarding the potential construction in the Historic District to avoid any potential significant adverse impacts on this historic resource.

### ***Traffic/ Parking and Transit/ Pedestrians***

The traffic conditions in the area of the Queensboro Bridge are congested and NYCDEP recognizes that added truck activity, even when small in number and limited in duration, may have the potential to further complicate already difficult operating conditions. In recognition of such, NYCDEP is continuing to consult with NYCDOT to determine the need for additional TEAs to be assigned to critical locations near the E. 59<sup>th</sup> Street/First Avenue Shaft Site. If NYCDOT determines that additional TEA presence or flag persons would help to effectively manage and maintain traffic flow, NYCDEP would provide the funding for this purpose or require the contractor to provide additional flag persons. Further, the contractor would not be permitted to queue trucks in the streets and/or avenues adjacent to and in the vicinity of the Site.

During blasting activity at the E. 59<sup>th</sup> Street/First Avenue Shaft Site, a warning whistle protocol will be implemented in accordance with the requirements of the FDNY. The contractor will seek a waiver to the protocol from the FDNY to reduce traffic/ pedestrian stoppage adjacent to the project area from the regular five minute period to a one minute period.

Although it is premature to present a final resolution about water main routing at this time, NYCDEP closely studied the potential environmental consequences of their construction. Temporary adverse traffic impacts were identified for numerous Study Area locations for the First Avenue, Sutton Place and E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street water main routes. Construction efforts would be coordinated with NYCDOT OCMC and

incorporate conventional traffic attenuation and more aggressive measures as an overall effort to attenuate conditions for traffic flow at critical locations. The Final EIS identifies conceptual conventional traffic attenuation measures that could be implemented to reduce congestion at impacted locations. Where the temporary adverse traffic impacts could not be fully attenuated with these measures, more aggressive conceptual traffic management strategies that could further alleviate traffic congestion during the construction of the water main connections were also explored and are summarized below. For any water main route ultimately constructed, the NYCDEP, NYCDDC and NYCDOT would work to ensure that all practicable traffic attenuation strategies are specified in the construction contract to alleviate traffic congestion during water main construction.

#### *First Avenue Route*

Construction of the water main connections along the reasonable worst-case First Avenue route would result in temporary adverse traffic impacts along First Avenue at all intersections between E. 55<sup>th</sup> and E. 59<sup>th</sup> Streets during construction of certain water main segments. There would also be temporary adverse traffic impacts on the eastbound approach of E. 56<sup>th</sup> Street at Second Avenue during one segment of construction. The conventional traffic attenuation measures used to address these impacts consist of extending the curbside restrictions on the west side of First Avenue and incorporating signal timing changes at Second Avenue and E. 56<sup>th</sup> Street.

#### Traffic Attenuation Assessment Summary

While the provision of an extra travel lane by imposing more stringent curbside restrictions on First Avenue during the AM and midday peak periods would, after accounting for traffic diversions, reduce potential temporary adverse impacts at many of the affected intersections, potential temporary adverse impacts lasting several months would persist at the E. 57<sup>th</sup> Street intersection during the AM and midday peak periods and at the E. 59<sup>th</sup> Street intersection during the AM peak period. Furthermore, with no traffic attenuation measures imposed for the PM peak period, the temporary adverse impacts at First Avenue and E. 57<sup>th</sup> Street would not be fully attenuated. The agencies, including NYCDEP, NYCDDC, and NYCDOT, would coordinate during construction to determine the appropriate actions to further alleviate congestion and improve traffic flow beyond the conditions described in the Final EIS. Some more aggressive traffic attenuating measures that may be considered as part of a comprehensive traffic management plan are discussed below.

