Reevaluations and Supporting Documentation

East Side Access - Metropolitan Transportation Authority (MTA), State of New York
Environmental Impact Statement

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U.S. Department
of Transportation
**Federal Transit
Administration**

REGION II
Connecticut
New Jersey
New York
Virgin Islands

One Bowling Green
Room 429
New York, NY 10004-1415
212-668-2170
212-668-2136 (Fax)

020488

August 30, 2002

Mr. Christopher P. Boylan
Deputy Executive Director
Corporate Affairs and Communications
Metropolitan Transportation Authority
347 Madison Avenue
New York, New York 10017-3739

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Dear Mr. Boylan:

The Federal Transit Administration (FTA) has completed its review of your July 19, 2002 correspondence regarding the environmental review of the alternative design options for East Side Access.

The information provided for two projects: the Vent Facility/Loading Dock at 50th Street; and Loop Track Modifications at Sunnyside Yard is satisfactory and FTA does not require any further information. Please consider the environmental review for these projects complete.

The other two projects: New Tail Tracks South of Grand Central Terminal and New Entrance at the Roosevelt Hotel still require review under Section 106 of the Historic Preservation Act in accordance with the East Side Access Programmatic Agreement. FTA looks forward to reviewing the Section 106 information when it is completed.

Please contact us if you have any questions or concerns.

Sincerely,

Letitia Thompson
Regional Administrator

Cc: Sarah Rios, MTA
Anthony Japha, MTA/LIRR East Side Access
Joe Petrocelli, MTA/LIRR East Side Access

A. INTRODUCTION

This technical memorandum provides an assessment of the environmental consequences of several potential changes in the design of the East Side Access Project. Specifically, the assessment examines these changes with respect to the findings of the Final Environmental Impact Statement (FEIS) prepared for the project, dated March 2001, and the Record of Decision issued by the Federal Transit Administration (FTA) in May 2001 to determine if any additional impacts not discussed in those documents would result from the design revisions. Four potential design changes were examined:

- New tail tracks south of Grand Central Terminal (GCT).
- A new 50th Street ventilation plant/truck dock.
- Loop track modification in Sunnyside, Queens.
- A new entrance at the Roosevelt Hotel.

The following assessment is based on data presented in the project's FEIS as well as additional field surveys conducted in summer/fall 2001. To the extent possible, the analysis uses the same methods and criteria developed as part of the FEIS to determine the significance of any potential environmental impacts.

Each design element is discussed separately below. A brief description of the new element and the reason for the change is followed by a discussion of the affected environment and consideration of potential impacts during construction and operation. These impacts are then compared to the conclusions of the FEIS to determine if new or additional mitigation would be necessary if the design change were adopted by the project.

B. NEW TAIL TRACKS SOUTH OF GCT

POTENTIAL DESIGN CHANGE

One of the design changes being proposed is the addition of four tail tracks south of GCT, extending south from the platform tracks of the project's new Long Island Rail Road (LIRR) terminal at GCT. This new design element was selected from a series of options developed to increase the LIRR's operational flexibility at the terminal, especially during perturbed conditions. At both LIRR track levels in the new terminal, two tail tracks would extend beneath GCT from the terminus of the new platforms at approximately 44th Street. The four tail tracks would be approximately 1,700 feet long (including crossovers) and would each be capable of storing a 12-car consist. Each tail track would be in a separate cavern extending south to East 38th Street and would be connected to the terminal's eight platform tracks in a switching cavern beneath GCT. During perturbed conditions, such as when disabled trains are occupying platform space, the inclusion of tail tracks would improve operating conditions by providing space to move the disabled trains out of the way to allow for normal operations at the platforms.

The tail tracks would require a ventilation system for normal operations as well as emergency conditions. Based on the preliminary ventilation assessment, a pair of jet fans would be installed in the annular tunnel space associated with the wye section in each tail track and a 200-square-

foot ventilation shaft would lead to street-level gratings in the sidewalk at a location between East 37th and East 40th Streets near Park Avenue.

The caverns (approximately 1,700 feet long) for the four tracks would be constructed with the same tunnel boring machines (TBMs) to be used for the Manhattan running tunnels. Similar to construction of the main tunnels, disposal of muck and transportation of construction materials would occur through the Manhattan tunnels and 63rd Street Tunnel using the access shaft in Queens. At their northern connection with the GCT platform tracks, approximately 500 feet of the caverns would be constructed using a controlled drill-and-blast method. For this assessment, it is assumed that the ventilation shaft would be constructed primarily from below, with limited cut-and-cover work at the surface, similar to the construction discussed in the FEIS for East 55th Street.

AFFECTED AREA

The study area for the tail tracks is shown in Figure 1. This area includes the area of the proposed alignment as well as the cross streets where a ventilation shaft beneath the street bed may be located. As shown in Figure 1, the study area encompasses the area between 42nd and 37th Streets from midway between Madison and Park Avenues to midway between Park and Lexington Avenues.

As shown in Figure 1, the land use in the study area is predominantly commercial office from East 42nd to East 39th Street. Buildings fronting on Park Avenue in this area are tall, ranging from 25 to 46 stories. These buildings and those on the side streets in this area have ground-floor retail space, including restaurants and banks. An urban plaza that is well used by office workers on weekdays wraps around 101 Park Avenue at the northeastern corner of Park Avenue and 40th Street.

East 39th Street marks the area's transition to a residential neighborhood: the blocks between 39th and 37th Streets are predominantly residential, with hotels and institutional uses. On these blocks, a mix of small (5- and 6-story) and mid-rise (15-story) apartment buildings front on Park Avenue and smaller buildings occupy the midblocks on the side streets. Many of these residential buildings have ground-floor professional offices, primarily medical-related. Several hotels and institutional uses are located in this portion of the study area. On the west side of Park Avenue, both corners of 38th Street are occupied by hotels. One of these hotels has outdoor seating associated with its café/restaurant stretching north along Park Avenue from 38th Street. On the east side of Park Avenue, the Roman Catholic Church of Our Savior is located on the southeast corner. This study area also includes several buildings occupied by missions to the United Nations and consul generals' offices.

The study area includes a notable transportation feature: a tunnel carries vehicles beneath the center of Park Avenue between East 34th and East 40th Street. North of East 40th Street, the roadway rises up from the tunnel to a viaduct in the center of Park Avenue that carries vehicles around GCT to and from East 46th Street. In addition, the Lexington Avenue subway line (Nos. 4, 5, and 6 routes) also runs beneath Park Avenue in the study area. Pedestrian entrances to the subway system are located within the building on the east side of Park Avenue between 41st and 42nd Streets.

The area has several historic resources. These include the Park Avenue viaduct, which carries vehicular traffic up and around Grand Central Terminal. The Park Avenue viaduct is a New York City Landmark (NYCL) and is listed on the State and National Registers of Historic Places (S/NR). Four historic structures are on 42nd Street in or close to the study area: Grand Central

Terminal (NYCL, S/NR, and National Historic Landmark [NHL]), the Bowery Savings Bank Building at 110 East 42nd Street (NYCL), the Chanin Building at 122 East 42nd Street (NYCL, S/NR), and the Vanderbilt Avenue Building at 51 East 42nd Street (eligible for S/NR). Farther south, the building at 57 Park Avenue (between 37th and 38th Streets) is also a NYCL and S/NR. This building was built as the Adelaide L.T. Douglas House and is now the Guatemalan Permanent Mission to the United Nations and Guatemalan Consul General. In addition, the midblock portions of 38th and 37th Streets between Park and Lexington Avenues are part of the Murray Hill Historic District (NYCL), which also includes portions of 36th and 35th Streets.

The area, like the rest of East Midtown, is busy with traffic. Pedestrian traffic is heavier in the northern section of the study area, near GCT and 42nd Street, especially during rush hour.

POTENTIAL IMPACTS DURING CONSTRUCTION

The FEIS did not consider the potential impacts of construction activities south of Grand Central Terminal, as none were proposed in the design analyzed in that document. The new tail tracks would add construction activities south of GCT, but as discussed below, these new activities would not result in significant adverse impacts.

Although most of the construction work associated with the tail track tunnels would be done below the surface, temporary disruptions would occur to the area surrounding the location of the ventilation shaft. Cut-and-cover excavation would be necessary where the ventilation shaft rises to street level. This would require closing one lane of traffic to allow excavation to proceed. The work would at times be noisy and disruptive, but it would be of short duration and therefore would not result in significant adverse impacts in terms of land use, social conditions, economic conditions, visual conditions, or traffic. The new construction work would be less disruptive than the work already described for areas north of GCT. Those activities were not expected to result in adverse effects to nearby historic resources, so neither would the more limited work required for the tail tracks.

Because it involves excavation, the cut-and-cover construction work has the potential to affect buried archaeological resources. In accordance with Section 106 of the National Historic Preservation Act, further research into possibility of such resources being located in the affected area would be conducted once the shaft site location has been identified. Once geotechnical borings are available for review, the potential for adverse effects to occur on archaeological resources at the shaft location would be considered in accordance with the project's Programmatic Agreement executed by FTA, MTA, and the New York State Historic Preservation Office (SHPO). A copy of the Programmatic Agreement was provided in Appendix B of the FEIS.

The tunneling work required for the new tail tracks would be similar in nature to that described in the FEIS north of GCT. Therefore, similar to that tunneling work, the new tunneling and excavation required for the tail tracks also would not result in significant adverse noise or vibration impacts during construction. The location of the new tail tracks—130 feet below the surface within rock—is of similar depth below street level, and within similar geological conditions to the Manhattan tunnels analyzed in the FEIS.

Construction activities related to possible tail tracks also would not have the potential to result in disproportionate impacts to low-income or minority populations, which are protected by Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." As described in Chapter 18 of the FEIS, Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse

human health or environmental effects of their programs, policies, and activities on low-income and minority populations. The Manhattan study area analyzed for environmental justice in the FEIS included the area that would be affected by the tail tracks. As noted in the FEIS, the Manhattan study area did not have a population that would be considered low-income or minority relative to Manhattan as a whole or to New York City. Specific data for the two census tracks closest to the proposed location of the tail tracks (Tracts 80 and 82, extending from Third to Fifth Avenue, 35th to 42nd Street), confirm this conclusion. In this area, the 2000 census reports that 87 percent of the population consider themselves to be White alone (rather than in combination with another racial or ethnic group), compared with 54 percent for Manhattan overall and 45 percent for the whole city. Some 6 percent of the population was living below the poverty level in 1989 (as reported in the 1990 census, the latest census for which income data are available), compared with 21 percent in Manhattan overall and 19 percent in New York City as a whole. Thus, the population in the area of the possible new tail tracks should not be considered to be minority or low-income relative to the larger reference areas of the borough and the city.

POTENTIAL IMPACTS DURING OPERATION

Once the new tail tracks are in place, no impacts would occur as a result of operation of LIRR trains in these tunnels. The trains would operate at very low speeds, and therefore would not result in significant adverse noise or vibration impacts. Further, as described above, he location of the new tail tracks—130 feet below the surface within rock—is of similar depth below street level, and within similar geological conditions to the Manhattan tunnels analyzed in the FEIS. In addition, ambient noise and vibration conditions in this area are similar to those at Manhattan locations analyzed in the FEIS. The new tail track tunnels would be beneath the Lexington Avenue subway tunnels under Park Avenue, similar to the location of the new East Side Access tunnels analyzed in the FEIS, which were beneath the Metro-North Railroad tunnels under Park Avenue north of Grand Central Terminal.

The tail track tunnels' ventilation system would operate during normal operations to exhaust warm air from the tunnels. This air would be exhausted to street level through grates in the sidewalk at a location between East 37th and East 40th Streets near Park Avenue. The presence of grates in the sidewalk would not result in adverse impacts on land use, visual character, neighborhood character, or historic resources, particularly considering that such grates are common throughout Manhattan. The air exhausted from the tunnel would be similar to what occurs at other sidewalk grates throughout Manhattan, and would not adversely affect pedestrian conditions. Similarly, no significant adverse impacts would occur in other impact areas considered in the FEIS.

As described earlier, the population in this area is not low-income or minority in nature, so no environmental justice concerns would be raised by the presence of the new tail tracks.

C. NEW 50TH STREET FACILITY

POTENTIAL DESIGN CHANGE

This option would involve acquiring four low-rise (five- and six-story) buildings at 44, 46, 48, and 50 East 50th Street, between Park and Madison Avenues, to allow construction of a support building for the East Side Access Project. The existing buildings would be demolished and replaced with a new facility housing loading docks, cooling towers, ventilation equipment, and emergency generators. This facility would be in addition to the East 44th Street ventilation plant discussed in the FEIS.

This proposal is superior to the design analyzed in the FEIS since it would consolidate many ancillary facilities in one location and reduce construction and maintenance costs. The FEIS design included a ventilation facility in the Madison Avenue concourse with fresh air intakes in sidewalk grates along 49th Street and exhaust grates on both sides of 50th Streets. In addition, mechanical equipment such as cooling towers was to be installed on the roof of GCT. The project also envisioned using the existing GCT truck docks at Depew Place. As the design proceeded, several issues arose that led to the proposed design modification, which incorporates all of the above ancillary uses. First, the existing Depew Place truck docks, located approximately ½ mile from the new LIRR terminal, are presently operating at capacity. A screening analysis of alternate locations was performed that identified East 50th Street as the preferred location. Second, the cut-and-cover work on both 49th and 50th Streets would require a costly relocation of utilities and Con Edison underground vaults. Last, the rooftop cooling towers that were to be located on GCT would have been far from the chillers, requiring substantial piping and resulting in a poor design in terms of operations and maintenance.

The new structure, approximately 80 feet square and 66 feet high, would have four floors and a basement at the concourse level and would combine all of the needed functions into one location. The ground floor would have loading docks with two bays for 40-foot-long trucks, a bay for vans or small trucks, and one bay for a large dumpster/compactor. Trucks at the loading docks would be fully accommodated within the structure and would not extend out into the street. The loading docks would serve the approximately 18,000 square feet of retail space in the new concourse. The structure would house fresh air intakes, exhaust vents, and HVAC equipment with rooftop cooling towers. A plan and section of the proposed structure are provided in Figures 2 and 3.

AFFECTED AREA

As shown in Figure 4, the buildings on East 50th Street between Park and Madison Avenues are predominantly commercial (office). The buildings to be acquired contain ground-floor retail space and restaurants, with commercial space above (see Figure 5). They are flanked on both sides by large office buildings, one fronting on Park Avenue (the 25-story building at 300 Park Avenue) and the other on Madison Avenue (the 40-story building at 437 Madison Avenue). Loading dock facilities for those buildings are located adjacent to the proposed site on both sides. The building at 300 Park Avenue is “L” shaped, and thus also abuts the back of three of the four buildings proposed for acquisition. The fourth building to be acquired abuts a two-story building on 49th Street occupied by a restaurant. On the opposite (north) side of 50th Street, the block between Park and Madison Avenues is occupied by a large, 33-story building fronting on Park Avenue (320 Park Avenue), with a loading dock facing the project site; a smaller 2-story building occupied by a restaurant space directly across from the project site; and the Helmsley Palace Hotel on the west half of the block (including the main entrance to the hotel and the well-known Le Cirque 2000 restaurant).

The buildings to be acquired are not potential historic resources. Although these buildings were constructed as townhouse structures, they have been substantially altered and retain little architectural integrity (see Figure 5). On the north side of 50th Street, the Villard Houses at the corner of Madison Avenue are a NYCL and listed on the State and National Registers of Historic Places. The former Villard Houses are a set of six brownstones facing a courtyard on Madison Avenue, with side elevations on 50th and 51st Streets. They are now part of the Helmsley Palace Hotel, which in addition to the former brownstones also includes a 51-story tower behind (east of) the brownstones that extends through the block from 50th to 51st Street. This modern high-rise tower effectively separates the historic Villard Houses from the proposed project site, which is across 50th Street and farther east than the hotel tower.

This block of 50th Street, like the rest of East Midtown, is busy with traffic and pedestrians. East 50th Street is also a crosstown bus route for the M50 and M27 buses, which head east on 50th Street and return west on 49th Street.

POTENTIAL IMPACTS DURING CONSTRUCTION

As described in the FEIS, the rights of owners and tenants of real property to be acquired to implement the project are protected under the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and the Uniform Relocation Act Amendments of 1987 (together, the "Uniform Act"). Under the Uniform Act, the owners of the buildings and the businesses to be displaced would receive just compensation for their property, relocation assistance, and other benefits (described in Chapter 5 of the FEIS). As described in the FEIS for other businesses to be displaced, it is anticipated that the displaced businesses would be successful in locating suitable alternative space.

Construction of the proposed building would be like other building construction, which is a common occurrence in New York City. Any adverse effects would be temporary and limited to the immediate area (e.g., adjacent buildings, street, and sidewalks). The construction work would be contained mostly within the site, with very little off-site disruption.

Possible adverse effects could include disruption to pedestrian and vehicular traffic and increased noise and fugitive dust. Construction would require the temporary loss of the adjoining sidewalk and one lane from 50th Street. As described for other construction locations in the FEIS, a maintenance and protection of traffic plan would be employed to ensure continued passage of the taxis and buses on the 50th Street transitway. Currently, through traffic other than buses and taxis is not permitted on East 50th Street, because of its status as a transitway. With the maintenance and protection of traffic plan, the bus and taxi volumes on this street could be accommodated during the construction phases without adverse impacts to traffic flow.

Any increases in noise or dust from construction activities at the site would be temporary, most likely occurring during the day, and would not be noticeable outside the immediate area surrounding the site. The construction of the building would be similar to what occurs on a daily basis throughout Manhattan and would not result in significant impacts on the surrounding area.

Other than the temporary disruptions described above, construction of the new 50th Street facility would not result in adverse effects in other impact areas analyzed in the EIS. Overall, construction activities would not result in significant adverse impact in land use, social conditions, economic conditions, visual character, historic or archaeological resources (as the site is already occupied by buildings with basements, any potential for archaeological resources has already been destroyed), natural resources, hazardous materials, traffic and transportation, noise, vibration, or air quality.

As described below under "Potential Impacts During Operation," few people live in the immediate vicinity of the proposed 50th Street facility. Construction activities, which would be typical of any new building, would not raise issues of environmental justice.

POTENTIAL IMPACTS DURING OPERATION

Once the project is in operation, activities at the 50th Street facility would have a minor effect on the surrounding environment. Issues of concern include land use compatibility and visual character, traffic congestion, air quality, and noise.

In terms of land use, the new building would reinforce the service entrance character of the block already established by the presence of three other loading dock areas. The building would be similar to the other commercial structures on the block; however, it would contain only a small amount of office space. Visually, the new building would replace four small buildings with one mid-rise building, creating a more uniform appearance. Again, the appearance of this building would reinforce the character of the block as the rear of most of the buildings on the block.

With respect to traffic, operations at the proposed facility would involve the arrival and departure of various trucks throughout the day. Based on the estimated 18,000 square feet of retail space (primarily small shops with limited, if any, food establishments) in the new concourse, approximately 15 trucks would make deliveries at the new loading dock over the course of a day. These trucks would consist of a mix of vehicles ranging from small service and delivery vans to large 40-foot box and garbage trucks. Most of the deliveries would arrive during off-peak hours. In the peak hour, approximately one to two trucks, consisting mostly of vans and small refrigerator trucks, would use the loading docks. This small number of vehicle trips would not have a significant impact on traffic conditions along East 50th Street. As shown in Figure 2, the vehicles would fit within the loading dock area and would not extend into the sidewalk or street.

The mechanical equipment in the East 50th Street facility would be designed to meet all applicable noise standards and regulations, similar to what was discussed in the FEIS for the East 44th Street ventilation plant. Due to the high level of activity on East 50th Street as well as noise from the adjacent commercial buildings, noise from operation of equipment at the East 50th Street facility would not result in a significant adverse impact.

During normal operation, exhaust from the facility's ventilation system would consist of clean air from the station caverns, concourse, and/or tunnel spaces. During an emergency situation, smoke would be purged from the station and discharged through tunnel exhaust systems, including the exhaust system in the East 50th Street facility. This is similar to what was described in the FEIS for the East 44th Street ventilation building. Since the discharge of smoke during emergencies would only occur on a short-term basis when needed, no significant adverse impacts would result.

Overall, addition of a new 50th Street ventilation facility would not result in significant adverse impacts in any of the analysis areas presented in the FEIS. In addition to the topics described above, no significant adverse impacts would occur from introduction of the new building in terms of social or economic conditions, historic resources (the new building would be visually compatible with the rest of the block and would not therefore adversely affect the context of nearby resources), archaeological resources, natural resources, or hazardous materials.

The new facility also would not raise issues of environmental justice. The census tract that includes the affected block of East 50th Street was part of the overall Manhattan study area included in the FEIS in the consideration of environmental justice. As described earlier, that study area does not have a high population of low-income or minority residents compared to the borough or city overall. Specific data for the affected census tract (Tract 102, which extends from Park to Fifth Avenue, 49th to 56th Street) demonstrate that the area is predominantly non-residential. In this 14-block area, the total population in 2000 was 269 people, of whom 95 percent considered themselves White only (much higher than the Manhattan total of 54 percent or the citywide share of 45 percent). In 1990, some 25 percent of these people were living below the poverty level, which is slightly higher than the Manhattan total of 21 percent and the citywide total of 19 percent. However, no significant adverse impacts would occur to this small population group as a result of the new 50th Street facility, so environmental justice issues would not occur.