#### Conceptual Traffic Management Strategies

The use of traffic enforcement agents (TEAs) to facilitate more efficient traffic flow is commonly applied at congested locations in New York City. Along First Avenue, TEA presence is currently evident at its intersections with E. 57<sup>th</sup> and E. 59<sup>th</sup> Streets during peak periods. Increasing additional TEA presence at these locations and at intersections upstream from the immediate access/egress links of the Queensboro Bridge (i.e., at E. 54<sup>th</sup>, E. 55<sup>th</sup>, and E. 56<sup>th</sup> Streets) could further improve traffic flow and reduce the potential for gridlock conditions at congested intersections. In the Final EIS mitigation analysis, parking restrictions on the west curb lane of First Avenue were considered to be only partially effective in providing an additional travel lane (i.e., the analysis

conservatively assumes the lane would only be available 25 percent of the time). This is due to the nature of the curbside activity on First Avenue, which is characterized by commercial loading/unloading and short-term parking for commercial activity. A more aggressive measure may be to impose more stringent enforcement of the west curb lane restriction on First Avenue during construction. Through prompt ticketing and even towing of violators, blockages on the west curb lane could become less frequent, thereby increasing the effectiveness of this traffic attenuation measure and potentially achieving a higher throughput capacity than the 25 percent assumed for this lane. Installing appropriate signage, including fixed and possibly variable message signs, well in advance of the construction zone (i.e., at E. 42<sup>nd</sup> Street and south of the First Avenue tunnel) would provide motorists the opportunity to make informed decisions on what travel routes to take. Making frequent public announcements of conditions during construction could also further inform the choice-making of motorists and reduce the traffic demand on First Avenue.

#### *Sutton Place Route*

Construction of the water main connections along the Sutton Place route would result in potential temporary adverse traffic impacts at the First Avenue intersection with E. 59<sup>th</sup> Street and at the Sutton Place intersections at E. 57<sup>th</sup>, E. 58<sup>th</sup>, and E. 59<sup>th</sup> Streets. Since the Sutton Place route joins the First Avenue route at First Avenue to continue west along E. 55<sup>th</sup> and E. 56<sup>th</sup> Streets, the impacts identified above for the First Avenue route would also occur. The conventional traffic attenuation measures used to address these impacts consist of imposing curbside restrictions on the east side of Sutton Place and incorporating signal timing changes at several Study Area intersections.

#### Traffic Attenuation Assessment Summary

While the traffic attenuation measures identified would reduce potential temporary adverse impacts at most of the affected intersections, potential impacts could not be fully attenuated at First Avenue and E. 59<sup>th</sup> Street in the PM peak hour until the E. 59<sup>th</sup> Street segment construction is complete and two-way traffic is restored between First Avenue and Sutton Place/York Avenue. At Sutton Place and E. 57<sup>th</sup> Street, the temporary adverse impacts identified for the midday peak hour during construction at this location would not be fully attenuated. With construction along E. 59<sup>th</sup> Street staged in 200 foot long intervals at a time, the projected temporary adverse impacts at adjacent intersections are likely to be less severe and attenuation measures would not likely be required for the entire duration of the segment's construction. For southbound Sutton Place at E. 57<sup>th</sup> Street, the potential temporary adverse impacts could not be fully attenuated and would persist for the duration of construction at this location. Although conventional attenuation measures would not be appropriate at this location due to substantial traffic volumes in competing approaches, it would be viable for a TEA to facilitate more efficient traffic flow. To attenuate the temporary southbound impact during the midday peak period, a second southbound lane is needed. While it would be infeasible to create a lane shift via restriping for this additional southbound lane, similar operational results could be achieved by using traffic cones to expand the available width on the southbound roadway while adjacent construction is under way. When the construction zone would be narrowed after the midday peak period, the "manual" shifting of lane channelization

could be terminated at the discretion of the TEA stationed at the intersection. As discussed, the agencies, including NYCDEP, NYCDDC, and NYCDOT, would coordinate during construction to determine the appropriate actions to further alleviate congestion and improve traffic flow beyond the conditions described in the Final EIS.