D. LOOP TRACK MODIFICATIONS

POTENTIAL DESIGN CHANGE

The project is proposing a change in the location of a loop track at Sunnyside Yard leading to the LIRR's Existing Rail Yard (formerly known as Yard A). Sunnyside Yard currently operates with three loop tracks. The FEIS considered a layout with one additional loop track, to be added on property owned by Amtrak, inside the other three tracks. This would require construction of a tunnel to allow the loop track to pass beneath the mainline tracks. Based on additional engineering design and constructability analysis, it is now proposed to construct an additional loop track outside the other loop tracks. A new, outside loop track would give the Long Island Rail Road valuable flexibility in its Sunnyside operations by creating two entrances to the Existing Rail Yard. The outer loop track would be less complicated to construct than an inner loop track, because it could use the existing 43rd Street bridge to pass beneath the mainline, eliminating the need for a new tunnel through the mainline embankment. In addition, an outer loop track could be shared with Amtrak while a new inner loop track could not, because of grade changes that would limit the possibility of crossovers between tracks. A new outer loop track would not eliminate the possibility of an additional, inner loop track as well. In that case, the yard would have a total of five loop tracks. The design of inner and outer loop tracks will be coordinated with Amtrak.

The additional outer loop track would involve expanding the limits of the Sunnyside Yard rail complex to the east, to occupy the sidewalk space beneath and close to the mainline bridge at 43rd Street. The area affected by the new loop track is shown in Figure 6 (the new loop track is labeled "outer sidewalk loop"). Figure 7 provides a sectional view of the new loop track's location in the current sidewalk space beneath the existing mainline bridge. Approximately 400 feet of existing sidewalk space would be affected. The new loop track would also require the acquisition of additional industrial property along 43rd Street not described in the FEIS. These properties are similar in use and character to those identified in the FEIS. In the FEIS, the industrial building at 3856-3864 43rd Street (Lots 200, 195, and 192) was to be acquired for the westbound bypass. As shown in Figure 6, the proposed change to the loop track location would require the acquisition of additional, adjacent private property at 3650-3652 43rd Street (Lot 191), as well as approximately 6,100 square feet of sidewalk from the New York City Department of Transportation (NYCDOT). In addition to those properties at 3856-3864 and 3650-3652 43rd Street, the project would also require some portion or all of several other parcels on 43rd Street. Specifically, these industrial private properties are at 3640 43rd Street (Lot 189), 3638 43rd Street (Lot 185), and 3630 43rd Street (Lot 375). Further surveys are needed to determine the specific area of land to be acquired from these properties.

As shown in the cross section provided in Figure 7, the proposed outer loop track would occupy the space between the existing concrete bridge piers adjacent to the current loop track and the steel piers at the sidewalk's edge. The sidewalk could be relocated outside the steel piers, into the lane currently used for parking. This would result in the loss of approximately 20 to 30 parking spaces. Alternatively, the parking lane could remain and the sidewalk could be eliminated on this side of the street.

AFFECTED AREA

The surrounding area is markedly different in character north and south of the east-west running mainline tracks and bridge. To the north, the area is predominantly industrial, while to the south, it is residential (see Figure 8).

North of the mainline tracks, a series of industrial buildings front on 43rd Street (these buildings are shown in the photos in Figure 9). These properties abut the Sunnyside Yard rail complex to the west. At the corner of 43rd Street and Northern Boulevard, a large Pathmark supermarket fronts on Northern Boulevard. Across 43rd Street from the industrial uses, the New York Presbyterian Church occupies a large new building along the north side of 37th Avenue, just north of the elevated mainline tracks. A large accessory parking lot for the church is located across the street on the south side of 37th Avenue. More industrial/auto-related uses are located just north of the church, including a car and truck rental lot.

South of the mainline bridge, the area west of 43rd Street is dominated by the Sunnyside Yard rail complex. A tall chain link fence along the street separates the yard from the surrounding neighborhood (see photos in Figure 10). The east side of 43rd Street marks the beginning of the Sunnyside Gardens residential neighborhood. This neighborhood consists of low-rise (generally two-story) brick houses with attached one-story garages (see Figure 11). Many of the blocks have landscaped interior courtyards.

This residential area is part of the 16-block Sunnyside Gardens Historic District (S/NR), a planned residential community built between 1924 and 1935. Sunnyside Gardens was conceived and designed by the founders of the Regional Planning Association of America (RPAA) and was the first planned community in the United States that reflected the utopian ideal of the British garden city movement. The movement favored the development of small, self-sufficient communities with plenty of open space to replace what was perceived to be an unhealthy and congested urban environment.

The new loop track location is across 43rd Street from the northwest corner of the Sunnyside Gardens neighborhood. In this area, the layout of the residential neighborhood reflects its development in proximity to the industrial Sunnyside Yard rail complex. Along the east side of 43rd Street and both sides of Barnett Avenue near 43rd Street, a wall of one-story garages face the rail complex (see Figure 11). These garages act as “bookends” to the block between 43rd and 44th Streets and Barnett and Skillman Avenues, the closest block of the historic district to the loop tracks. The remainder of the block is laid in much the same fashion as the rest of the historic district, with small rowhouses surrounding interior courts. On this block, the houses are oriented east-west, with the narrow, west ends of the rowhouses facing 43rd Street, behind the garages. These facades have few windows, typically consisting of only two above the garages. In contrast, the long, north-south facades contain balconies and decorative window treatments such as bay windows. Behind the garages, the residents of the closest two-story houses at the western end of the block have views toward the rail complex.

South of the proposed loop track, a small bridge over the loop track provides vehicle access to a large General Motors repair facility that is located inside the loop track, alongside the mainline tracks. As described in the FEIS, the project will relocate this bridge. To the south of the bridge, a warehouse/light industrial building on the west side of 43rd Street abuts the loop track. Just south of the industrial building, a park is located at the corner of Skillman Avenue and 43rd Street. This 2-acre park, George P. Torsney Park, is mostly paved and contains play areas. The park is buffered from the loop track by the bulky warehouse buildings.

Vehicular traffic on 43rd Street is light. Pedestrians use the sidewalks on both sides of 43rd Street, although pedestrian activity is light.

POTENTIAL IMPACTS DURING CONSTRUCTION

To enable the construction to proceed, additional properties to those discussed in the FEIS would be acquired under the Uniform Relocation Assistance and Real Property Acquisition Act; as required by that act, property owners would be compensated for the value of their property and relocation expenses. Specifically, additional private property at 3650-3652 43rd Street (Lot 191), and potentially at 3640 43rd Street (Lot 189), 3638 43rd Street (Lot 185), and 3630 43rd Street (Lot 375) would have to be acquired, as would approximately 6,100 square feet of sidewalk from NYCDOT. The photos in Figure 9 show the properties to be acquired. The additional properties to be acquired are similar in form and function to the adjacent properties that were identified in the FEIS. The additional property acquisition requirements of the outer loop track are not expected to result in significant economic impacts for the property owners.

During construction of the outer loop track and adjacent bridge piers, the west side of 43rd Street under the railroad bridge would be closed. Parking would be temporarily suspended on both sides of the street and a single lane with traffic lights may be required at times. When the bridge piers are erected, 43rd Street would be temporarily closed and all traffic would be detoured. This would take place during off-peak hours to minimize the impact on local traffic. The street closings and maintenance and protection of traffic plan would undergo NYCDOT review and approval. Due to the low volume of traffic using 43rd Street, the construction of the outer loop track would not result in any significant adverse traffic impacts.

Noise from construction of the outer loop track would not be any different than what was already disclosed in the FEIS for activities in the same general area such as the bridge over 43rd Street or the work associated with Harold Interlocking east of 43rd Street. Construction of the outer loop track would therefore not significantly affect the character of the Sunnyside Gardens Historic District.

Similar to other areas discussed above, construction of the outer loop track would involve disturbance to subsurface soils, which would be subject to an archaeological review under the Programmatic Agreement with SHPO.

Construction activities associated with the outer loop track would not result in significant adverse impacts in other areas assessed in the FEIS. Overall, this construction work would be in the same general vicinity as work evaluated in the FEIS. No significant adverse impacts would occur to land use, social conditions, economic conditions, visual resources, natural resources, hazardous materials, or air quality. Since construction activities in the area would be similar to those considered in the FEIS, they would not result in issues of environmental justice either.

POTENTIAL IMPACTS DURING OPERATION

The proposed outer loop track would occupy the sidewalk on the western side of 43rd Street, extending to the steel piers at the sidewalk's edge (see the second photo in Figure 10). The sidewalk could be relocated outside the steel piers, which would require narrowing 43rd Street by removing a parking lane (as shown in Figure 6). Alternatively, the sidewalk could be eliminated from this portion of the street to allow the parking lane to remain. A new barrier would be constructed along the eastern edge of the loop track and the Sunnyside Yard rail complex. This wall would begin north of the mainline bridge, continue under the bridge (between the metal bridge supports that currently separate the sidewalk from the roadway), and south along the edge of the new loop track. About 200 feet south of Barnett Avenue, the new loop track's curve westward would bring it back into the boundaries of the existing rail yard complex, so that the existing sidewalk could remain in place south of this point. The new wall would continue south

along the Sunnyside Yard boundaries in place of the chain link fence that is there today. Trees would be planted in front of the new wall along the sidewalk. Figure 12 illustrates the new wall.

This change at the edge of Sunnyside Yard would have the potential for effects on land use and neighborhood character, visual resources, historic resources, and parking. These are discussed below.

In terms of land use, the potential outer loop track would result in a slight extension of the boundaries of Sunnyside Yard. This would affect only a limited area, and would largely replace existing industrial uses with a different transportation-related use. Railroad use of the properties north of the mainline bridge would change the appearance of that portion of 43rd Street by removing bulky two-story industrial buildings and replacing them with a solid wall surrounding this portion of Sunnyside Yard. Overall, the industrial character of this portion of the street would remain and the change in specific use would not alter the overall neighborhood character of the immediate area. Overall, no significant adverse land use or neighborhood character impact would occur.

The potential for the outer loop track to affect visual resources is limited to the areas where there is an existing line of sight to the proposed physical changes. Visual impacts are assessed by considering the type and number of viewers, the viewer's position or viewpoint, and the values that viewers place on the appearance of the existing visual environment. Different viewer groups tend to have different sensitivities to changes in the visual environment. For example, residents of the nearby Sunnyside Gardens Historic District will likely have a higher sensitivity to visual changes than workers in the area or pedestrians traversing this block.

South of the mainline bridge, the Sunnyside Gardens Historic District viewshed (i.e., the area from which trains operating on the outer loop track would be visible) is limited to an estimated 10 or fewer residences that have direct views (the western houses facing 43rd Street, shown in Figure 11). The houses in the midblock have only oblique views to the loop tracks, if any at all, from their windows. There are no views from any of the gardens on the block, as they are enclosed by the garages. As shown in the second photograph in Figure 10, views toward the yard and area that would be affected by the new loop track are of a four-lane street (including two parking lanes), sidewalk with brush that is not maintained, and a chain-link fence. Beyond the chain-link fence are trees and various mechanical structures associated with Sunnyside Yard. Views also include the concrete bridge, supported by steel piers, that carries the elevated mainline tracks over 43rd Street, as well as the trains that move across the bridge throughout the day.

The proposed changes would affect views from the Sunnyside Gardens Historic District, since the new loop track would bring the rail complex closer to the historic district than it is today. With the proposed outer loop track in place, views of the chain link fence and, through the fence, of the tops of trains moving on the loop track, would be replaced by views of a tall, solid wall (see Figure 12 in comparison with the second photo in Figure 10). Since Sunnyside Gardens has existed in the context of nearby railroad uses—including the elevated viaduct that carries trains along the north side of Barnett Avenue opposite the district as well as Sunnyside Yard and its loop tracks—the extension of the yard complex farther east would not introduce a new incompatible use. The new wall itself would be compatible with the edge of the nearby residential neighborhood; the buffer it would create between Sunnyside Yard and the Sunnyside Gardens Historic District would improve security and minimize any contextual effects resulting from the greater proximity of yard and its operations to the historic district (see Figure 12).

Noise and vibration from rail operations along the loop track would not be noticeable, due to the slow speed of the trains using the track, the presence of the new wall, and the high background

noise from the frequent train passbys on the LIRR mainline passing overhead on the 43rd Street bridge.

The loss of 20 to 30 on-street parking spaces is not expected to create a parking shortfall in the area, as many of the spaces are most likely utilized by employees of the businesses that would be relocated. Plans will be reviewed with NYCDOT, which can determine whether the loss of sidewalk space or parking spaces would be more appropriate.

In all other areas assessed in the FEIS (e.g., air quality, natural resources, hazardous materials), no significant adverse impact would occur as a result of a new outer loop track. The new loop track also would not raise issues of environmental justice. The census tract that includes the residential neighborhood closest to the loop track is Tract 183, which extends from Barnett Avenue to 47th Avenue, 43rd Street to 46th Street. According to the 2000 census, 55 percent of the 6,766 people who live in this census tract consider themselves to be White only, compared with 44 percent for Queens as a whole and 45 percent citywide. The 1990 census reported 10 percent of the population in this census tract as living below the poverty level, compared with 11 percent in Queens and 19 percent citywide. Consequently, this tract does not have a high proportion of minority or low-income population.

E. POSSIBLE NEW ENTRANCE AT THE ROOSEVELT HOTEL

POTENTIAL DESIGN CHANGE

As the design work proceeds on the project, the location of off-street entrances has undergone additional analysis and refinement. The FEIS noted that the entrance locations it described were not final, and that impacts associated with new entrances would be similar even at slightly different locations. As a result of this ongoing design work, a new entrance is being considered on East 46th Street, in the Roosevelt Hotel. As discussed in the FEIS, the Roosevelt Hotel was found to be eligible for the State and National Registers of Historic Places by the SHPO during the EIS process. Therefore, this new entrance would be provided subject to the review and approval by SHPO, as required by the Programmatic Agreement executed for the project under Section 106.

The new Roosevelt Hotel entrance would provide for:

- Improved passenger flow and travel time reduction from train platforms to 46th Street.
- A greater level of accessibility for passengers near Madison Avenue and 46th Street.
- An in-line connection between the escalator banks located under 46th Street that serve the mezzanine caverns.
- A fire emergency exit required by the State Building Code as determined by maximum allowable travel distances between exits.

The new entrance at the Roosevelt Hotel would require the acquisition and reconstruction of a small portion of the hotel's basement and ground-floor space on East 46th Street. At the street and basement levels, approximately 1,700 and 1,600 square feet, respectively, would be affected. Currently, the street-level space is vacant, while the basement area contains hotel services, circulation, and mechanical equipment. The occupied space would all be relocated as part of the construction of the new entrance. Figure 13 illustrates a section of the proposed new entrance through the Roosevelt Hotel.

On the building's façade, the new entrance would occupy a full bay (former retail window). This would require changes to the marble beneath the existing window. As currently proposed, the entrance would be open (i.e., without doors), with a canopy above it indicating the presence of a

Long Island Rail Road entrance. The entrance space would be completely separate from the interior of the Roosevelt Hotel.

The Roosevelt Hotel historically had an internal passage that led to Grand Central Terminal. However, that passage is not proposed for re-use for the East Side Access Project because it is not wide enough to accommodate the estimated number of passengers that are expected to use this proposed entrance.

POTENTIAL IMPACTS DURING CONSTRUCTION

As noted above, the Roosevelt Hotel is eligible for the State and National Registers of Historic Places. Therefore, any project activities that affect the hotel are subject to review under Section 106 of the National Historic Preservation Act. As described above, no work would proceed without review and approval by the SHPO. Work on the hotel may also be subject to Section 4(f) of the Department of Transportation Act of 1966, as amended, which prohibits actions by the Secretary of Transportation that require "use" of a historic property that is listed in or eligible for inclusion in the National Register, unless a determination is made that there is no feasible and prudent alternative to the use of such land, and all possible planning has been undertaken to minimize harm to the 4(f) property.

The proposed alterations to the interior and façade of the Roosevelt Hotel require approval by the SHPO as part of the project's Programmatic Agreement.

POTENTIAL IMPACTS DURING OPERATION

The new entrance at the Roosevelt Hotel would have no measurable effect on the pedestrian or transportation analyses presented in the FEIS. Therefore, the new entrance would not generate significant traffic, parking, pedestrian or air quality impacts in the study area. Overall, the new entrance would not result in substantial differences in any of the analysis areas presented in the FEIS, with the possible exception of historic resources, as discussed above. No significant adverse impacts would occur on land use, social conditions, economic conditions, visual resources, archaeological resources, natural resources, hazardous materials, or any of the other areas considered in the FEIS.

F. CONCLUSIONS

As discussed above, the proposed project design changes would result in some short-term construction impacts at locations not previously identified in the FEIS. However, these would not constitute significant adverse impacts, and therefore would not require preparation of a Supplemental EIS. In addition, no long-term operational adverse impacts were identified that would require new or additional mitigation measures to be implemented as part of the East Side Access Project. ♦

U.S. Department
Of Transportation
Federal Transit
Administration

Region II
Connecticut
New York
New Jersey
Virgin Islands

One Bowling Green
Room 429
New York, NY 10004-1415
212-668-2170
212-668-2136 (Fax)

April 13, 2006

Mr. Joseph Petrocelli, Chief Administrative Officer
Metropolitan Transportation Authority
MTA Capital Construction
469 7th Avenue, 11th Floor
New York, NY 10018-7605

Dear Mr. Petrocelli:

The Federal Transit Administration has reviewed the "MTA Long Island Railroad East Side Access, Design Changes in Queens Revision 14-4M Environmental Analysis", dated November 2005. Based on our review of this analysis, the FTA has determined that the design changes in Queens will not result in any significant adverse environmental impacts when compared to what was presented in the 2001 ESA FEIS.

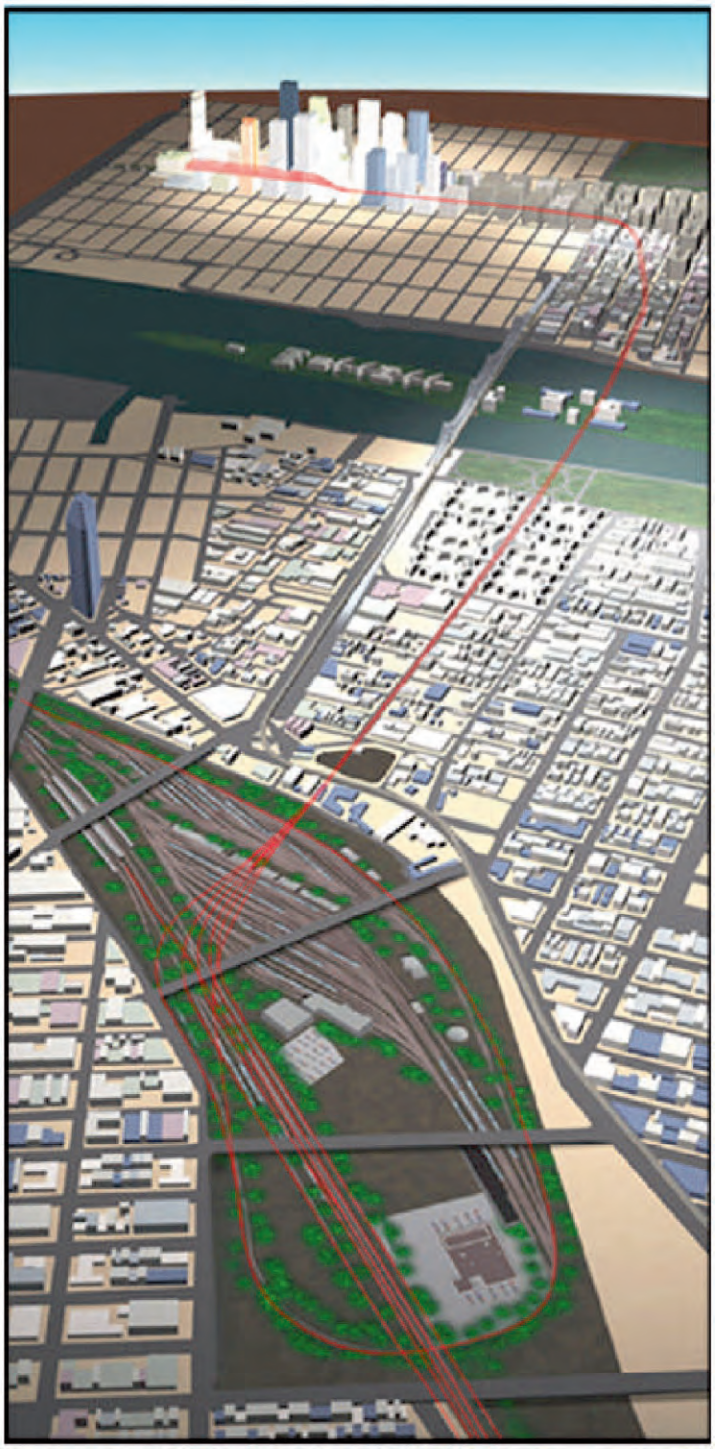
The November 2005 "Design Changes in Queens Revision 14-4M Environmental Analysis" satisfies the NEPA requirements as outlined in 23 CFR 771.130 and no further supplemental environmental review is necessary for the proposed modifications.

Please be aware that the project must be carried out as described in the November 2005 analysis. If changes to the project are made, FTA will need to determine if additional environmental studies will be necessary before the changes are approved. Should you have any questions concerning this project, please contact Irwin B. Kessman, Director of Planning and Project Development, at 212.668.2177.

Sincerely,

Letitia Thompson
Regional Administrator

cc: Audrey Heffernan, MTA Capital Construction



MTA Long Island Rail Road
East Side Access

Design Changes in Queens Revision 14-4M

Environmental Analysis

November 2005

United States Department of Transportation
Federal Transit Administration

Metropolitan Transportation Authority
State of New York

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EXECUTIVE SUMMARY

Since completion of the Final Environmental Impact Statement (FEIS) for the East Side Access Project in 2001, modifications to the design of the project in Queens have been proposed. The changes affect portions of the Queens alignment located primarily within the confines of the Sunnyside Yard rail complex in Long Island City, Queens. The primary purpose of these modifications is to minimize impacts to Amtrak operations that would result from increased LIRR service operating in the Sunnyside rail complex and improve operations and operational flexibility for LIRR. In addition, the modifications are proposed to meet the new standards that were issued by the National Fire Protection Association (NFPA) in 2003 for ventilation system design for commuter rail service.