#### *E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street Route*

Construction of the water main connections along the E. 59<sup>th</sup> Street/E. 61<sup>st</sup> Street route would result in temporary adverse traffic impacts at the First Avenue intersections with E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets, the Second Avenue intersections with E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets, and at the Third Avenue intersections with E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets. The conventional traffic attenuation measures used to address these impacts consist of only incorporating signal timing changes at the First Avenue intersections with E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets.

#### Traffic Attenuation Assessment Summary

Construction of the water main connections along the E. 59<sup>th</sup> Street/ E. 61<sup>st</sup> Street route would result in temporary adverse traffic impacts that could not be fully attenuated with conventional measures. While projected potential temporary adverse impacts at the First Avenue intersections with E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets could be attenuated with adjustments to signal timing, potential impacts predicted for the E. 61<sup>st</sup> Street corridor from First Avenue to Third Avenue and for the E. 59<sup>th</sup> Street block from Third Avenue to Second Avenue have the potential to cause noticeable queuing and traffic diversions that would not be fully attenuated. As discussed, the agencies, including NYCDEP, NYCDDC, and NYCDOT would coordinate during construction to determine the appropriate actions to further alleviate congestion and improve traffic flow. Some more aggressive traffic attenuating measures that may be considered as part of a comprehensive traffic management plan are discussed below.

#### Conceptual Traffic Management Strategies

As discussed above, the construction efforts would be conducted in coordination with NYCDOT OCMC, which requires the preparation of maintenance and protection of traffic (MPT) plans to address potential traffic impacts, such as those resulting from capacity reductions during construction on the heavily traveled cross-town routes of E. 59<sup>th</sup> and E. 61<sup>st</sup> Streets. Currently, two or three traffic lanes are available at the approaches of these streets at Second and Third Avenues, and the reduction to a single lane on these approaches would result in delays and queues that are beyond what conventional traffic attenuation techniques could alleviate.

To address the construction-related impacts that can not be attenuated using conventional techniques, while temporary, on these cross-town streets during the construction of certain segments, a comprehensive traffic management plan considering various options would need to be formulated. This plan, which may identify potential diversion routes and coordinate traffic controls at key locations, would need to be managed within a more sizeable area beyond only the E. 59<sup>th</sup> and E. 61<sup>st</sup> Street corridors to further attenuate traffic flow at critical locations. The potential elements of such a plan are likely to be

similar to those described previously for the First Avenue route and could include the following:

- Identify alternate westbound routes for traffic exiting the northbound FDR Drive at E. 61<sup>st</sup> Street, which may include E. 57<sup>th</sup>, E. 63<sup>rd</sup>, E. 66<sup>th</sup>, and E. 72<sup>nd</sup> Streets;
- Identify alternate routes to the Queensboro Bridge for eastbound traffic on E. 59<sup>th</sup> Street, which may include E. 57<sup>th</sup> and E. 58<sup>th</sup> Streets, First Avenue, and Second Avenue;
- Implement “Buses Only” traffic restrictions on Marginal Street between the Queensboro Bridge and E. 61<sup>st</sup> Street during construction on the segments that include First Avenue between E. 57<sup>th</sup> and E. 58<sup>th</sup> Streets, First Avenue between E. 55<sup>th</sup> and E. 56<sup>th</sup> Streets, and E. 56<sup>th</sup> Street from First to Second Avenue;
- Recommend temporary capacity improvement measures to accommodate additional traffic volumes on designated detour routes, which may include additional restrictions of curbside usage, daylighting of intersection approaches, modifying signal timing, and creating channelization for enhanced traffic flow; and
- Provide appropriate signage, frequent public announcements, TEAs, and traffic enforcement, where necessary, to facilitate effective traffic detours.