Interim changes to the FEIS design were proposed in 2002, and further modifications are now proposed in Queens in a package of changes known as "Revision 14-4M." Table 1 lists the elements that would be modified by Revision 14-4M in comparison to the design analyzed in the FEIS and the 2002 interim design, and summarizes the associated environmental impacts and required property acquisitions, which are discussed in this document.

Revision 14-4M would create a new yard lead (loop) track constructed in a tunnel to the outside of Amtrak's three existing loop tracks. In the FEIS design, a fourth loop track was proposed inside the three existing loop tracks. The new inner loop track would have a tight curve, requiring trains on the track to operate at slow speeds. To make this curve wider, the three existing loop tracks would be shifted slightly outward (to the east). Even with this shift, the curve of the new inner loop would require trains to operate slowly, with the potential to cause operational conflicts and delay to both Amtrak and LIRR operations. The "tunnel loop track" allows for an adequate curve radius and would eliminate the construction-period impacts on Amtrak operations. The 2002 Interim Design also proposed an outer loop track, however, it was not in a tunnel and required taking either the 43rd Street sidewalk or parking lane.

The Revision 14-4M design offers an additional benefit of improved operational flexibility for LIRR over the FEIS design and the 2002 Interim design. The previous designs provided access to LIRR's new midday storage yard for LIRR trains coming from Grand Central Terminal (GCT), but not those coming from Penn Station. In contrast, a new connection from an existing loop track to the new midday storage yard is proposed in Revision 14-4M, permitting Penn Station trains to access the yard by sharing a portion of the existing loop track with Amtrak and utilizing the new connection.

In addition to the long-term benefit of enhanced operational flexibility, the changes would reduce construction-period effects at the General Motors (GM) property adjacent to the Sunnyside rail complex, as well as effects on LIRR and Amtrak operations that were identified in the FEIS. In addition to the changes to the yard lead track, Revision 14-4M also includes

grade-separated routes through Harold Interlocking to minimize operational conflicts between Amtrak and LIRR. A number of alternatives were developed for improving Amtrak operations through Harold Interlocking with East Side Access in place, beginning during the EIS process and continuing as the project design evolved following the FEIS. The current design included in Revision 14-4M is very similar to the design that was included in the FEIS, and consists of a westbound bypass and eastbound reroute track, predominantly for use by Amtrak, to minimize conflicts for Amtrak's Northeast Corridor service, improving on-time performance and service reliability and reducing trip time for Amtrak service.

Several new buildings would be constructed to house emergency ventilation and substation equipment and provide for exits in the event of an emergency to meet the new NFPA standards. Two new substations would also be constructed to provide LIRR with adequate traction-power. With the exception of the proposed 43rd Street substation, each of the new buildings would be located within the confines of Sunnyside Yard.

In accordance with applicable NEPA implementing regulations (23 CFR 771.130), the proposed design changes in Queens were evaluated for each of the environmental areas addressed in the East Side Access Project's FEIS to determine if the modifications would result in significant environmental impacts. The results of the analyses indicate that the changes to the proposed action would not result in any new significant adverse impacts. The proposed project modifications in Queens would occur almost entirely within the Sunnyside rail complex, a vast railroad complex that is separated from and below the grade of the surrounding neighborhoods. The preferred alternative for the East Side Access Project analyzed in the FEIS included extensive project construction in the Sunnyside rail complex, and the proposed modifications would overall not be substantially different in terms of adverse effects during construction or operation from those of the FEIS design. As a result, a supplemental EIS will not be necessary and this environmental analysis will be maintained in the project files to document compliance with the NEPA process with regard to this design modification.

A. INTRODUCTION

Modifications to the design of the preferred alternative for the East Side Access Project have been proposed. The changes affect portions of the Queens alignment located primarily within the confines of the Sunnyside rail complex in Long Island City, Queens. This environmental analysis provides a review of the East Side Access Project's design development in Queens and assesses the environmental consequences of proposed design changes. Specifically, the assessment examines the design changes currently proposed in Queens as part of the East Side Access Project's "Revision 14-4M," to identify whether any significant adverse impacts would result from the changes. The Revision 14-4M changes are considered with respect to the findings of the Final Environmental Impact Statement (FEIS) prepared for the project, dated March 2001, and the Record of Decision issued by the Federal Transit Administration (FTA) in May 2001, to determine if any additional impacts not discussed in those documents would result from the changes. This environmental analysis also compares the current design changes with those included in interim design analyzed in the Technical Memorandum dated February 26, 2002 ("2002 Interim Design").

The East Side Access Project, as described in Chapter 1 of the FEIS, "Project Purpose and Need," will bring Long Island Rail Road (LIRR) passenger service to Grand Central Terminal in addition to Penn Station, providing direct access for LIRR passengers to Manhattan's East Side. Trains will travel from LIRR's Main Line and Port Washington Branches in Queens through the

Table 1

Sunnyside Area Project Elements: Comparison of Revision 14-4M to Earlier Designs

Project Element	Need for Revision 14-4M Design Changes	FEIS Design			2002 Interim Design			Revision 14-4M Design		
		Design Configuration	Environmental Impacts	Property Acquisitions	Design Configuration	Environmental Impacts	Property Acquisitions	Design Configuration	Environmental Impacts	Property Acquisitions
New yard lead track(s)	Eliminate operational problems caused by inadequate curve radius of inner loop track proposed in FEIS design. Improve operational flexibility for LIRR by providing access to the midday storage yard from Grand Central Terminal and Penn Station. Simplify construction techniques, eliminating impacts that would occur under FEIS design and 2002 Interim design.	New fourth loop track located inside existing three loop tracks, at the same grade.	Operational impacts to Amtrak due to the inadequate radius of the inner loop track curve. Construction period impacts to existing Amtrak operations would occur due to the need to shift the existing three tracks outward to permit construction of the fourth loop track. Construction period impacts to the GM property would result from its use as a staging area, displacing 28 spaces for 2 years, and the relocation of GM bridge farther north along 43rd Street.	Fee acquisition - Block 183, Lots 200, 195, 192 (MTA-owned, formerly Matura) Fee acquisition - Block 183, part of Lot 250 (Refron) Permanent and temporary easements – Block 183 Lot 332 (GM Property)	In an open cut outside existing three loop tracks.	No operational or construction period impacts to Amtrak. Narrowing of 43rd Street in the vicinity of the Barnett Avenue intersection would be required for the open cut tunnel. This would either require relocation of the western sidewalk and elimination of one parking lane on 43rd Street (20-30 spaces), or elimination of the western sidewalk. Same construction period impacts to GM facility	Fee acquisition - Block 183, Lots 200, 195, 192 (MTA-owned, formerly Matura) Fee acquisition - Block 183, Lot 191 (MTA-owned, formerly Sarah Rose) Fee acquisition - Block 183, Lots 375 (2 owners), 185, 189 Fee acquisition - Block 183, part of Lot 250 (Refron) Permanent and temporary easements – Block 183 Lot 332 (GM Property)	New yard lead track in a tunnel, outside existing three loop tracks to provide access for trains from GCT; and new connection from existing loop track to midday storage yard to provide access for trains from Penn Station	No operational or construction period impacts to Amtrak. No narrowing of 43rd Street, relocation/ removal of sidewalk, or removal of parking. No construction period impacts to GM facility from loop track. Noise effects on the nearby Sunnyside Historic District from the loop track would be less than in the FEIS design because it would be located in a tunnel. No operational vibration or ground-borne noise impacts from proposed tunnel.	Same as 2002 Interim design except that only a subsurface easement is required at Block 183, part of Lot 250 (Refron) and reduced easements at Block 183 Lot 332 (GM property).
Harold Interlocking - Shift LIRR Track D and Mainline Track 4 -Relocate LIRR substation G02	Reduces operational conflicts for LIRR. LIRR substation G02 is in the path of the eastbound reroute	Need for changes not identified.	None.	None.	Need for changes not identified.	None.	None.	Construct retaining wall and shift tracks southward. Substation relocated to northwest corner of Skillman Avenue and Honeywell Street	None.	Permanent easement acquisition for a narrow strip of Block 183 Lot 332 (GM property).
New buildings for emergency exits, and ventilation and substation equipment;	Required to meet revised NFPA 130 (year 2003) standards for tunnel ventilation and additional traction power needs.	Need for project element not identified.	None.	None.	Need for project element not identified.	None.	None.	Buildings in three locations in Sunnyside rail complex: one at northwest corner of Skillman Avenue and 39th Street; and two adjacent to Honeywell Street bridge.	The buildings would be located in an already industrial setting, and would be visible from limited areas, and to user groups with limited sensitivity. No significant adverse visual impacts would result.	None.
New substation to provide power to trains ("traction power")	Needed to provide sufficient traction power for operation of loop track and mainline tracks, as well as adequate redundancy in the event of a substation outage.	Assumed modifications to an existing substation would suffice.	None.	None.	Need for project element not identified.	None.	None.	Two possible locations: 43rd Street, north of mainline tracks, or inside loop tracks west of 43rd Street.	The buildings would be located in an already industrial setting, and would be visible from limited areas, and to user groups with limited sensitivity. No significant adverse visual impacts would result.	Same as for tunnel loop above.
Additional tracks between 43rd and 48th Streets	Construction cost savings and elimination of maintenance requirements for viaduct structure.	New viaduct structure, modified bridges over 43rd and 48th Streets.	Traffic, noise and visual impacts during construction. Noise impacts during operation.	Temporary easement-Block 142, Lot 15 (church parking lot).	Widened embankment, modified bridges over 43rd and 48th Streets.	Construction and operational impacts, similar to FEIS design.	Temporary easements- Block 142, Lot 15 (church parking lot) and Block 119 Lots 150 (vacant lot) Fee acquisition (de minimus) Block 142 Lot 291 and part of Lot 50	Widened embankment, modified bridges over 43rd and 48th Streets.	Construction and operational impacts, similar to FEIS design.	Same as 2002 Interim Design

existing 63rd Street Tunnel beneath the East River via a new connection to be built in and near the Sunnyside rail complex (see Figure 1). In Manhattan, trains will continue from the 63rd Street Tunnel in new tunnels deep below Park Avenue to a new lower level of Grand Central Terminal. In addition to the new tunnels and new elements at Grand Central Terminal in Manhattan, the project will require construction of numerous new project elements in and around the existing Sunnyside rail complex in Queens.

In the Sunnyside area of Queens, the vast Sunnyside railroad complex extends from close to Hunters Point Avenue on the west to 43rd Street on the east, between Northern Boulevard and Skillman Avenue. Figure 2 provides an aerial view of the rail complex. The railroad facilities in Sunnyside are dominated by Sunnyside Yard, which is used by Amtrak and New Jersey Transit (NJ Transit) for storage and maintenance of trains. Sunnyside Yard includes extensive tracks for train storage with associated overhead electric wire (catenaries) and numerous buildings and parking areas for railroad employees. Amtrak stores trains throughout the day at Sunnyside Yard, while NJ Transit uses the yard for midday storage of trains between the morning and evening peak periods. Adjacent to Sunnyside Yard on the north is a separate, smaller train yard owned by LIRR. This yard is known as LIRR's Existing Rail Yard and was previously referred to as Yard A. South of the two storage yards is the Harold Interlocking, an approximately 1.5-mile-long segment of tracks and associated switches and crossovers, located adjacent to Sunnyside Yard within the Sunnyside rail complex that allows connections among East River tunnel tracks; LIRR's Main Line and Port Washington Branch tracks; Amtrak's Northeast Corridor tracks through Queens, on the route between New York and Boston; and loop tracks leading into and out of the Amtrak's Sunnyside Yard and LIRR's Existing Rail Yard. The extensive Sunnyside rail complex, including the storage yards, associated buildings, and Harold Interlocking, is a self-contained facility that is separate from and substantially below the grade of the surrounding neighborhoods.

Section B of this document describes the design evolution for East Side Access Project elements in Queens, including the need for design modifications and the specific modifications that are proposed. Section C compares the environmental impacts of the proposed Revision 14-4M design changes to those disclosed in the FEIS and the 2002 Technical Memorandum, to determine if any new significant adverse impacts would result. Based on the analyses described in Section C, "Assessment of Project Effects," no new significant adverse impacts would result.

B. HISTORY OF DESIGN CHANGES

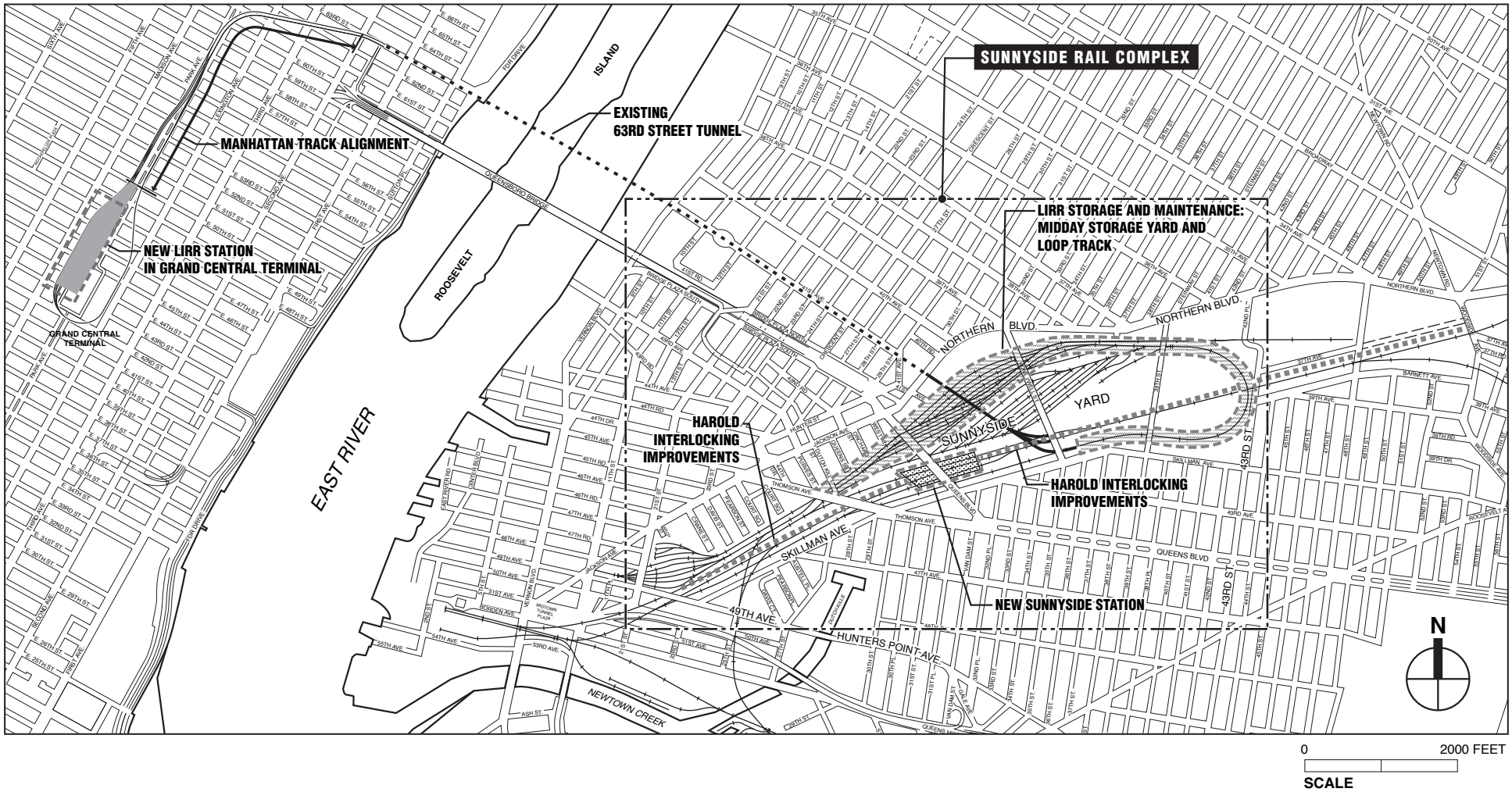
FEIS DESIGN IN QUEENS

The design for the East Side Access Project in Queens was described in the FEIS in Chapter 2, "Project Alternatives," beginning on page 2-18 and in more detail in Chapter 17, "Construction and Construction Impacts," (see page 17-11). The design included the following elements within the Sunnyside rail complex:

- *New tunnels connecting LIRR's existing tracks at Harold Interlocking in the Sunnyside rail complex to the existing 63rd Street Tunnel structure just north of Northern Boulevard at 41st Avenue.* The FEIS design proposed constructing the new tunnels from Harold Interlocking to the 63rd Street Tunnel via a combination of cut-and-cover construction and soft bore tunneling. Tunneling machines would be launched from a large open cut in LIRR's Existing Rail Yard, immediately north of Amtrak's Sunnyside Yard. As described below, the location of the launch point would be modified in Revision 14-4M.

- *Modifications to Harold Interlocking to minimize conflicts between Amtrak and LIRR operations.* Because of the number and frequency of trains running through Harold Interlocking today, these tracks are congested and Amtrak and LIRR train movements must be carefully managed to avoid delays. In the FEIS design, modifications were proposed at Harold Interlocking to minimize conflicts between LIRR and Amtrak in the interlocking. The work included in the FEIS design would have separated the tracks used by Amtrak and LIRR, allowing Amtrak to travel on tracks (called the westbound bypass and eastbound reroute) separated from the LIRR route with some portions of the route in tunnels or cuts. Additional crossovers and switches would also be added to provide greater operational flexibility. As detailed in Chapter 17 of the FEIS (see page 17-15), five stages of construction were envisioned for the modifications at Harold Interlocking to minimize disruption to existing train traffic in the interlocking. These stages would include construction of detour tracks, switches, and crossovers so that train operations through the interlocking could continue without being affected by construction work. Compared to the FEIS and 2002 Interim designs, Revision 14-4M relocates LIRR Track D and requires a shift in mainline track 4 between 39th and 48th Streets. (The westbound bypass and eastbound reroute tracks under Revision 14-4M would have virtually identical horizontal and vertical alignments as was assumed in the FEIS.)
- *Additional tracks between 43rd and 48th Streets, east of Sunnyside Yard.* In this area, LIRR's Main Line and Port Washington Branch tracks are on an embankment that is also used by Amtrak trains traveling between New York and Boston. The FEIS design included a new viaduct on the south side of the embankment carrying additional tracks (described on pages 2-21 and 17-15 of the FEIS). (As described in more detail below, the viaduct is no longer proposed; instead the embankment would be widened.) As part of the work in this area, the rail bridges crossing 43rd and 48th Street also had to be modified to carry additional tracks.
- *Modifications to the loop tracks that connect Harold Interlocking to LIRR's Existing Rail Yard.* Currently, three loop tracks curve from Harold Interlocking to connect to both LIRR's yard and Amtrak's Sunnyside Yard. From west to east, these tracks are referred to as Loop Track 2, Loop Track 1, and Loop Track A. To provide additional capacity, an additional loop track inside the three existing tracks was proposed in the FEIS design. After addition of the new loop track, Amtrak would have used the three inside tracks for access to Sunnyside Yard and LIRR would have used the outside track for access to its new midday storage yard. With the Revision 14-4M modifications described below, the fourth loop track would no longer be constructed inside the existing loop tracks. Instead, a new yard lead track for LIRR would be constructed in a tunnel outside of the three existing tracks.
- *New midday storage yard for LIRR trains at LIRR's Existing Rail Yard.* This yard will be used for midday storage of electric trains that serve GCT and for cleaning and light maintenance of trains. The FEIS design also included a new employee facility located adjacent to the yard on Northern Boulevard and a new maintenance facility for LIRR trains at nearby Arch Street Yard. No changes are proposed to the midday storage yard.
- *A new LIRR passenger station at Sunnyside, beneath the Queens Boulevard Bridge inside the Sunnyside rail complex.* No changes are proposed for Sunnyside Station.