#### *Traffic Conclusions*

More specific MPT plans would be formulated closer to the time of construction based on detailed design information including coordination with utilities, further investigation into the feasibility of alternative construction techniques that might be used to further minimize the potential temporary adverse impacts of the water main construction project identified in the Final EIS, and ongoing coordination and collaboration between NYCDEP, NYCDDC, and the NYCDOT regarding construction techniques and alignment. Every effort would be made to attenuate the potential temporary adverse impacts disclosed in the Final EIS and maintain traffic flows at acceptable levels during the water main construction.

Although the goal of these efforts would be to fully attenuate all temporary adverse traffic impacts identified using the traffic management strategies identified in the Final EIS for each of the routes and beyond, even with the most aggressive efforts, it is unlikely that these impacts could be fully attenuated due to the roadway capacity reductions necessitated by water main construction in this heavily trafficked area. Realizing the community concerns regarding this issue, NYCDEP and NYCDDC will continue to coordinate with the community as plans for the water mains progress.

Finally, NYCDDC and NYCDEP are both members of the MTA’s Technical Advisory Committee for the Bus Rapid Transit Program (BRT). NYCDEP and NYCDDC will coordinate with MTA to minimize disruption to that program and specifically, as it relates to the First and Second Avenue corridors and water main construction.

## ***Air Quality***

Although no potential significant adverse air quality impacts are anticipated during construction of the shaft site, NYCDEP will require the contractor to take several proactive steps to reduce emissions from construction equipment. At the E. 59<sup>th</sup> Street/First Avenue Shaft Site, NYCDEP will require the contractor for Shaft 33B to reduce particulate matter emissions to the extent practicable by employing relatively new equipment (model years 2003 and newer), utilizing ultra low-sulfur diesel fuel, installing emissions controls on diesel equipment greater than 50 horsepower (hp), such as diesel particulate filters (DPFs) or diesel oxidation catalysts (DOCs), and using alternate means of powering the equipment, such as electricity. For diesel equipment greater than 50 hp in size that will likely not be able to implement DPFs, DOCs will be required. DPFs are expected to have a 90 percent PM reduction efficiency and DOCs a 25 percent PM reduction efficiency. Equipment that would be powered by electricity include the dewatering pump, the raise bore machine and the welder.

In addition, NYCDEP will also require that the concrete truck enclosure incorporate an air filter in to its exhaust system. On site travel speeds would be restricted to 5 miles per hour or less, and a dust control plan would be implemented to control fugitive dust. Except for concrete trucks, all delivery/loading trucks will be limited to 3 minutes of idling time subject to City law. These measures would further reduce truck emissions in the neighborhood.

For any future water main connection route, the construction activities that would be contracted by the NYCDDC will be subject to New York City Local Law 77, which will require the use of Best Available Technology for equipment at that time. No potential significant adverse air quality impacts were predicted from the construction of the water main connections.

## ***Hazardous Materials***

A Phase II Environmental Site Assessment (ESA) consisting of two environmental borings was performed at the E. 59<sup>th</sup> Street/First Avenue Shaft Site to evaluate the potential for subsurface materials to contain hazardous materials. The soils organic analysis data obtained from the borings are generally consistent and show that many of the organic compounds detected are mainly polycyclic aromatic hydrocarbons (PAHs) (See Table 4.14-1 of the Final EIS). PAHs are common contaminants in urban environments and are often associated with asphalt and oil based products. Certain metals detected in the soils—beryllium, chromium, copper, iron, lead, mercury, nickel, and zinc—exceeded New York State Department of Environmental Conservation (NYSDEC) recommended soil cleanup objectives as put forth in the Technical and Administrative Guidance Memorandum (TAGM) at depths down to 20 feet below grade. Arsenic and selenium also exceeded TAGM objectives at the 3 to 5 foot sampling interval. Many of the compounds, however, are within the typical range of Eastern US background levels for soils.

One groundwater sample was taken at the site. The data revealed that two parameters exceeded NYCDEP limits. PCB (AROCOLOR 1016) was detected at 5.50 µg/L (NYCDEP

limit, 1µg/L total PCBs). The groundwater total suspended solids (TSS) of 8,500 mg/L also exceeded the NYCDEP limit of 350 mg/L.