7.6.05



0 2000 FEET

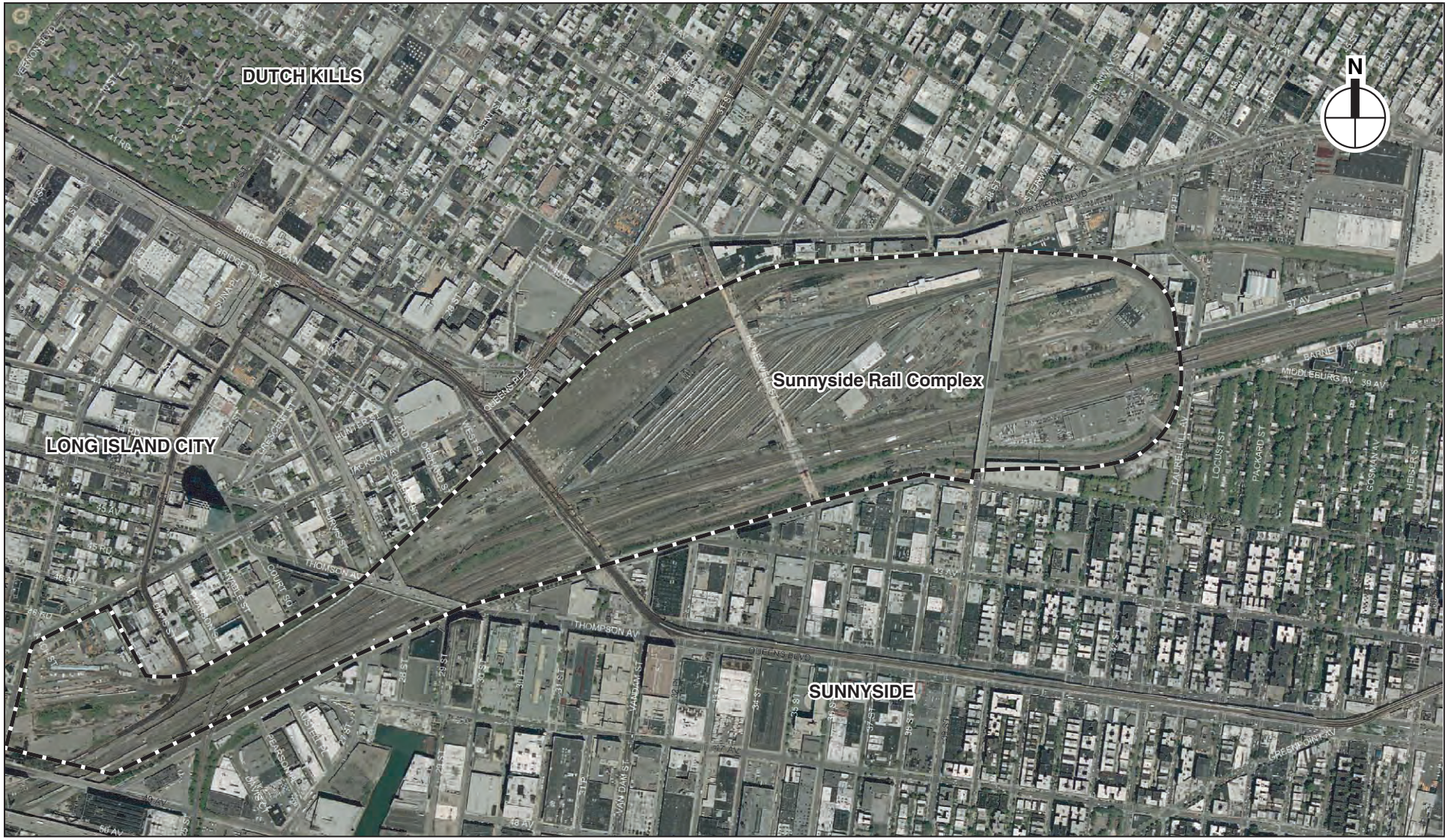
SCALE

EAST SIDE ACCESS
REVISION 14-4M

East Side Access Project Elements in Queens and Manhattan

Figure 1

7.5.05



Sunnyside Rail Complex
(Approximate Boundary)

0 1000 2000 FEET
SCALE

EAST SIDE ACCESS
REVISION 14-4M

Aerial View of the Sunnyside Area

Figure 2

DESIGN MODIFICATION SINCE THE FEIS

After completion of the FEIS, design modifications were made to address certain practical disadvantages of the FEIS design in Queens that were identified during the course of East Side Access design development. These modifications primarily address the need to minimize transportation impacts to Amtrak operations that would result from increased LIRR service operating through Harold Interlocking as a result of East Side Access and to provide for future capacity for all railroad operations through Harold Interlocking. In addition, the modifications are proposed to meet new ventilation requirements for commuter rail systems incorporated in the 2003 standards issued by the National Fire Protection Association.

The 2002 Interim design proposed a modification to the project's design for the yard lead (loop) track at the eastern end of the Sunnyside rail complex and for the embankment between 43rd and 48th Streets. Under Revision 14-4M, further changes are proposed to the yard lead (loop) track. In addition, as a result of the project's modifications at Harold Interlocking, one existing LIRR substation in the yard complex must be relocated. Finally, the need for additional facilities has also been identified, including tunnel ventilation buildings, new electrical substations to provide power to trains ("traction power"), and rail yard access driveways.

The proposed design modifications are described in more detail below. Figure 3 illustrates the location of the project elements discussed. The majority of these changes would take place within the boundaries of the Sunnyside rail complex, on either MTA or Amtrak property, and would generally not be noticeable to the surrounding communities. It must be noted that all work to be performed on Amtrak's property is subject to an anticipated agreement with Amtrak.

MODIFICATIONS TO MIDDAY STORAGE YARD ACCESS

In the FEIS design, a fourth loop track was proposed inside the three existing loop tracks at the east end of the Sunnyside rail complex. Once the new loop track was in place, Amtrak would have used the three inside loop tracks and LIRR would have used the outside track for access to its new midday storage yard. In this design, the new inner loop track would have a tight curve, requiring trains on the track to operate at slow speeds. To make this curve wider, the three existing loop tracks would be shifted slightly outward (to the east) before the new inner loop track could be constructed. This would require acquisition and demolition of one building on the west side of 43rd Street, just east of the existing loop tracks. Even with this shift, the curve of the new inner loop track would require trains to operate slowly, with the potential to cause operational conflicts and delay to Amtrak and LIRR operations.

To address this problem, the 2002 Interim design proposed a new outer loop track, outside the three existing loop tracks, for use by LIRR to access the midday storage yard. This new outer loop track would be in an open cut that would extend eastward past the existing boundary of the Sunnyside Yard rail complex, to occupy approximately 400 linear feet of the sidewalk space beneath and close to the mainline rail bridge that crosses above 43rd Street. A new barrier would be constructed along the eastern edge of the loop track to buffer the Sunnyside rail complex from the surrounding neighborhood. The outer loop track in the 2002 Interim design required acquisition and demolition of a total of six buildings (instead of one in the FEIS design) on the west side of 43rd Street immediately north of the mainline rail bridge that crosses that street.

In addition to providing an adequate curve for the loop track and reducing the potential for delays to occur, the 2002 Interim design's outer yard lead (loop) track would be less complicated to construct than the FEIS design's inner loop track. For the fourth loop track, the FEIS design

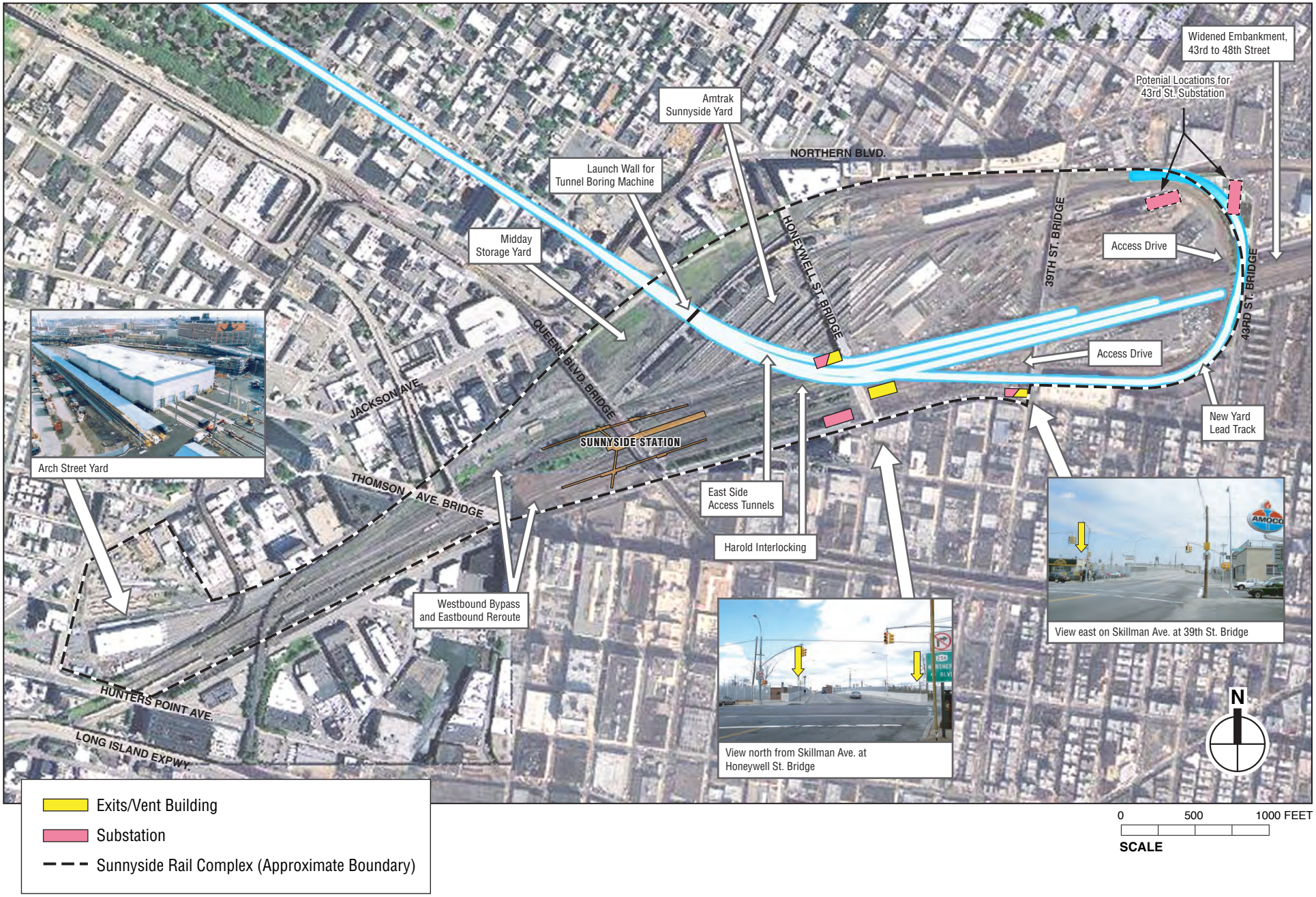
required construction of a new tunnel underneath the mainline embankment inside the Sunnyside rail complex. The outer lead track in the 2002 Interim design would eliminate the need for this tunnel, because it would pass beneath the mainline tracks underneath the existing 43rd Street rail bridge. In addition, the outer lead track in the 2002 Interim design would minimize construction-period effects on Amtrak operations by eliminating the need to shift the three existing loop tracks outward.

In Revision 14-4M, a new outside yard lead track is also proposed, but this track would be in a tunnel that would pass beneath the existing loop tracks, beneath the sidewalk and roadbed of 43rd Street, and beneath the mainline rail bridge over 43rd Street. The tunnel would be constructed primarily via a soft soil boring machine, with cut-and-cover construction for the portal area where the lead track curves to approach the new midday storage yard. The buildings along the west side of 43rd Street north of the LIRR mainline tracks would be demolished to allow construction of the open cut (cut-and-cover) portion of the new tunnel loop track as well as the project's new substation (see below). The Revision 14-4M design would not require acquisition of the 43rd Street sidewalk. In this design, the sidewalk would not have to be relocated eastward and the parking lane and full roadway width of 43rd Street would be preserved.

In both the FEIS design and the 2002 Interim design, construction of the new yard lead (loop) track would require both temporary and permanent acquisition of private property from the General Motors repair facility that is located between the existing loop tracks and the mainline track embankment, as well as temporary acquisition of an additional parcel on 43rd Street immediately to the north (the "Refron"parcel). First, a substantial new retaining wall would be required adjacent to the loop track along the south side of the GM property. This would require acquisition of a strip of land along the south side of the GM property, adjacent to the loop track. Second, to construct the new retaining wall, a portion of the GM property close to 43rd Street would have to be used as a construction staging area, displacing approximately 28 parking spaces at the GM facility for approximately 2 years. Third, the FEIS design and 2002 Interim design required changes to the GM facility's access driveway. The GM facility currently has an access drive from 43rd Street on a bridge over the existing loop tracks. Both the FEIS design (see page 17-15 of the FEIS) and the 2002 Interim design required relocation of this bridge and the GM access drive, further disrupting activities at the GM facility during construction. In both designs, the bridge would be moved to the privately owned Refron property farther north along 43rd Street (Block 183, part of Lot 250). The new tunnel lead track proposed in the Revision 14-4M design would eliminate these impacts to the GM and Refron properties. No new retaining wall for the lead track, construction staging area, or relocation of the access drive would be required. (Although a narrow strip of land along the northern boundary of the GM property and a subsurface easement at the Refron property property would be required, see below).

The new tunnel lead track would provide access for LIRR trains from Grand Central to the midday storage yard. In addition, the Revision 14-4M design also proposes a connection from the existing loop tracks to the midday storage yard, north of the mainline rail embankment, to provide access for LIRR trains from Penn Station to the midday storage yard. These trains would share the existing Loop Track A with Amtrak as far as the mainline embankment, after which they would break away on the new yard lead connection. This connection offers a new benefit that greatly improves operational flexibility for LIRR over the FEIS design and 2002 Interim design.

7.20.05



East Side Access Project Elements in Sunnyside Rail Complex, Revision 14-4M

Figure 3

HAROLD INTERLOCKING IMPROVEMENTS

Revision 14-4M proposes to relocate LIRR Track D within the Harold Interlocking to reduce the potential for operational conflicts for LIRR. As a result of this relocation, mainline track 4 would be shifted slightly southward between 39th Street and 48th Street. This would require acquisition of a small strip of privately owned property at the General Motors repair facility, which is located south of the mainline embankment between 39th Street and 43rd Street. A narrow strip of property along the northern edge of the General Motors property would be acquired to allow construction of a retaining wall in place of the existing slope. This portion of the General Motors property is currently used as parking (although it is not a striped lot) and up to an estimated eight parking spaces could be eliminated.

Revision 14-4M also combines into a single tunnel the inbound and outbound yard lead tracks that were in two separate tubes at the approach to the existing 63rd Street Tunnel in the FEIS design. This design change would offset some of the increased capital costs associated with other elements of the Revision 14-4M design. As a result of this cost-saving measure, the location of the tunnel boring machine launch wall in Sunnyside rail complex would be shifted southward and require the demolition of Amtrak's Buildings 3 and 4 at Sunnyside Yard.

One of the critical issues for the East Side Access Project in Queens has been how to modify Harold Interlocking to avoid conflicts between LIRR and Amtrak operations. A number of alternatives were developed to improve Amtrak operations through Harold Interlocking with the East Side Access Project in place. While a number of different alternatives have been developed, Revision 14-4M proposes a new bypass for westbound trains and a reroute for eastbound trains similar to what was proposed in the EIS. These two grade-separated routes would allow Amtrak trains traveling between Penn Station and the Hell Gate Bridge to pass through Harold Interlocking without conflicts with LIRR trains bound to and from Penn Station.

ADDITIONAL TRACKS BETWEEN 43RD AND 48TH STREETS

The viaduct structure proposed in the FEIS design between 43rd and 48th Streets would be replaced by an embankment, created by widening the existing LIRR mainline embankment to the north and south.[1] This would involve construction of retaining walls—one to the north and one to the south of the embankment—between 43rd and 48th Streets. Fill would then be added to widen the trackbed and allow for the installation of new tracks. This design change would result in simpler construction and cost savings over the viaduct design. As in the FEIS design (see page 17-15 of the FEIS), bridges would be constructed at 43rd and 48th Streets. These bridges would now connect to the western and eastern ends, respectively, of the widened embankment described above. They would be adjacent to the existing rail bridges that carry the LIRR mainline tracks over 43rd and 48th Streets. Construction of the widened embankment would require temporary use of a narrow parking lot on the north side of the embankment east of 43rd Street, owned by the New York Presbyterian Church, and a temporary access easement on a vacant lot (Block 119 Lot 150, adjacent to 37-31 Barnett Avenue east of 48th Street). These temporary easements would also have been required under the FEIS design.

[1] The viaduct structure was discussed in Chapter 17, "Construction and Construction Impacts," of the FEIS in the Description of Construction Activities for the Preferred Alternative at Harold Interlocking, page 17-15.

NEW SUNNYSIDE EMERGENCY VENTILATION BUILDINGS AND SUBSTATIONS

As a result of new fire-protection and life safety standards for commuter rail systems, the East Side Access Project is now proposing to include additional emergency exit and ventilation structures above the new tunnels to be constructed in the Sunnyside rail complex. In 2003, the National Fire Protection Association (NFPA) revised its standards for fixed guideway transit and passenger rail systems. These standards, known as NFPA 130, cover fire protection and life safety requirements for underground commuter rail systems. The revised standards dictate ventilation zones based on signal block lengths and train occupancy. As a result, new buildings to house tunnel emergency ventilation equipment and associated substations are proposed as part of Revision 14-4M.

These buildings, situated above the new East Side Access tunnels that would run beneath Harold Interlocking, would be used to clear smoke from the tunnels in the event of an emergency. Three buildings would be constructed on railroad property in the Sunnyside rail complex. One building, the 39th Street facility would be located on the north side of Skillman Avenue at 39th Street. This new building would serve the new outer loop track, would be approximately 40 feet tall above the grade of Skillman Avenue and would have a footprint of approximately 1,900 square feet. The two other buildings would be adjacent to the Honeywell Street bridge within the existing boundary of the rail complex. One of these buildings (the Tunnel D facility) would be approximately 60 feet higher than the bridge deck, and the other (the Three-Tunnel facility) would be approximately 25 feet higher than the bridge deck, with footprints of approximately 6,500 and 2,500 square feet, respectively. The project's emergency exits from the tunnels would now be incorporated into the new ventilation buildings. The proposed 39th Street facility and the Three-Tunnel facility would each also contain a substation to power the equipment located within the building. Figures 4, 5, 6, and 7 show the existing conditions and proposed facilities at the 39th Street and Honeywell Street bridges.

In addition, the new eastbound reroute proposed at Harold Interlocking (described above) would require relocation of one existing LIRR traction-power substation, Substation G02. That substation is located directly in the route of the proposed reroute track. A new replacement substation would be constructed at the northwest corner of Skillman Avenue and Honeywell Street. That substation could be constructed at the level of Skillman Avenue or below, at track level, requiring a new retaining wall adjacent to Skillman Avenue.

NEW 43RD STREET SUBSTATION

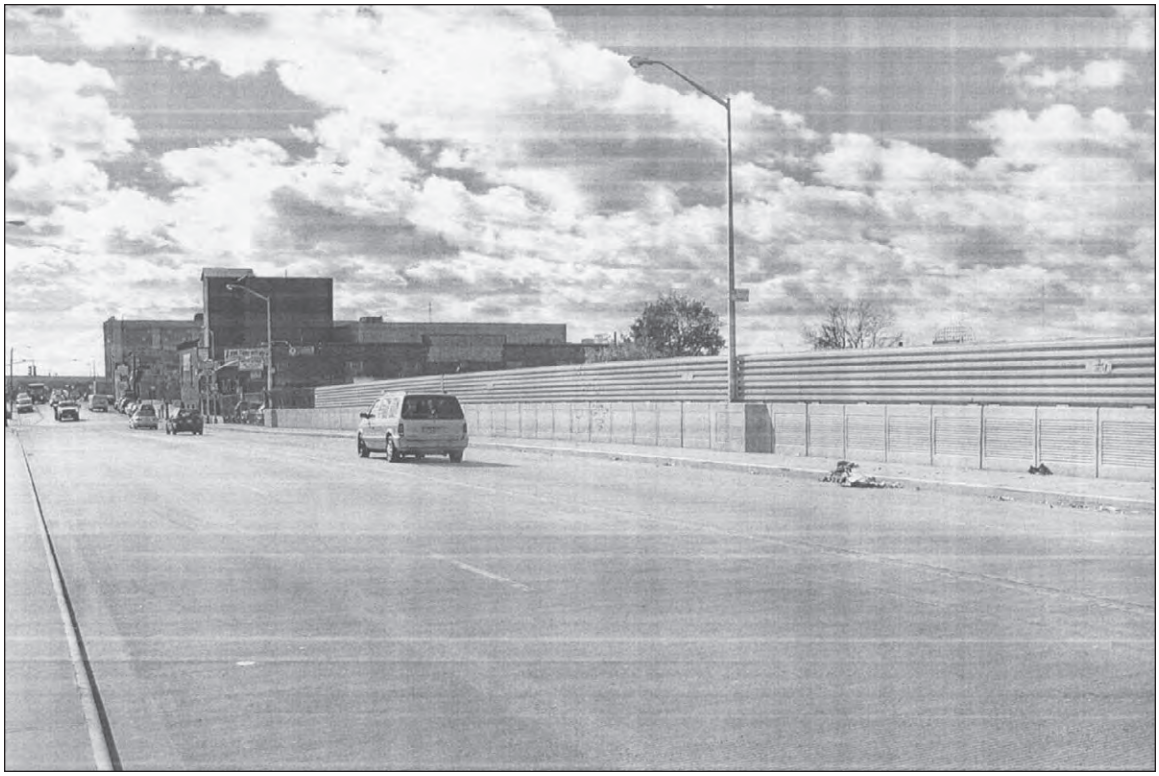
Revision 14-4M also includes a new traction-power substation to provide power to LIRR's mainline tracks and the new yard lead (loop) track to the new midday storage facility. The need for the new substation was identified in a traction power system study for the East Side Access Project that was completed after the FEIS. The FEIS design did not include a new substation and instead relied on utilizing the existing traction power substation in the Harold Interlocking area (after increasing its capacity) to provide the power for the additional trains with new M7 cars that would be operating on the mainline as a result of East Side Access. However, with detailed analysis it was found that a number of restraints prevented increasing the capacity of the existing Harold substation. The traction power study determined that a new traction power substation in the vicinity of 43rd Street was needed to provide sufficient power to the Harold Interlocking area. In addition, this new substation would provide needed redundancy between the existing Harold Interlocking substation and Woodside substation in the event of a substation outage.