All remediation at the site will be performed in accordance with a Remedial Action Plan (RAP) conforming to the requirements delineated in the Section 4.14 of the Final EIS. This plan would adhere to all applicable local, state and federal regulations and would be submitted to and approved by NYCDEP prior to any construction activity. During the final stage of construction, the site will be filled with certified clean fill that meets all NYSDEC recommended soil cleanup objectives in the TAGM #4046 and capped with an impervious surface. An appropriate testing program will be developed as part of the project's dewatering permit(s), which will be sought from NYCDEP Bureau of Water and Sewer Operations, if required. Treatment will be to the levels specified in NYCDEP sewer regulations (for sewer discharges).

All construction at the site will be performed in accordance with a CHASP to be submitted to and approved by the NYCDEP prior to any construction activity. The CHASP, in part, will include the means and methods necessary to reduce the potential for worker or public contact with contamination found in either the soil or groundwater. These plans would address the potential exposure pathways. In addition to addressing issues related to site contamination, the CHASP addresses other safety concerns associated with a variety of construction methods. Each CHASP would address both the known contamination issues as well as contingency items (e.g., if unknown contamination is encountered). The CHASP would be developed in accordance with U.S. Occupational Health and Safety Administration (OSHA) regulations and guidelines and include any additional contaminants that are identified during the contractor's field sampling program.

The Phase I ESAs conducted for each potential water main route revealed that the areas of potential excavation may contain suspected contaminated soils and groundwater. A Phase II ESA, which involves environmental testing of soil and groundwater in the areas of potential disturbance to determine the presence, type and levels of contaminants that may be present, will be conducted after a water main route is selected and prior to in-ground construction at the site.

Remedial measures to ensure that no potential significant adverse hazardous materials impacts occur during water main construction include:

- Soil removal and disposal off-site in accordance with all applicable Federal, State, and local regulations;
- Implementation of a NYCDEP approved Construction Health and Safety Plan (CHASP);
- Implementation of a NYCDEP approved Remedial Action Plan (RAP); and
- Testing and potential treatment of groundwater from dewatering activities to levels specified in applicable local and state permits.

During the final stage of construction, the site will be filled with certified clean fill that meets all NYSDEC recommended soil cleanup objectives in TAGM #4046 and capped with an impervious surface.

With implementation of the measures discussed above, there would be no potential significant adverse hazardous materials impacts from construction of Shaft 33B and its water mains connections at the E. 59<sup>th</sup> Street/First Avenue Shaft Site.

## **V. Conclusions and Findings**

The information contained in the Final EIS demonstrates that the preferred site at E. 59<sup>th</sup> Street and First Avenue should be the location for Shaft 33B. The undersigned, as Commissioner of the NYCDEP, having duly considered such information and analysis, concurs in the determination that the E. 59<sup>th</sup> Street/First Avenue Shaft Site is the selected site for construction of Shaft 33B and finds that:

- The requirements of Part 617 of the New York Codes of Rules and Regulations have been met;
- Consistent with the social, economic and other essential considerations, from among the reasonable alternatives thereto, the actions to be approved are ones that would minimize or avoid adverse environmental impacts to the maximum extent practicable; and
- Consistent with social, economic and other essential considerations, the adverse environmental impacts revealed in the Final EIS will be minimized or avoided to the maximum extent practicable by incorporating as conditions to the approval those mitigation measures that were identified as practicable.

The Final EIS and Notice of Completion of the Final EIS constitute the written statement of facts and the environmental, social, economic and other factors and standards that form the basis of this decision, pursuant to Section 617.11(d)(5) of the SEQRA regulations.

Dated: January 31, 2006  
Flushing, New York



Emily Lloyd  
Commissioner  
New York City Department of Environmental Protection