Existing conditions at site of proposed 39th Street Emergency Exit/Ventilation facility, as seen from Skillman Avenue

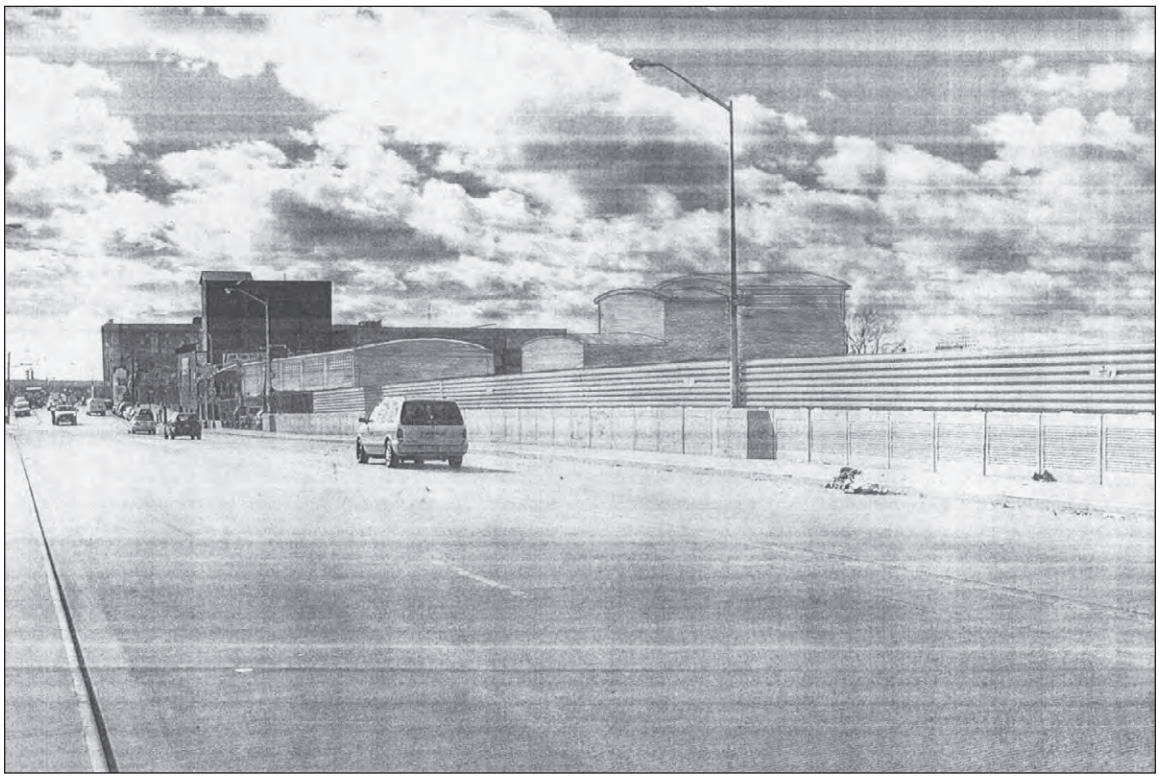
Conceptual rendering of 39th Street Emergency Exit/Ventilation facility, as seen from Skillman Avenue

Existing Conditions and Conceptual Rendering of 39th Street Emergency Exit/Ventilation Facility as Seen from Skillman Avenue

Figure 4



Existing conditions at site of proposed 39th Street Emergency Exit/Ventilation facility, as seen from 39th Street Bridge



Conceptual rendering of 39th Street Emergency Exit/Ventilation facility as seen from 39th Street Bridge

Existing Conditions and Conceptual Rendering of 39th Street Emergency Exit/Ventilation Facility, as Seen from 39th Street Bridge

Figure 5

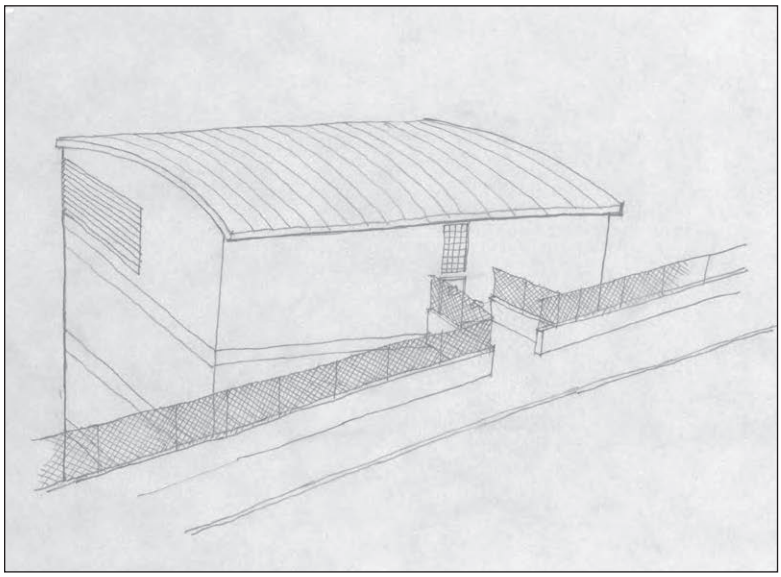
View north to Honeywell Street bridge

View east along Skillman Avenue

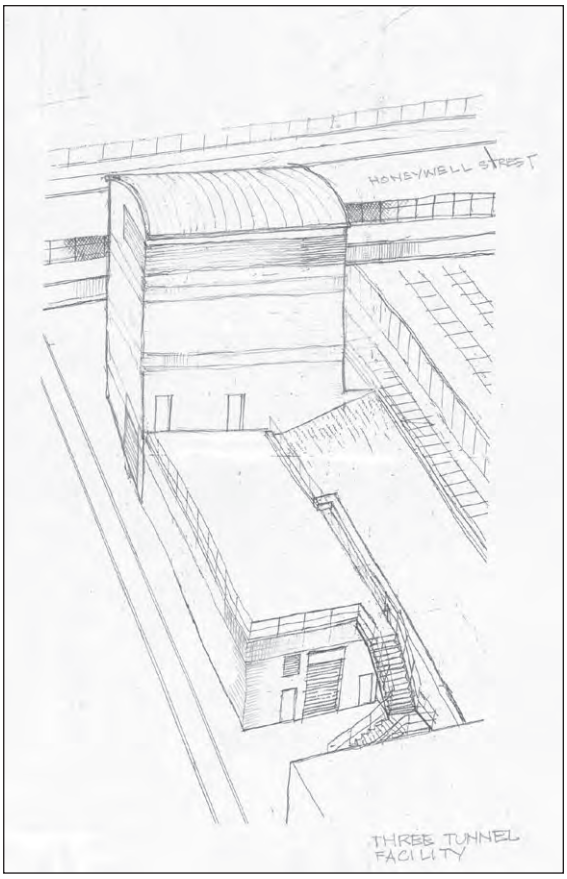
Existing Views of Skillman Avenue at Honeywell Street

Figure 6

Rendering of Honeywell Street Facilities, as seen from Skillman Avenue



Rendering of Three Tunnel Facility,
as seen from Honeywell Street Bridge



Rendering of Three Tunnel Facility,
as seen from interior of rail yard

Renderings of Facilities Proposed at Honeywell Street Bridge

Figure 7

The new substation would be in one of two possible locations: either on the west side of 43rd Street, just east of the Sunnyside rail complex and immediately north of the mainline track bridge over 43rd Street, or farther west from 43rd Street, inside the Sunnyside rail complex's loop track system. At the 43rd Street location, the substation building would sit above the new loop track. The one-story building would have a footprint of approximately 13,000 square feet and would house switchgear, transformers, rectifiers, and other electrical equipment. As shown in Figure 8, the structure would be a brick and block design, similar to existing buildings in the area. A new electric duct bank would also be installed in the sidewalk along the west side of 43rd Street.

YARD ACCESS DRIVES

As part of Revision 14-4M, the existing access drive into the Sunnyside rail complex just west of 39th Street, from the north side of Skillman Avenue would be improved by constructing a new bridge over Harold Interlocking for this drive. In addition, a new yard access point would be created immediately south of the new 43rd Street substation, near the rail viaduct that crosses 43rd Street. The new drive on 43rd Street would allow yard personnel and contractors to access the yard without using the GM facility driveway.

C. ASSESSMENT OF PROJECT EFFECTS

The proposed project modifications in Queens would occur almost entirely within the Sunnyside rail complex, a vast railroad complex that is separated from and below the grade of the surrounding neighborhoods. The preferred alternative for the East Side Access Project analyzed in the FEIS included extensive project construction in the Sunnyside rail complex, and the proposed modifications would overall not be substantially different in terms of effects during construction or operation from those of the FEIS design. The FEIS included an assessment of the impacts of the different project elements in Queens for a full range of relevant environmental issues. For those project elements that are now proposed for modification as part of Revision 14-4M, an evaluation of the environmental effects of the modifications is provided below. The discussion considers the same range of environmental issues as the FEIS, and in each area evaluates the effects of the project during both construction and operation. The discussion compares the conclusions made in the FEIS and in the 2002 Technical Memorandum to new conclusions about the Revision 14-4M modifications, to identify whether any new significant adverse impacts would occur that were not disclosed in the FEIS. Based on the analyses presented below, no new significant adverse impacts would result.

LAND USE AND SOCIAL CONDITIONS

AFFECTED ENVIRONMENT

Sunnyside Rail Complex

The Sunnyside area of Queens is occupied by a vast railroad complex generally extending from close to Hunters Point Avenue on the west to 43rd Street on the east, between Northern Boulevard and Skillman Avenue. As noted above, the rail complex includes Sunnyside Yard, LIRR's Existing Rail Yard, and the Harold Interlocking. The complex includes tracks for train storage with associated overhead electric wire (catenaries) and numerous buildings and parking areas for railroad employees. The yard complex is generally substantially below the grade of the surrounding neighborhoods. Six bridges cross Sunnyside Yard, connecting the neighborhood on

the north to that on the south—at Hunters Point Avenue/49th Avenue, Thomson Avenue, Queens Boulevard, Honeywell Street, and 39th Street. Outside the rail complex (east of 43rd Street), the LIRR's Main Line and Port Washington Branch tracks run east and west on an embankment between Barnett Avenue and 37th Avenue.

Since issuance of the FEIS, several elements of the project have been completed. The construction of the open-cut for the tunnel north of Northern Boulevard has been completed. In preparation for the construction of the open cut from Northern Boulevard to the Existing Rail Yard, a warehouse complex known as the Superior Reed building has been demolished and a vehicular access ramp has been constructed from Dutch Kills Street into the yard. The Existing Rail Yard has been cleared of track and ballast. It will be used as a construction staging area and launch pad for the soft-ground tunnels to be built beneath Sunnyside Yard as part of the East Side Access Project.

Study Area

The land uses surrounding the Sunnyside rail complex are shown in Figure 9. The neighborhood close to the east end of the Sunnyside rail complex includes industrial, commercial, and residential uses. As shown in Figure 9, the area immediately north of the LIRR mainline tracks, which run on an embankment alongside Barnett Avenue east of 43rd Street, is predominantly industrial, while the area to the south is residential. The eastern portion of the rail complex, where the Revision 14-4M modifications would occur, is located in an M1-1 zoning district (see Figure 10). This district is an industrial buffer district that permits light manufacturing/high performance uses at a floor area ratio (FAR) of 1.0. The western portion of the rail complex is located in an M3-1 zoning district, which is designed for heavy industries that generate noise, traffic, and pollutants, and allow an FAR of 2.0.

North of the mainline tracks, low-rise industrial buildings front on the west side of 43rd Street. These properties abut the Sunnyside rail complex and are located in an M1-1 zoning district designed for light industrial uses (see Figure 10). As described in more detail below, these primarily two- to three-story buildings contain a variety of predominantly light industrial uses, including warehouse and office space, parking, and printing, as well as a communal artist space.

North of these buildings, at the corner of 43rd Street and Northern Boulevard, a retail building fronting on Northern Boulevard houses a large Pathmark supermarket and a smaller Dunkin Donuts/Baskin Robbins, savings bank, and insurance office. A large public storage facility is located immediately west of the Pathmark store, fronting on Northern Boulevard. The area on the north side of Northern Boulevard is largely industrial, with low-rise auto repair shops, warehouses, and used car and motorcycle sales lots. These uses are located in an M1-5 zoning district, which like the M1-1 district is designed for light industrial uses, but permits an FAR of 5.0.

On the east side of 43rd Street, the New York Presbyterian Church occupies a complex of formerly industrial buildings immediately north of 37th Avenue, just north of the rail embankment. This complex includes a small chapel building at the northeast corner of 37th Avenue and 43rd Street and a large church building just to its east. A large accessory parking lot for the church is located immediately north of the church and a smaller lot is on the south side of 37th Avenue, adjacent to the rail embankment. More industrial/auto-related uses are located just north of the church, including a car and truck rental lot. Win Depot, a large restaurant equipment center, is located near Northern Boulevard, across 43rd Street from the Pathmark. All of the

Existing buildings at site of the proposed 43rd Street Substation

Rendering of the proposed 43rd Street Substation

43rd Street Substation: Existing Conditions and Conceptual Rendering

Figure 8

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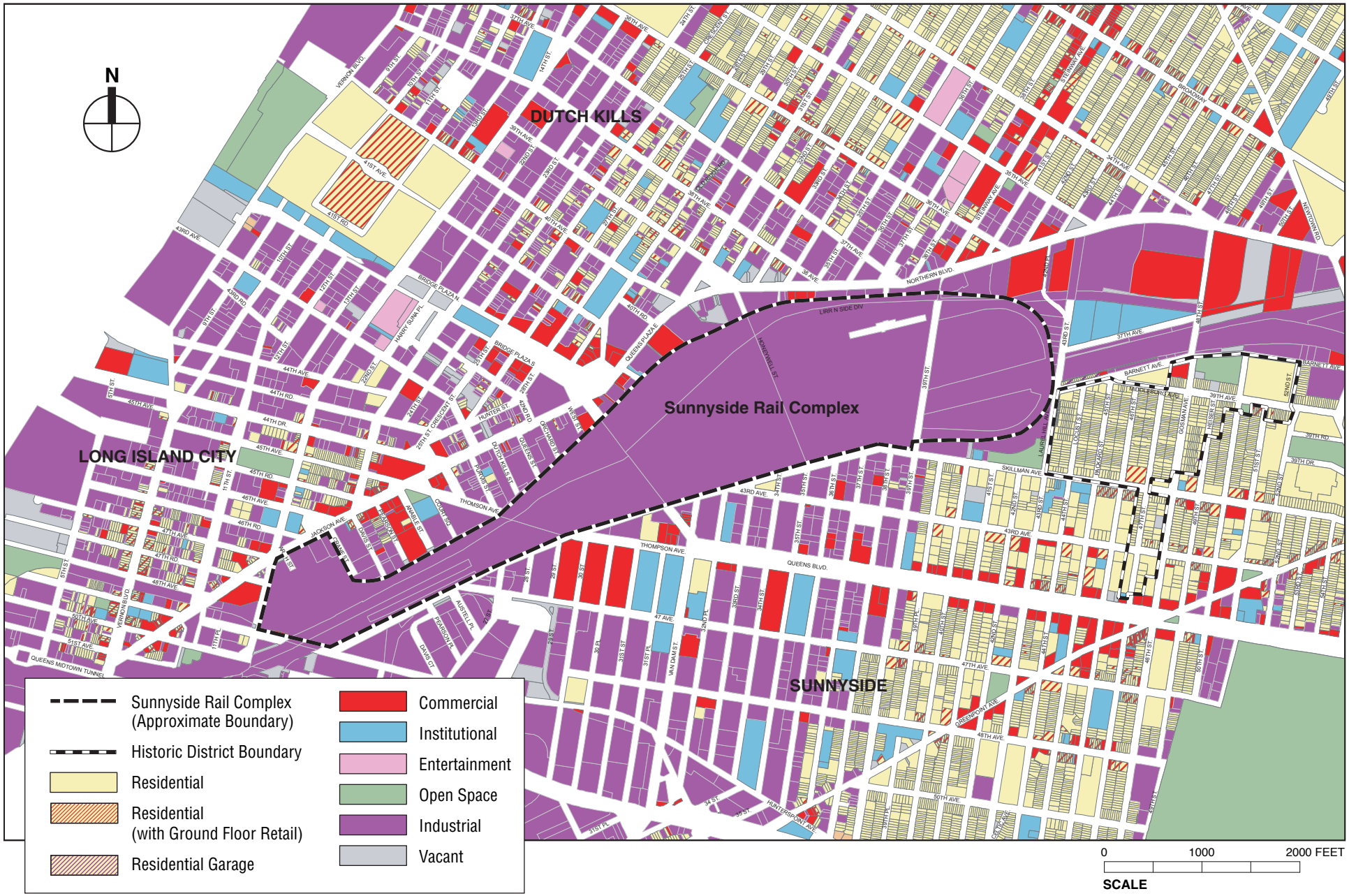

EAST SIDE ACCESS
REVISION 14-4M

Land Use, Sunnyside Rail Complex and Surrounding Area

Figure 9

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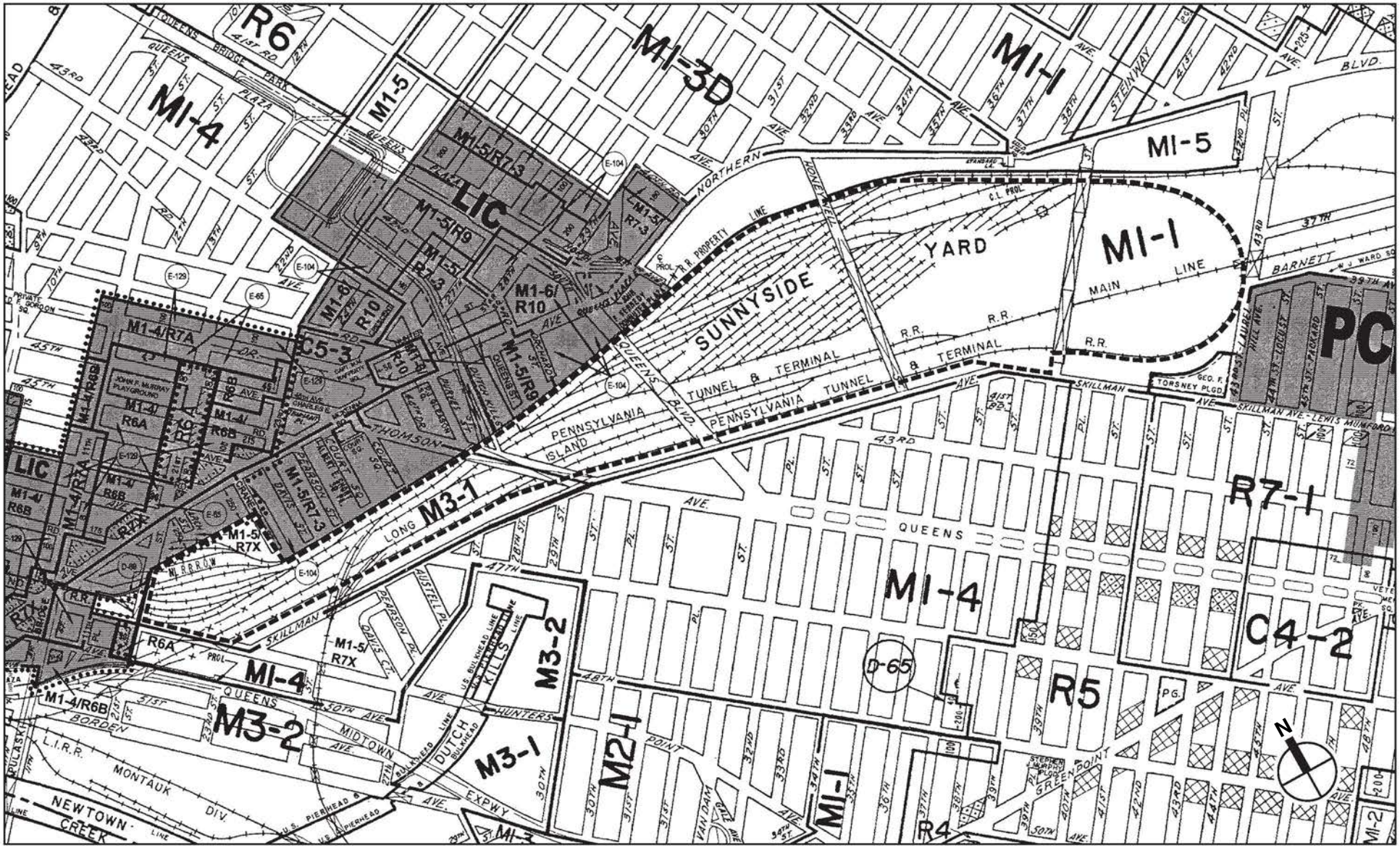

Sunnyside Rail Complex (Approximate Boundary)

Zoning District Boundary

Special Purpose District

C1-2 Overlay

C2-2 Overlay

0 500 FEET

SCALE

Zoning, Sunnyside Rail Complex and Surrounding Area

Figure 10

EAST SIDE ACCESS

REVISION 14-4M

above institutional and industrial uses are located in the same M1-1 zoning district as the rail complex.

South of the mainline bridge, the area on the west side of 43rd Street is dominated by the Sunnyside rail complex. A tall chain link fence along 43rd Street separates the complex from the surrounding neighborhood. A small bridge from 43rd Street crosses the loop tracks to provide vehicle access to a large General Motors repair facility that is located inside the loop tracks, alongside the mainline tracks. This driveway is also used by workers and contractors to access portions of the Sunnyside rail complex. South of the bridge, a warehouse/light industrial building on the west side of 43rd Street abuts the loop tracks. Just south of the industrial building, a park is located at the corner of Skillman Avenue and 43rd Street. This 2-acre park, George P. Torsney Park, is mostly paved and contains play areas. The park is buffered from the loop tracks by the bulky warehouse buildings.

On the east side of 43rd Street south of the mainline embankment, the neighborhood is predominantly residential. The north side of Barnett Avenue, adjacent to the railroad tracks, is lined by auto-related and industrial uses, including 20 privately owned residential garages. The south side of Barnett Avenue east of 43rd Street marks the beginning of the Sunnyside Gardens residential neighborhood. This residential area is part of the 16-block Sunnyside Gardens Historic District (S/NR), a planned residential community built between 1924 and 1935 by the founders of the Regional Planning Association of America (for more information, see "Historic Resources," below). This neighborhood consists of low-rise (generally two-story) brick houses with attached one-story garages. Along the east side of 43rd Street, the houses are set back from the street by a row of these garages. The residential district is zoned R7-1, which is a medium-density apartment house district with a maximum FAR of 3.44. Part of the Sunnyside residential area is located within a Special Planned Community Preservation District. Within this district, no new development, enlargement that requires building demolition, or substantial alteration of landscaping or topography is permitted, without a Special Permit. The District was created to preserve an example of town planning/large-scale development as well as the character and integrity of a unique community.

As described in more detail in Chapter 3, "Land Use, Zoning, and Public Policy," of the FEIS (see page 3-16), the area surrounding the rest of the Sunnyside rail complex is predominantly industrial, with numerous large loft-type buildings on large blocks (see Figure 9 and the aerial photograph in Figure 2). North of Sunnyside Yard, nearby uses include the office district of downtown Long Island City, which also includes some institutional uses, such as the contemporary art museum known as P.S. 1; to the south of the yard, some industrial uses have been replaced by institutional uses, such as La Guardia Community College. Near the 39th Street and Honeywell Street bridges, the area close to the rail complex is dominated by low-rise industrial buildings, including warehouses and automobile-related facilities.

PROPERTY ACQUISITIONS

Fee acquisition and permanent easement requirements for Revision 14-4M are identified in Figure 11. Revision 14-4M would require permanent acquisition of privately owned properties on the west side of 43rd Street for the new yard lead track and substation. The required property acquisitions and uses that would be displaced are described below. More information on the acquisition and relocation procedures to be followed is provided in the discussion of "Economic Conditions" in the next section of this document.

In Chapter 5, "Economic Conditions," in the section entitled "Potentially Affected Properties in Queens" (page 5-29), the FEIS identified the need to acquire one industrial building (occupying three lots) on the west side of 43rd Street, immediately north of the mainline tracks at 3856-3864 43rd Street (Block 183, Lots 200, 195, and 192). The FEIS concluded that acquisition of the industrial property in the Sunnyside area on 43rd Street would not change overall land use patterns in the area. This property, formerly owned by Matura, has since been acquired by MTA.

The 2002 Interim design required acquisition and demolition of five additional properties on the west side of 43rd Street for construction of the new yard lead track, as follows:

- 3850-3852 43rd Street (Block 183, Lot 191), a two-story building occupied by office and warehouse space. (This property, formerly owned by Sarah Rose, has been acquired by MTA)
- 3840 43rd Street (Block 183, Lot 189), a two-story building occupied by warehouse space for non-food bakery decorating products, parking of light trucks as well as general vehicles, and offices.
- 3838 43rd Street (Block 183, Lot 185), a two-story office and warehouse that includes parking, storage and distribution of magazines and storage of cable TV installation materials, printing, office space, and a communal artist space with a large studio and residential rooms.
- 3830 43rd Street (Block 183, Lot 375), a one-story building used as a warehouse for dry foods and refrigerated storage as well as office space.
- 3832-3834 43rd Street; (Block 183, Lot 375), a two-story building has a warehouse for dry goods and general office space.

The acquisition of these properties was identified and evaluated in the 2002 Technical Memorandum. These properties would also be acquired and demolished for the Revision 14-4M project changes. The buildings to be acquired are shown in Figure 12.

Two de minimus fee acquisitions of narrow strips of land (less than a foot) that are adjacent to the LIRR right-of-way (Block 142 Lot 291 and part of Lot 50) would be required to construct the retaining walls to support the additional tracks between 43rd and 48th streets.

Revision 14-4M would require a permanent easement of a narrow area along the northern border of the GM property (Block 183 Lot 332) for a retaining wall to replace the slope that is currently located there. This area is currently used for parking (although it is not a striped lot) – up to an estimated eight parking spaces could be eliminated. Under the FEIS and 2002 Interim designs, a permanent easement was required along the southern border, the GM bridge was to be relocated, and a construction staging area would have displaced 28 parking spaces for a period of two years. Under Revision 14-4M, temporary easement requirements are limited to construction access.

South of the mainline embankment, a portion of an additional, vacant property on the west side of 43rd Street (Block 183, part of Lot 250), the "Refron" parcel, was required for the relocated GM bridge in the FEIS design and for construction of the yard lead track in the 2002 Interim design. Acquisition of this property is not required under the Revision 14-4M design, however, the tunnel loop track would pass beneath it and a subsurface easement would be required. A temporary easement for construction access may also be needed.

Construction of the northern retaining wall east of 43rd Street for the mainline embankment would require a temporary easement in the church parking lot (Block 142 Lot 15). Construction

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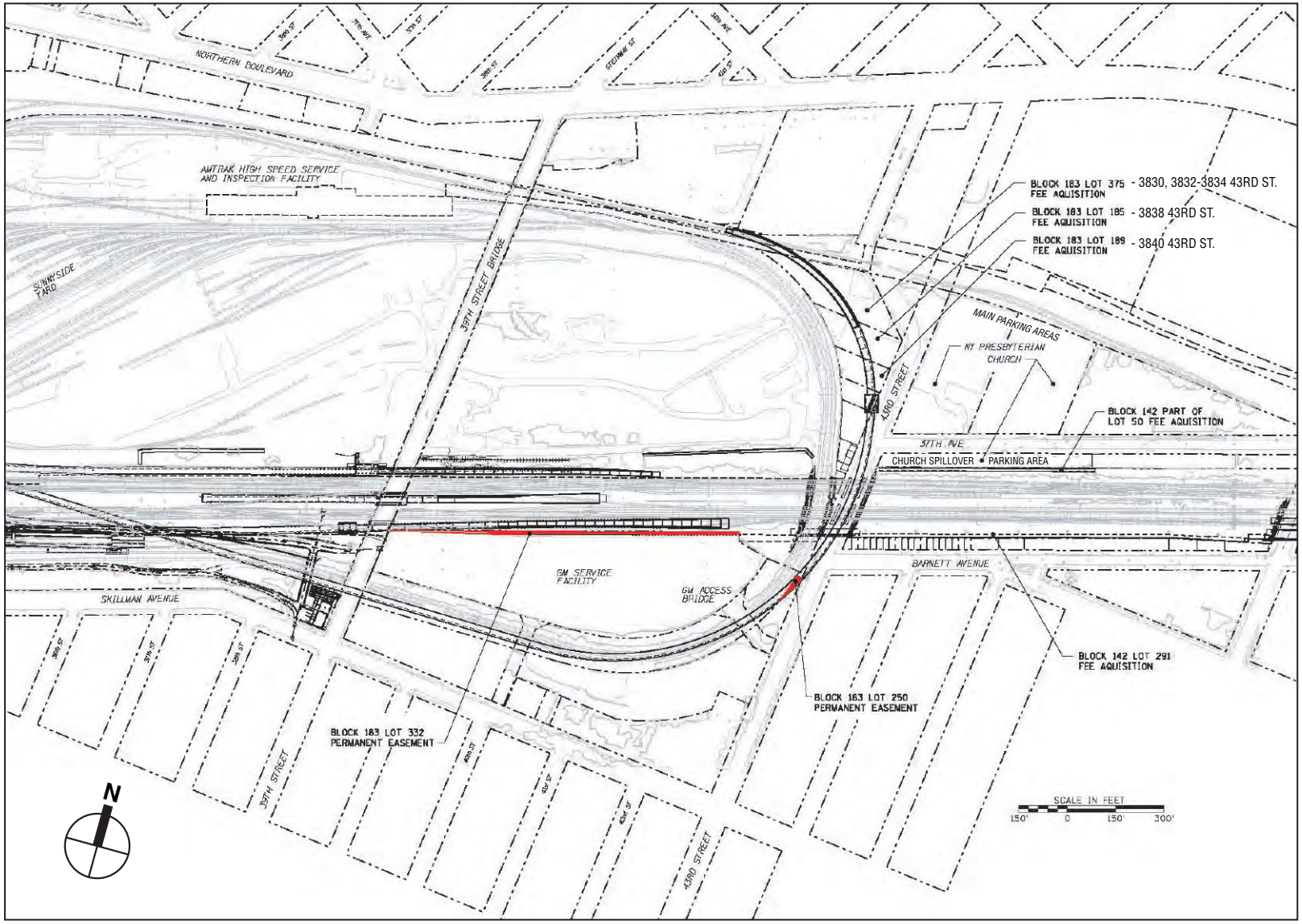

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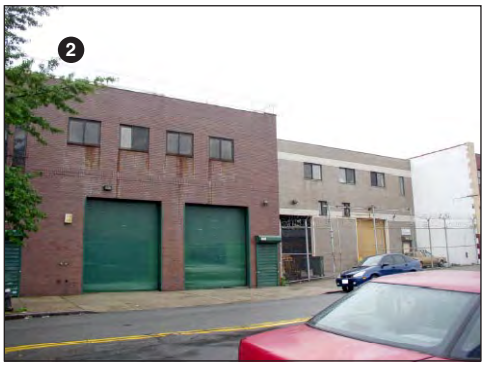
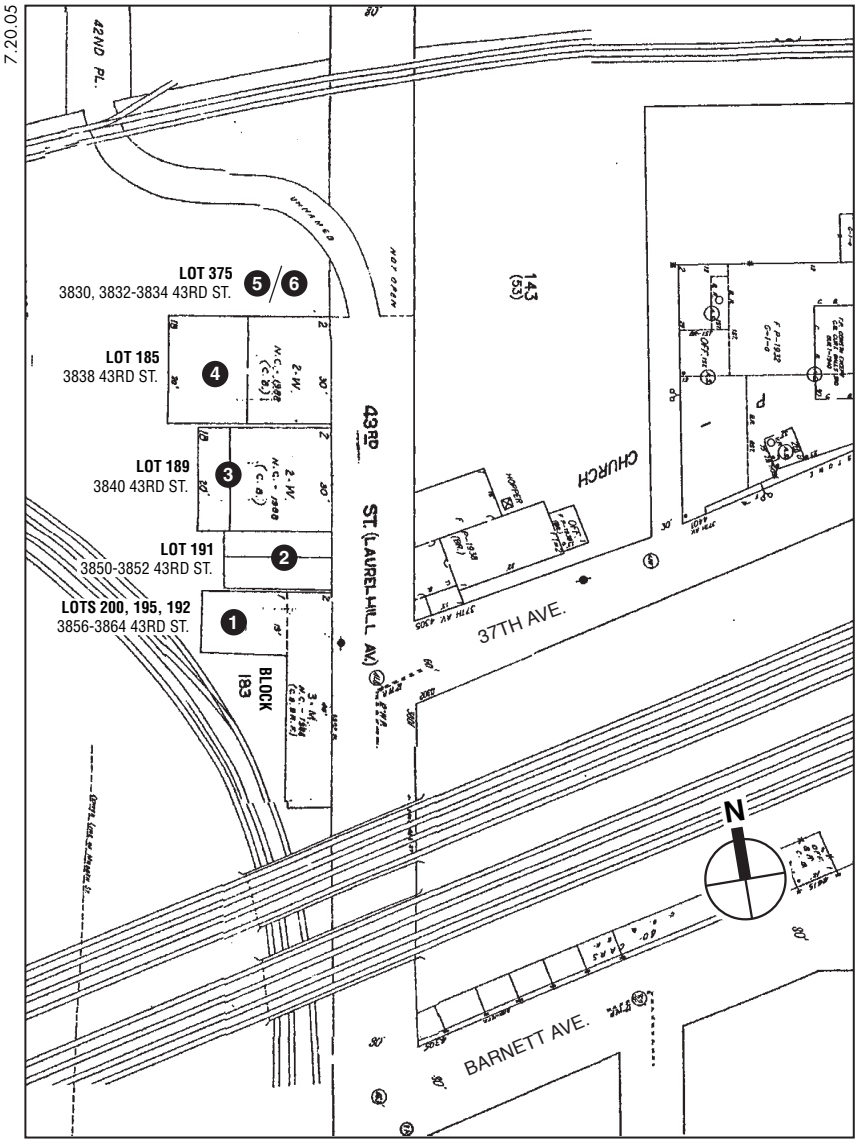
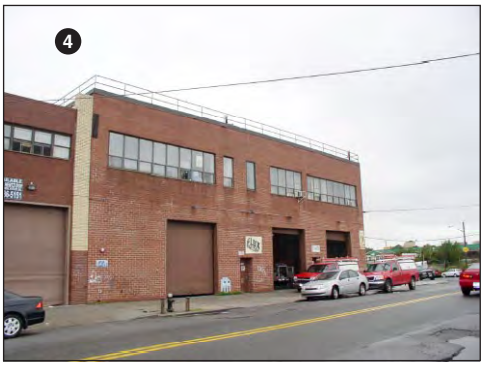
EAST SIDE ACCESS
REVISION 14-4M

Fee Acquisitions and Permanent Easements

Figure 11







Existing Buildings to be Demolished at 43rd Street

Figure 12

activities would affect a limited number of parking spaces at the church for a period of approximately six months. This temporary impact is less (in extent and duration) than what was assumed under both the FEIS and Interim designs. A temporary access easement would also be acquired east of 48th Street on a vacant lot (Block 119 Lot 50) for a period of approximately 6 months while the retaining wall to the south of the LIRR tracks and bridge work is completed.

POTENTIAL IMPACTS DURING CONSTRUCTION

Chapter 17 of the FEIS concluded that construction activities required for East Side Access in and around the Sunnyside rail complex would not disrupt surrounding land uses, as most uses are predominantly industrial and most construction activity would take place within the rail complex and would not be visible from street level. The changes proposed to construction activities at Harold Interlocking and at other locations inside the Sunnyside rail complex would not result in significant adverse impacts to land use or incompatibilities with surrounding uses. These activities would be similar in location and nature to the activities already included in the FEIS design, and are intended to minimize adverse effects on rail operations in the complex. Extensive construction work was planned to occur within the rail complex for the project as part of the design analyzed in the FEIS. The construction activity would be separated from neighboring land uses by other parts of the complex, as well as by surrounding streets, and it would occur within an already busy industrial setting.

The construction activities proposed at the edges of the rail yard that would be visible to surrounding neighborhoods also would not result in significant adverse land use impacts. These include the new ventilation buildings adjacent to the Honeywell Street bridge and the 39th Street bridge and the new substation on or near 43rd Street. The new ventilation structures next to the Honeywell Street bridge would be within the Sunnyside rail complex, and construction activities for those structures would not adversely affect the surrounding neighborhood. A small area on the Honeywell Street bridge could be closed during construction, and that closing would be subject to the project's Maintenance and Protection of Traffic plan (see "Transportation" later in this document). The new ventilation structure beside the 39th Street bridge, at the corner of 39th Street and Skillman Avenue, and the relocated LIRR substation beside the Honeywell Street bridge at Skillman Avenue would result in temporary disruptions along Skillman Avenue during construction. This portion of Skillman Avenue would also be subject to the project's Maintenance and Protection of Traffic Plan to ensure that traffic continues to flow effectively through areas affected by the proposed construction activities. Such Maintenance and Protection of Traffic Plans were discussed in Chapter 17 of the FEIS for construction of the project in Queens and Manhattan.

Construction activities near 43rd Street associated with Revision 14-4M project elements would include demolition of the industrial buildings along the west side of 43rd Street north of the mainline rail viaduct, construction of the new one-story substation building, the open cuts for the yard lead track north and south of the LIRR mainline, and the new access drive adjacent to the substation building. This work would occur during the same timeframe as the construction work on the rail bridge crossing 43rd Street, which was included in the FEIS design. It would also be conducted at the same time as some additional construction activities on 43rd Street required in connection with Revision 14-4M elements: underpinning of the bridge piers, installation of an electric duct bank, and potential relocation of a city sewer line beneath the street. Construction activities in this location were anticipated in the FEIS; the "Improvements at Harold Interlocking" section of Chapter 17 (page 17-15) described demolition of one building on the west side of 43rd Street and construction activities at the rail bridge that crosses 43rd Street. The

new project elements would require similar construction activities to those already evaluated in the FEIS. A Maintenance and Protection of Traffic Plan would be employed on 43rd Street during the construction period to ensure that the flow of traffic is maintained.

Construction activities on and near 43rd Street for project elements included in Revision 14-4M would not result in significant adverse impacts on the nearest sensitive uses, which include the large New York Presbyterian Church on the north side of the mainline embankment and the Sunnyside Gardens residential area on the south. Construction activities would not be closer to the uses than the activities already included in the FEIS design along 43rd Street. The construction activities would generally occur in an industrial area that is already noisy because of nearby rail activity, including frequent train passbys on the mainline rail embankment. Noisy construction work, such as pile driving, would not be conducted in close proximity to the church on Sundays, when church is in session.

In addition, the Revision 14-4M design changes would reduce the construction impacts to the General Motors facility and Refron property on 43rd Street near Skillman Avenue that were described in Chapter 17 of the FEIS.

Along the mainline embankment between 43rd and 48th Streets, construction of the project's new viaduct under the FEIS design would be disruptive to surrounding uses, including the church and the residential neighborhood at Sunnyside Gardens, as described in Chapter 17 of the FEIS. Widening the embankment rather than constructing a viaduct would result in similar disruptions and would not change that conclusion. Under the Revision 14-4M design, MTA property near the 48th Street rail bridge would be used for construction staging and access.

Chapter 3 of the FEIS concluded that most of the work in the Sunnyside rail complex area would be largely contained within the rail complex, and that no significant adverse impacts would occur to the surrounding neighborhoods in terms of land use, neighborhood character, or effects on community resources. Based on the analysis presented above, the project elements included in Revision 14-4M would not change that conclusion.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

The modifications to Harold Interlocking and other changes proposed within the Sunnyside rail complex would not change the vast rail complex in use, and most uses would not be visible outside the rail complex. Most of the project elements would be located within the larger rail complex, and would not change the overall use of the yard complex or its relationship to the surrounding area. The new project elements included in Revision 14-4M that would be visible outside the rail complex include the new ventilation buildings at the Honeywell Street bridge and at the corner of 39th Street and Skillman Avenue, the new (relocated) substation at the corner of Honeywell Street and Skillman Avenue, the new substation on or near 43rd Street, and the widened embankment between 43rd and 48th Streets. While these uses would be visible to the surrounding area, they would be consistent with the existing industrial character and uses at the yard. (See "Visual and Aesthetic Considerations" below for more information on visual effects.)

The rail tunnel ventilation buildings at the Honeywell Street bridge would be located within the Sunnyside rail complex, and therefore would not result in any changes in land use. The construction of the Three-Tunnel Emergency Exit/Ventilation/Substation Facility would require demolition of an unused low-rise substation in the Sunnyside Yard rail complex that is owned by Amtrak (see Figures 13 and 14). As shown in Figure 13, the new building would occupy more floor area within the yard than the building to be demolished. In addition, the building would be

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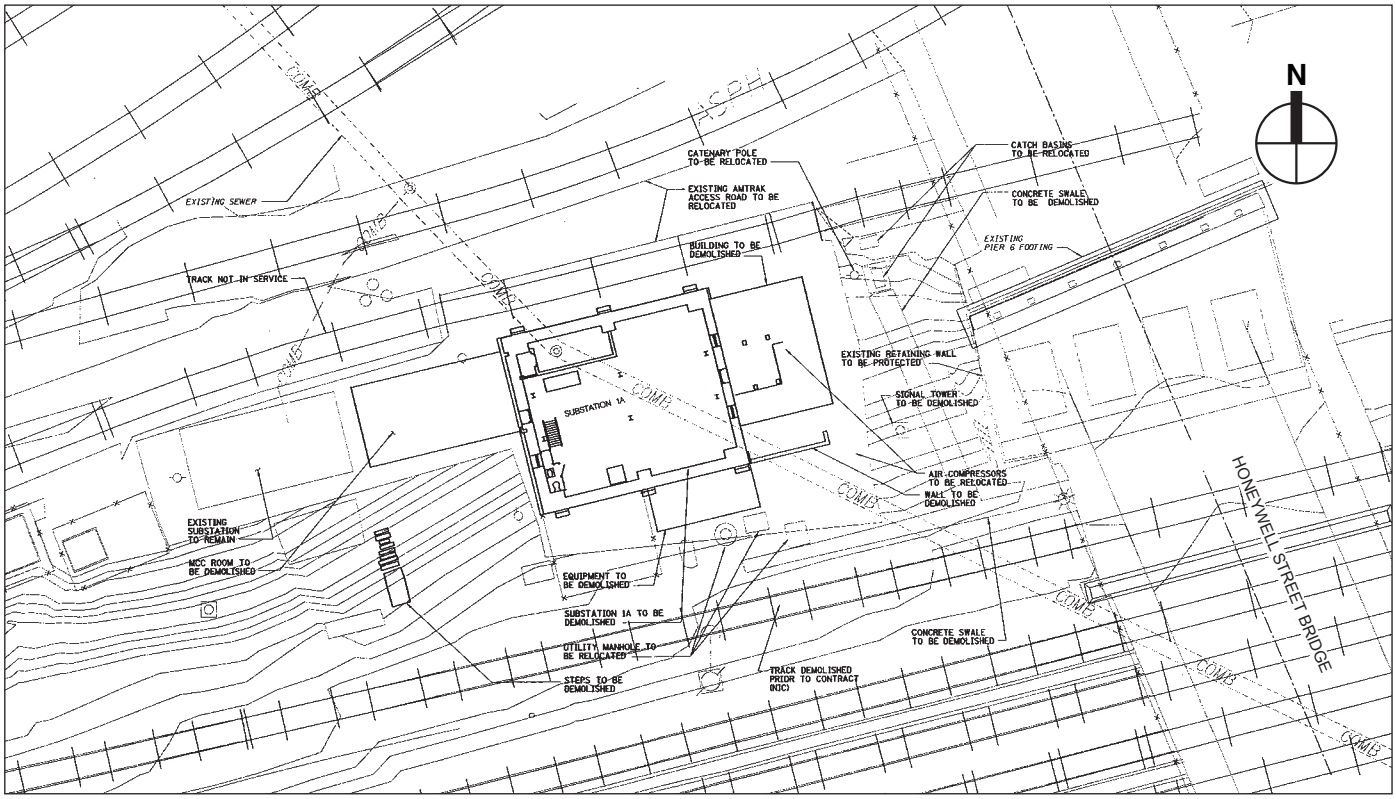

Site plan of Amtrak Substation 1A building to be demolished

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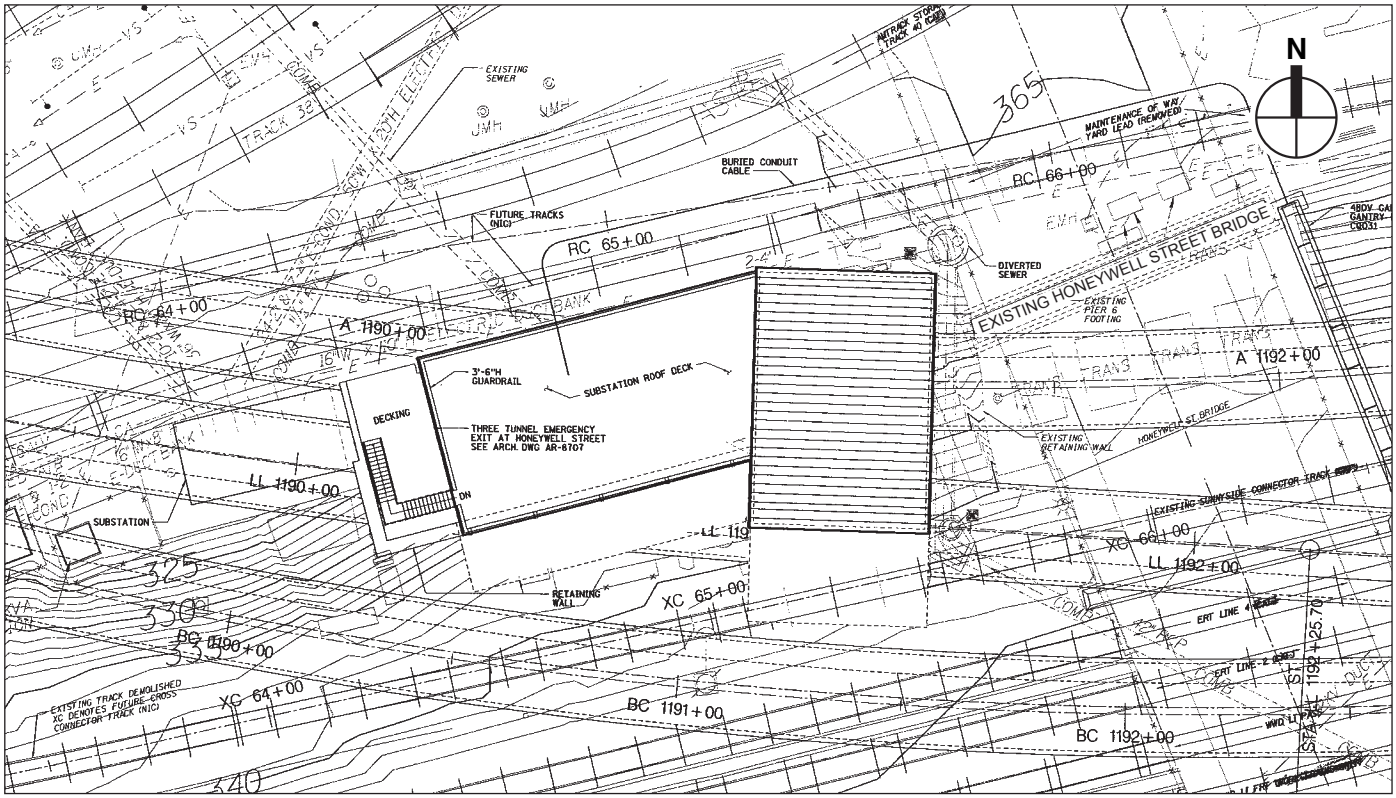

Proposed site plan for Honeywell Street Three Tunnel Facility

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Site Plans of Existing Building and Proposed Three Tunnel Facility at Honeywell Street Bridge

Figure 13

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Amtrak Substation IA Building to be Demolished

Figure 14

located in closer proximity to the Honeywell Street bridge and would rise above the bridge span by approximately 25 feet.

The new substation to be constructed at the corner of Honeywell Street and Skillman Avenue, immediately west of the Honeywell Street bridge, would bring a new structure to a currently vacant portion of the yard complex. As shown in Figures 6 and 7, the yard complex in this area is substantially below the grade of Skillman Avenue. The surrounding uses are predominantly industrial, and the addition of another industrial structure in this area would not result in a significant adverse land use impact.

The new ventilation building at 39th Street, to be built on property owned by Amtrak, would replace an auto-related use: a taxi brokerage business, consisting of a parking area filled with taxis and other vehicles and a small building (see the photographs in Figure 4 and 5). The parcel would be converted from an auto-related use to a rail-related transportation use. There would be no significant adverse land use impact, as the new use would be compatible with surrounding land uses, which include auto-related (gas station) and commercial and light industrial uses. The nearest residential uses—at 39th Place, one block east of 39th Street—are already located in a predominantly industrial and commercial area, and the proposed change would not alter that setting.

On the west side of 43rd Street north of the mainline embankment, the project would displace six one- and two-story industrial properties (on seven lots; one lot has two different owners). The FEIS design would have required demolition of the southernmost of these buildings (occupying three lots); the 2002 Interim design also required demolition of all six properties. These light industrial uses would be replaced by a single substation that would serve the Sunnyside rail complex below it and to the west. In Chapter 5, the FEIS concluded that the acquisition of the southernmost of these industrial properties along 43rd Street would not change overall land use patterns in the area. The same conclusion applies for the acquisition of the other buildings on the west side of 43rd Street that are to be acquired in the current proposal.

The new substation on or near 43rd Street would replace existing industrial uses with a different transportation-related industrial use. The new substation would be similar in use, scale, size, and bulk to the existing buildings along 43rd Street. The change in use from industrial to transportation-related industrial would not be significant, and would not result in significant changes to the character of the neighborhood. The area is a mix of transportation-related, industrial, commercial, and residential uses, and would continue to be so after the East Side Access Project is complete. Overall, the industrial character of this portion of the street would remain and the change in specific use would not alter the overall land use patterns or neighborhood character of the immediate area. Furthermore, the properties proposed for acquisition with Revision 14-4M are of similar type and function and are in the vicinity of the property identified for acquisition in the FEIS. The proposed modifications would be an improvement over the design analyzed in the 2002 Technical Memorandum, as no loss of parking or sidewalk space would be required. Impacts from property acquisitions and mitigation measures to minimize these impacts would be similar to the impacts and mitigation described in Chapter 5 of the FEIS and would not represent new significant adverse impacts. (Economic effects and mitigation measures are described in more detail in “Economic Conditions,” below.)

The widening of the embankment north and south of the existing embankment between 43rd and 48th Streets would also have no significant adverse impact on nearby land uses. The FEIS analyzed the effects of constructing a new viaduct[1]; replacing the viaduct with a widened embankment would not change the conclusions of the FEIS.

As an authority of New York State, MTA is exempt from local requirements, including zoning regulations. Nonetheless, the proposed modifications would be consistent with M1-1 zoning requirements, which are designed to promote light manufacturing/high performance uses, often bordering residential uses. The proposed structures would meet the zoning requirements in terms of use, bulk, and yard requirements.

Overall, no significant adverse land use or neighborhood character impacts would occur from the Revision 14-4M modifications. The project modifications are similar in nature and location to what was analyzed in the FEIS, and would not result in adverse changes to land use, incompatibilities with existing land uses, or adverse effects to the character of the surrounding area.

ECONOMIC CONDITIONS

AFFECTED ENVIRONMENT

The property acquisition requirements of Revision 14-4M are described above in the "Land Use" section.

ACQUISITION, RELOCATION, AND COMPENSATION

Acquisition of the properties would occur prior to commencement of construction activities. As a federally funded project, East Side Access will follow federal acquisition and relocation regulations. The rights of owners and tenants of real property acquired to implement the proposed project, including permanent easements, are protected under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the Uniform Act). The Uniform Act provides for equitable treatment of persons displaced from their homes, businesses or farms by federal and federally assisted programs. It also establishes uniform and equitable land acquisition procedures. Entitlements for property owners under the law include the following:

- Just compensation for property, which may not be less than the acquiring agency's approved appraisal of the fair market value;
- Determination of just compensation by a court of law;
- The opportunity to accompany the appraiser who appraises their property;
- Written statement of, and summary of the basis for the amount established by the acquiring agency as just compensation;
- Payment of the agreed upon purchase price (or a deposit in the court) before being required to surrender possession of the property;
- Reimbursement for certain expenses incidental to transfer of title to the acquiring agency;

[1] See Chapter 6, page 6-25 for visual impacts; Chapter 7, page 7-25 for historic impacts; Chapter 8, page 8-20 for archaeological impacts; and Chapter 17 for construction impacts.

- Reimbursement for certain litigation expenses;
- At least 90 days' written notice to vacate occupied property;
- Relocation services and payments, where applicable; these may involve housing supplements, moving cost, etc. for residential acquisitions, or reestablishment, moving costs, etc. for business, nonprofit, or farm acquisitions; and
- Written statement or brochure advising property owners of their rights and entitlements, and assurance that they receive all of the services and payments to which they are entitled under federal and state law and regulations.

In addition to the rights of owners, the Uniform Act provides entitlements to qualified businesses displaced as part of a federal and federally assisted program, including reimbursement for relocation expenses, including:

- Payment for actual reasonable moving and related expenses for nonresidential moves, including transportation of personal property up to 50 miles, disconnecting, dismantling, removing, packing, crating, reassembling, and reinstalling relocated machinery, equipment, and other personal property, including connection to utilities available nearby; storage of the personal property for a period not to exceed 12 months; insurance for the replacement value of the personal property in connection with the move and necessary storage; any license, permit, or certification required of the displaced business at the replacement location; replacement value of property lost, stolen, or damaged in the process of moving; and professional services necessary for planning, moving and installing the relocated personal property at the replacement location.
- Actual direct loss of tangible personal property incurred as a result of moving or discontinuing the business based on the fair market value of the item for continued use at the displacement site, less the proceeds from its sale.
- Purchase of substitute personal property, if an item of personal property which is used as part of a business or farm operation is not moved but is promptly replaced with a substitute item that performs a comparable function at the replacement site.
- Payment for expenses required to search for a replacement location, not to exceed $1,000. Other moving-related expenses that are not listed as ineligible, as determined to be reasonable and necessary.

All site occupants would be personally interviewed to determine their specific relocation needs, and would be furnished a copy of the state's informational booklet and fully informed of all benefits to which they may be entitled. Owners' properties that would be acquired would be compensated at fair market value and relocation benefits would be provided for displaced businesses. Businesses and tenants that would be displaced would likely be able to relocate within Queens with minimal disruption to business activity and minimal loss of employment. Overall, there would be no new significant adverse socioeconomic impacts related to displacement from the additional acquisitions required by the project changes.

POTENTIAL IMPACTS DURING CONSTRUCTION

The Revision 14-4M design would reduce the project's construction-period impacts to the General Motors facility near 43rd Street and Skillman Avenue. The construction easement to use a portion of the General Motors property as an access and staging area for work along the interlocking between 43rd and 48th Streets that was described in Chapter 17 of the FEIS would

no longer be required. This would eliminate the need to temporarily displace up to 28 parking spaces at the General Motors property. In addition, the Revision 14-4M design would also eliminate the need to relocate the GM facility's access drive farther north along 43rd Street. Instead, the project would require a permanent easement of a narrow area along the northern border of the GM property for a retaining wall to replace the slope that is currently located there. The area is currently used to park cars (although it is not a striped parking lot) –up to an estimated eight parking spaces could be affected.

Construction activities associated with Revision 14-4M would not result in adverse effects to nearby businesses. The businesses that would be acquired would be provided relocation assistance, as described above. Impacts from acquisition would be similar to the effects described in Chapter 5 of the FEIS for the single building to be acquired on 43rd Street for the FEIS design, differing only in the number of affected properties, and would not represent new significant adverse impacts. A greater number of employees would be affected than for the FEIS design, although specific information on the number of employees in the buildings to be acquired is not available. The FEIS concluded that there is a sufficient inventory of industrial space for the relocation of displaced businesses. It is anticipated that the businesses directly displaced as a result of project modifications would likely be able to relocate within Queens. While individual businesses would have to relocate, no particular industry would be significantly adversely affected by the required displacement. Mitigation measures to minimize impacts from displacement would be similar to the mitigation described in the Economic Conditions chapter of the FEIS for acquisition related to construction of the inner loop track.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

The operation of the completed project would not adversely affect surrounding businesses. Nearby uses currently operate in proximity to industrial uses, and the project modifications would replace industrial or commercial uses with a transportation-related industrial use.

VISUAL AND AESTHETIC CONSIDERATIONS

AFFECTED ENVIRONMENT

As detailed in Chapter 6, "Visual and Aesthetic Considerations," of the FEIS, the Sunnyside rail complex appears as one vast area of railroad tracks interspersed with electrical facilities, poles, and wires, and one- to three-story early 20th century masonry buildings and modern metal structures and trailers that are utilitarian in appearance. This whole area is depressed below the surrounding land. Vegetation is sparse, mostly consisting of short trees and lightly overgrown grassy areas in isolated locations, with the exception of the southern edge, which is bordered by taller and much denser vegetation. Rail cars are stored on the tracks, particularly in the center of Sunnyside Yard, where Amtrak trainsets and catenary wires dominate views. At the northern portion of the complex, LIRR's Existing Rail Yard is currently vacant, since work has begun here in association with the East Side Access Project.

The visual character of the area surrounding the rail complex is that of an industrial district consisting of a variety of early and mid-20th century manufacturing, warehouse, and commercial buildings. On the southern side of the rail complex, wide open views from Skillman Avenue over the below-grade rail complex extend as far as the Manhattan skyline to the north and west. From south of Skillman Avenue, the land slopes slightly upward toward the rail complex, limiting views of the Skillman Avenue area near 39th and Honeywell Streets to the portions of

the streets in proximity to Skillman Avenue. In addition, the rail complex's location below the surrounding neighborhoods—in combination with the densely built-up character of the surrounding area—almost completely isolates the rail complex from view from the surrounding neighborhoods. The north side of Skillman Avenue near 39th and Honeywell Streets is lined with parallel parking spaces adjacent to a chain-link fence overlooking the depressed yard complex (see Figures 4 and 6). Near 39th Street, small commercial buildings occupy parcels on the north side of Skillman Avenue on either side of the 39th Street bridge. A taxi brokerage consisting of a small one-story building surrounded by a parking area is at the northwest corner of 39th Street and Skillman Avenue and a one-story brick commercial building is at the northeast corner of 39th Street and Skillman Avenue. Across Skillman Avenue, a gas station occupies the southeast corner of 39th Street and Skillman Avenue and a two-story commercial building is at the southwest corner. Near Honeywell Street, no structures occupy the north side of Skillman Avenue, where the rail complex is depressed below the street. The area south of the rail complex is similarly industrial in appearance, with one- to three-story office and commercial buildings on the south side of Skillman Avenue.

The Amtrak and LIRR Main Line and Port Washington Branch tracks cross 43rd and 48th Streets on two separate steel and concrete bridges. Between these streets, and bounded by 37th Avenue to the north and Barnett Avenue to the south, the tracks run on a narrow, raised embankment that is at the same elevation as the bridges. Tall metal poles and high-tension towers support electric wires that extend along the length of the tracks. The slopes of the embankment are covered in light vegetation and small trees.

The area north of the mainline embankment on 43rd Street is defined by plain brick commercial buildings, parking lots, and small vacant areas. Due to the sharp bend in this road close to Northern Boulevard, the presence of the railroad viaduct between 37th Avenue and Barnett Avenue, and the buildings that line the streets north and south of the railroad embankment, visibility of the area surrounding the LIRR bridges and railroad embankment is primarily limited to the immediately surrounding areas.

The areas within visual range of the LIRR bridges and embankment differ significantly to the north and south. On the north side of the railroad tracks, 37th Avenue is a predominantly industrial two-way street with little pedestrian traffic. The south side of this street, contiguous with the railroad embankment, consists primarily of a paved parking area that is fenced and provides parking for a church across 37th Avenue. There are also several plain one-story brick and concrete commercial buildings near 48th Street. On the north side of the street, there are a few plain, one- and two-story structures, as well as fenced, vacant lots. The industrial buildings at the northeast corner of 37th Avenue and 43rd Street have been converted for use as a church. These include a small boxy chapel at the corner of 43rd Street and a large and striking concrete and metal building, new and modern in appearance, with large Korean characters and lettering reading "New York Presbyterian Church" on its west facade. Overall, the church buildings are industrial in appearance, and do not have windows facing 43rd Street. Because there are no buildings along the south side of 37th Avenue, the railroad embankment is clearly visible along that street—including from the two church buildings on the north side of the street.

On the south side of the railroad embankment, a group of attached one-story private residential garages and several one-story, brick, boxy, commercial buildings are located on the north side of Barnett Avenue between the street and the railroad embankment. The 20 small garages, which are located on a slight incline commencing at the corner with 43rd Street, are utilitarian structures with flat roofs. Along the Barnett Avenue side, they consist simply of wooden garage

doors set in plain brick framing. Eastward, the remaining portion of this street to 48th Street is occupied by a variety of flat-roofed brick and concrete structures interspersed with small, chain-link, fenced parking areas. At the northeast corner of Barnett Avenue and 48th Street is a one- and two-story janitorial supply building. Built of concrete and brick, it is a freestanding structure surrounded by a corrugated metal fence. A driveway between the railroad embankment and the building provides access into the complex.

The area south of Barnett Avenue is composed of the tree-lined Sunnyside Gardens residential neighborhood, which has a suburban character and is a visual resource (and historic district). Lining the south side of Barnett Avenue and the streets south of it are two- and three-story brick houses and taller brick apartment buildings that date from the 1920s and 1930s. Along the east side of 43rd Street, the residential buildings of this complex are set back behind one-story garages similar to those along Barnett Avenue (described above). Several gated pedestrian entrances to the residential complex are located at intervals between the garages. Views of the railroad embankment from the south side of Barnett Avenue and the streets that dead-end onto it are mostly obstructed by the one-story garages and commercial buildings on the north side of the street. However, where there are gaps between the buildings in the area of the small parking lots, described above, the train embankment and passing trains are visible. Views across 43rd Street from the residential complex are of a vacant overgrown site, chain link fence, and the active driveway of the GM facility (see Figure 15). From limited locations, views down to the loop tracks in the below-grade rail complex are also available.

POTENTIAL IMPACTS DURING CONSTRUCTION

As noted in Chapter 17 of the FEIS (see page 17-30), although extensive construction activities would occur in Queens, most of this work would not be visible to the public. All of the work within the Sunnyside rail complex would be largely invisible, since this area is separated from surrounding neighborhoods by grade changes, fences, and bulky industrial buildings. Most work outside the yards would be enclosed by fencing, limiting views of the construction materials and equipment. The FEIS concluded that construction activities that would be most visible in Queens would be related to the new Sunnyside Station and the rail work on the embankment between 43rd and 48th Streets. The FEIS design included construction of new bridges across local streets and a new viaduct along the rail embankment between 43rd and 48th Streets, just east of Sunnyside Yard, which would be visible to the surrounding community.

With Revision 14-4M, certain limited construction activities would be visible to the public. These include the construction activities associated with the proposed facilities near the Honeywell Street bridge and the 39th Street bridge and the new substation on 43rd Street north of the mainline tracks, as well as the work on the bridges at 43rd and 48th Streets, and the work along the embankment between the 43rd and 48th Street bridges. This construction activity would be temporary and would occur on sites currently occupied by industrial or heavy commercial uses. The effect of this visible construction would be similar to that described for the same area in the FEIS. It would not result in significant adverse visual and aesthetic conditions impacts.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

Chapter 6, “Visual and Aesthetic Considerations,” of the FEIS concluded that the project’s changes within the Sunnyside rail complex would not alter the visual character of the yard complex (see page 6-23 of the FEIS). This conclusion is also true for the changes proposed as

Looking northwest on 43rd Street from Sunnyside Gardens

View north on 43rd Street from Sunnyside Gardens

View North on 43rd Street from Sunnyside Gardens

Figure 15

part of Revision 14-4M. Construction of new facilities within the rail complex, including cuts, tunnels, buildings, ventilation facilities, emergency exits, access roads and other project elements, would only add to the existing mixture of old and new structures located within the yards, therefore not altering their visual character. Moreover, no sensitive viewer groups are located in proximity to the project elements in the Sunnyside rail complex.

Chapter 6 of the FEIS also concluded that east of the Sunnyside rail complex, the proposed demolition of an industrial building immediately north of the mainline viaduct and construction of new bridges across 43rd and 48th Streets to carry the new tracks would not significantly alter the appearance of the immediately neighboring areas. The removal of one utilitarian brick structure—or a portion of that structure—out of several of similar appearance, and the construction of bridges, expected to be similar to the existing ones, would not noticeably change the visual character of the area in the vicinity of 43rd Street, 37th Avenue, Barnett Avenue, or 48th Street. The removal of the additional buildings at 43rd Street and replacement with a substation building (and yard lead track below grade) proposed under Revision 14-4M would similarly not be expected to result in a significant alteration of the appearance of the neighboring areas. Like the existing buildings, the substation would maintain the context of the existing land uses. This area is visible to two viewer groups with only limited sensitivity—the members of the New York Presbyterian Church on 37th Avenue, across 43rd Street from the substation, and the residents of the Sunnyside Gardens Historic District. The church members visit the area only a limited number of times each week, and are already visiting an area that is industrial in context and appearance. Moreover, the church's main entrance is on 37th Avenue, not 43rd Street, and the church buildings do not have windows facing toward 43rd Street. The residents of the westernmost portion of the Sunnyside Gardens Historic District have very limited views of the substation site beyond the elevated rail viaduct that crosses 43rd Street—from the historic district, the existing buildings are visible, but the new substation would be obscured by the viaduct. Some residents may also walk past the substation site on their way to and from shopping locations on Northern Boulevard. The change in the building would not substantially alter these limited views for this viewer group. No adverse visual impact would result.

The new facility at 39th Street would replace the view of a plain, one-story taxi brokerage with a small new building approximately 40 feet tall above the adjacent at-grade parking area. The top of the structure would be visible from neighboring areas. As noted earlier, there are no sensitive viewer groups in the immediate proximity of the 39th Street site. Because the nearby commercial uses are not sensitive uses and because the visual character of the new structure would be similar to its industrial setting, there would be no significant adverse visual impact. Due to the upward slope north on 39th Street, the facility would not be visible except within close proximity to Skillman Avenue. Furthermore, the facility would not block views to any visual resources.

Similarly, at Honeywell Street, the new substation to be constructed at the northwest corner of Honeywell Street and Skillman Avenue would bring a new industrial structure to an industrial area with no sensitive viewer groups in the immediate proximity.

At the Honeywell Street bridge, two new buildings in the Sunnyside rail complex would be visible above the bridge deck. One building would extend 25 feet higher than the bridge deck, and the other would be approximately 60 feet higher. Both buildings would be small in plan and would be located in the context of the vast rail yard. The visible portions of these facilities would appear as a tower with a door and louvers on the upper level for emergency ventilation. Constructed of concrete and glass, the facilities would be industrial in character and would be

compatible with the industrial setting. No sensitive viewer groups are located in the immediate proximity of either of these sites. While the new buildings would be visible from neighboring uses, including a sheet-metal contractor and office building, they would not obstruct views to any visual resources and would not significantly alter the appearance of the existing rail facility, which contains similar looking facilities. No adverse visual impact would result.

Farther east, Chapter 6 of the FEIS concluded that work along the LIRR train embankment, including embankment modifications and new viaduct bridges at 43rd and 48th Streets, would not negatively affect the properties to the north or south. The properties to the north, which are located on the north side of 37th Avenue, already have clear views of the embankment. The properties to the south, which are located on the north side of Barnett Avenue, form a buffer between the railroad embankment and the nearby Sunnyside Gardens residential neighborhood south of Barnett Avenue. The one-story garages and commercial buildings, except where there are small paved parking lots with no structures, form an effective visual barrier from the embankment and passing trains. The new, wider track area would not be any more visible to the surrounding neighborhood than the existing tracks today. Consequently, the proposed work would not alter the historic character of the Sunnyside Gardens neighborhood. This conclusion remains valid for the project modification of constructing a widened embankment rather than a viaduct between 43rd and 48th Streets.

South of the mainline bridge, in the Sunnyside Gardens Historic District viewshed, the yard lead loop track included in Revision 14-4M would not be visible, as it would be built in a tunnel.

In the 2002 Interim Design, existing views of the trains on the loop tracks in the rail complex from an estimated 10 or fewer residences (the western houses facing 43rd Street) would have been replaced by views of a solid wall intended to buffer views of a new outer loop track. Under the proposed modifications, the existing view of the chain link fence and train tops on the existing loop tracks would remain unchanged. Overall, the visual character and setting of Sunnyside Gardens, which has long existed in the context of nearby railroad uses, would not be altered.

Overall, there would be no significant adverse visual impacts from the Revision 14-4M modifications. Most project elements included in Revision 14-4M would be located within the Sunnyside rail complex and would not be visible from surrounding areas. Those changes that would be visible would be similar in appearance and context to what was already described in the FEIS, and/or to the existing industrial character of the nearby area.

HISTORIC RESOURCES

AFFECTED ENVIRONMENT

Potential impacts to historic resources can include both direct physical impacts—demolition, alteration, or damage from construction on nearby sites—and indirect or contextual impacts, such as the isolation of a property from its surrounding environment, or the introduction of visual, audible, or atmospheric elements that are out of character with a property and would alter its setting. The effects of the East Side Access Project on historic resources were assessed in the Chapter 7, “Historic Resources,” of the FEIS in accordance with the National Historic Preservation Act of 1966, following a multi-step process. Study areas, or Areas of Potential Effect (APEs), were identified in consultation with SHPO and historic resources were identified within each APE. Then the potential adverse effects of the project on those resources were assessed and measures to mitigate the potential effects of the project were developed. These

measures are detailed in full in a Programmatic Agreement between the FTA, MTA, the Advisory Council on Historic Preservation, and SHPO, which is presented in an appendix to the FEIS.

As part of the FEIS evaluation, two historic rail structures were identified within the Sunnyside rail complex—Switch Tower Q and the Office, both of which were determined eligible for listing on the State and National Registers of Historic Places. The two buildings were erected by the Pennsylvania Railroad in 1910 under contract by the John F. Ferguson Company, based in Paterson, New Jersey. Switch Tower Q, located at the south end of Sunnyside Yard just east of the Queens Boulevard viaduct, was built for combined use as a signal cabin and yardmaster's office. The Office, just west of the Thomson Avenue viaduct, was originally built as Signal Cabin F, one of three original signal cabins built in Sunnyside Yard. Both buildings are simply designed with ornament typically confined to use of stone lintels and sills, with peaked roofs and bay windows. These buildings are significant not for their architecture, but for their association with the history of the construction of a major railroad project. They were an integral part of the functioning of Sunnyside Yard, which was a key component in the construction of Pennsylvania Station and the new tunnels that connected the station to areas in New Jersey and Long Island.

As part of the consultation for historic resources under Section 106 conducted during preparation of the East Side Access Project's EIS, SHPO indicated in a letter dated November 10, 1999, that Amtrak's Buildings 3 and 4 are not eligible for the State and National Registers of Historic Places. That letter is included in the FEIS in Appendix B.

The FEIS also identified one historic resource immediate to the Sunnyside rail complex, the Sunnyside Gardens Historic District. This district, which is listed on the State and National Registers of Historic Places, consists of a planned residential community built between 1924 and 1935, covering an area of roughly 16 city blocks (the boundaries of the historic district are shown on Figure 9). Sunnyside Gardens was conceived and designed by the founders of the Regional Planning Association of America (RPAA), including architect Clarence Stein; landscape architect Henry Wright; philanthropist Alexander Bing; and historian Lewis Mumford. Consisting of primarily low-scale brick rowhouses surrounding landscaped interior courtyards, some apartment houses, parks, and playgrounds, Sunnyside Gardens was the first planned community in the United States that reflected the utopian ideal of the British garden city movement. Embraced by the RPAA founders, the movement favored the development of small self-sufficient communities with plenty of open space and replacement of the large, unhealthy, and congested urban environment.

The Sunnyside Gardens Historic District is across 43rd Street to the west of the below-grade Sunnyside rail complex. The rail complex is substantially lower in elevation than the surrounding neighborhood, and is not visible from the historic district. Behind a chain link fence, the closest elements of the rail complex to the historic district are the loop tracks, which are used by slow-moving trains traveling between Harold Interlocking and storage tracks at Sunnyside Yard. The mainline tracks carrying Amtrak and LIRR trains east of the rail complex cross 43rd Street on a bridge and continue eastward on a raised embankment immediately north of Barnett Avenue. The tracks are separated from Barnett Avenue and the historic district by low-rise garages and industrial buildings.

POTENTIAL IMPACTS DURING CONSTRUCTION

Demolition of the warehouse properties on 43rd Street and construction of the one-story substation there would have similar impacts as were disclosed in the FEIS and in the 2002

Technical Memorandum. The existing buildings on the west side of 43rd Street are recent utilitarian buildings (constructed in the 1980s) and are not historic. The demolition of the existing industrial uses and construction of the one-story substation on 43rd Street would not have contextual impacts on the Sunnyside Gardens Historic District, as the residential buildings within the district are separated from the area of above-ground construction by one-story garages on Barnett Avenue and 43rd Street and the rail viaduct that crosses 43rd Street near Barnett Avenue.

The demolition of the Amtrak Substation 1A building for construction of the Three-Tunnel Facility adjacent to the Honeywell Street bridge would not have any historic effects, as the existing building is not a historic resource. The three-story brick structure was built in 1927 as a substation for the Sunnyside rail complex and is sited between the railroad tracks for the Amtrak trains north of Skillman Avenue and west of the Honeywell Street bridge. The substation is a simple rectangular structure with a flat roof (see Figure 14). All four facades have windows: bricked-over rectangular windows are on the first floor, small square windows are on the second level of the north and south façade and are also bricked-over, and multi-light rectangular windows are on the top floor, most of which are missing their glass or have broken panes of glass. The east and west facades have small parapets on the roof line. There are no distinguishing architectural details or elements, nor does the building possess any particular historical significance, since it was built approximately 20 years after the completion and opening of Pennsylvania Station and the Sunnyside Yard rail complex. Since the substation is over 50 years old, which is the minimum age requirement for listing on the National Register of Historic Places, a Historic Resources Inventory Form ("Blue Form") was prepared and submitted to SHPO for its review as part of the East Side Access Project's review under Section 106. The SHPO determined that the building is not eligible for listing on the State and National Registers.

The demolition of the taxi brokerage on the site of the proposed 39th Street substation would also have no adverse impacts on historic resources. The taxi brokerage is a small, one-story concrete structure that was built some time after 1951. It does not have any distinguishing architectural characteristics.

A Programmatic Agreement was executed by the FTA, MTA, and the SHPO in 2001 prior to completion of the FEIS, setting forth procedures to be followed by the project with respect to historic and archaeological resources. The Programmatic Agreement required the project to develop and implement a Construction Protection Plan for any historic resources that could be affected by the project's construction activities. The Revision 14-4M design would involve construction activities near the Sunnyside Gardens Historic District. These would include tunneling under 43rd Street near the northwest corner of the historic district to create the new yard lead track, construction of a new ventilation building across 43rd Street from the district, and work on the mainline embankment. For construction purposes, 200 feet has been defined as the area of potential construction influence for the proposed project. Therefore, the Sunnyside Gardens Historic District has been included in the Construction Protection Plan prepared for the project (April 2004), which has been reviewed and approved by SHPO. The Construction Protection Plan includes provisions for pre-construction surveys, vibration monitoring during construction, and stipulations for stopping work if damage to a historic building results from project construction.

Since the yard lead track would be tunneled underground, its construction would not result in any significant contextual or visual adverse impacts on the Sunnyside Gardens Historic District. Noise from construction of the loop track system would likely be less than what was already

disclosed in Chapter 17 of the FEIS, since the yard lead track would be built within a tunnel beneath the surface. The work required to build the small ventilation building on the west side of 43rd Street across from the district would also not result in any significant contextual or visual impacts.

The proposed trackwork in Harold Interlocking and the new Sunnyside Station would be constructed within 200 feet of two historic buildings (Switch Tower Q and Signal Cabin F) within the Sunnyside rail complex. Potential construction impacts were disclosed in Chapter 17 of the FEIS related to construction activity in Harold Interlocking, and the FEIS indicated that these resources would be included in a Construction Protection Plan prepared for the project. These resources have been included in the Construction Protection Plan described above.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

The FEIS concluded that when the project is completed, there would be no adverse impacts to the two historic resources identified in Sunnyside Yard within the project's Area of Potential Effect. Proposed visible changes within the existing active rail yard, including construction of new tracks and the Sunnyside Station, would not be expected to alter the structures' context within the yard, nor significantly alter the visual character of the yard surrounding the structures. The modifications proposed to the project as part of Revision 14-4M would not alter that conclusion.

The FEIS also concluded in Chapter 7 that the new viaduct alongside the railroad embankment beside Barnett Avenue between 43rd and 48th Streets would not result in significant adverse effects on the context of the Sunnyside Gardens Historic District. As noted in the FEIS, Sunnyside Gardens was built more than a decade after the completion of the LIRR tracks and the rail yards at Sunnyside and therefore Sunnyside Gardens and the LIRR tracks have historically coexisted. Prior to the construction of the garages and commercial buildings along Barnett Avenue during the late 1950s and 1960s—which are not part of, or related historically to, the district—there were no structures between the LIRR embankment and Barnett Avenue to act as a buffer. Today, however, those structures are present and form an effective buffer between the rail right-of-way and the historic district. Overall, the new work would not result in visual changes or adverse impacts to the historic district. This conclusion remains valid for the widened embankment proposed under the Revision 14-4M design changes.

The Sunnyside Historic District is located adjacent to existing industrial uses. Under Revision 14-4M, one type of industrial use on the west side of 43rd Street north of the mainline track bridge —warehouse buildings—would be replaced by another—an electrical substation. Since the historic district is currently adjacent to an industrial area, and has coexisted with the industrial area and the vast railroad complex for decades, the addition of this support facility beside the rail complex would not alter the context or setting of the historic district. Further, the new substation building would be similar in bulk and scale to the existing buildings.

The new project elements included in Revision 14-4M in the Sunnyside rail complex would not adversely affect the historic resources in the rail complex. They would not require physical changes to either of the historic structures identified for the FEIS, and they would not change the context or setting of those rail-related structures in the yard complex.

ARCHAEOLOGICAL RESOURCES

AFFECTED ENVIRONMENT

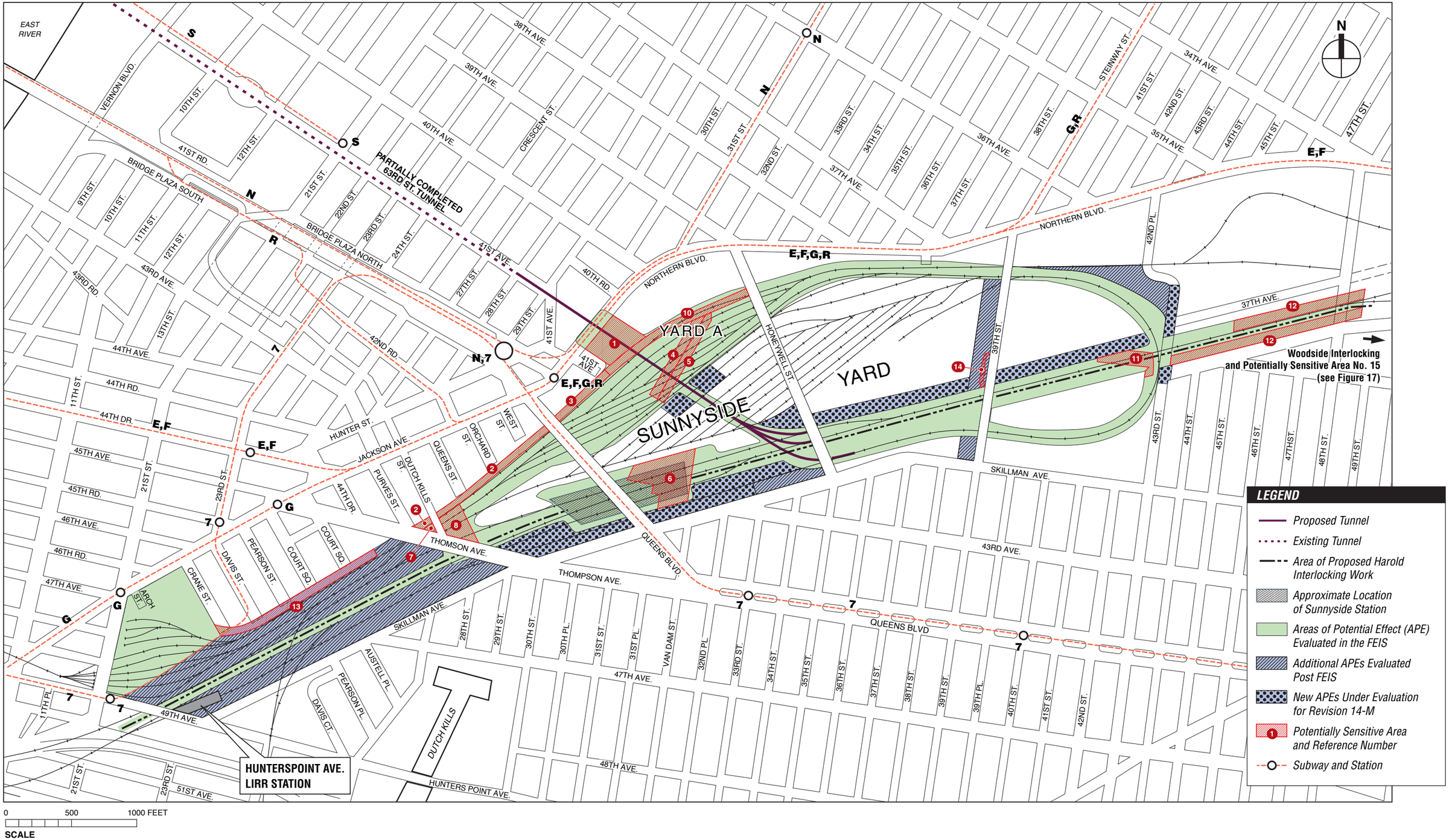
In Chapter 8, "Archaeological Conditions," the FEIS identified numerous areas that would be affected by the East Side Access Project within the Sunnyside rail complex and along the rail embankment between 43rd and 48th Streets that had the potential to contain buried archaeological resources (see page 8-11 of the FEIS and Table 2 and Figure 16 of this report). This conclusion was made on the basis of documentary research conducted (*Stage 1A Archaeological Assessment, MTA/Long Island Rail Road East Side Access Project*, prepared by Historical Perspectives, Inc. December 1999) for the project during preparation of the FEIS. A Programmatic Agreement was executed by the FTA, MTA, and SHPO in 2001 prior to completion of the FEIS, setting forth procedures to be followed by the project for all areas that MTA in consultation with SHPO identified as potentially archaeologically sensitive and in which construction activities will occur. Following those procedures, at sites where potential archaeological sensitivity was identified through Stage 1A evaluation and subsequent soil borings (where appropriate), MTA, in consultation with SHPO, will perform subsurface testing to identify the presence or absence of archaeological resources. The field evaluation and testing program was developed by MTA in consultation with SHPO and at a level sufficient to determine if sites meet the criteria for listing in the National Register. For any sites determined to be eligible for inclusion in the National Register where MTA determines, in consultation with FTA and SHPO, that avoidance is not practicable, MTA, in consultation with SHPO, shall develop and implement a data recovery plan.

Following the procedures established in the Programmatic Agreement, archaeological resources presented in the FEIS were re-evaluated based on updated boring and subsurface information and these areas were then compared to the proposed areas of construction for Revision 14-4M. The westbound bypass and eastbound reroute at Harold Interlocking would involve trackwork in areas already included in the Area of Potential Effect (APE) for archaeological resources analyzed in the FEIS. However, Revision 14-4M requires subsurface construction in areas not previously evaluated in the FEIS. These areas were therefore assessed by a professional archaeologist for the potential to contain archaeological resources. The areas of project activity that were not included in the APE evaluated for the FEIS included the following:

- Area to be affected by construction of a retaining wall along Skillman Avenue
- Area of the yard lead track's portal area as it approaches the new midday storage yard.
- Site of a new ventilation structure at 39th Street and Skillman Avenue and a sewer on Amtrak property in the railyard complex, west of, and parallel to, the 39th Street bridge.
- Site of a new substation and retaining wall at Honeywell Street and Skillman Avenue.
- Area of proposed Woodside Interlocking work, including construction of a new Battery Hut and Central Instrument Location (CIL), a Signal Hut, and retaining walls, north and south of Woodside Avenue between 63rd Street and 65th Place.

Therefore, these areas were assessed by a professional archaeologist for their potential to contain archaeological resources.The APEs for these new project elements are shown on Figure 16. The APE for Woodside Interlocking is shown on Figure 17.

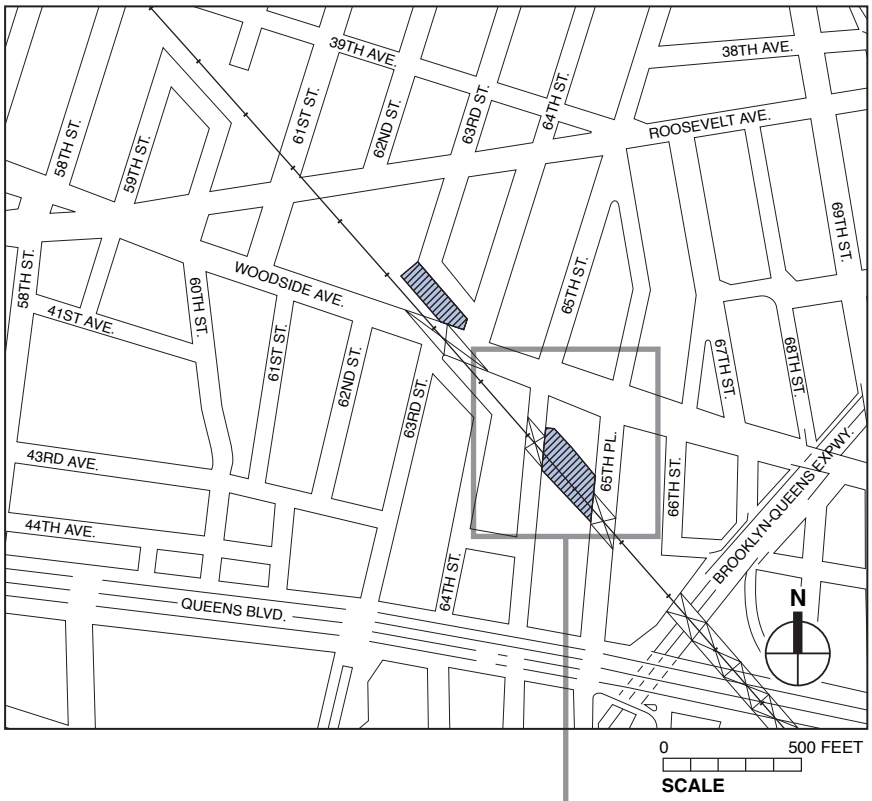
12.12.05

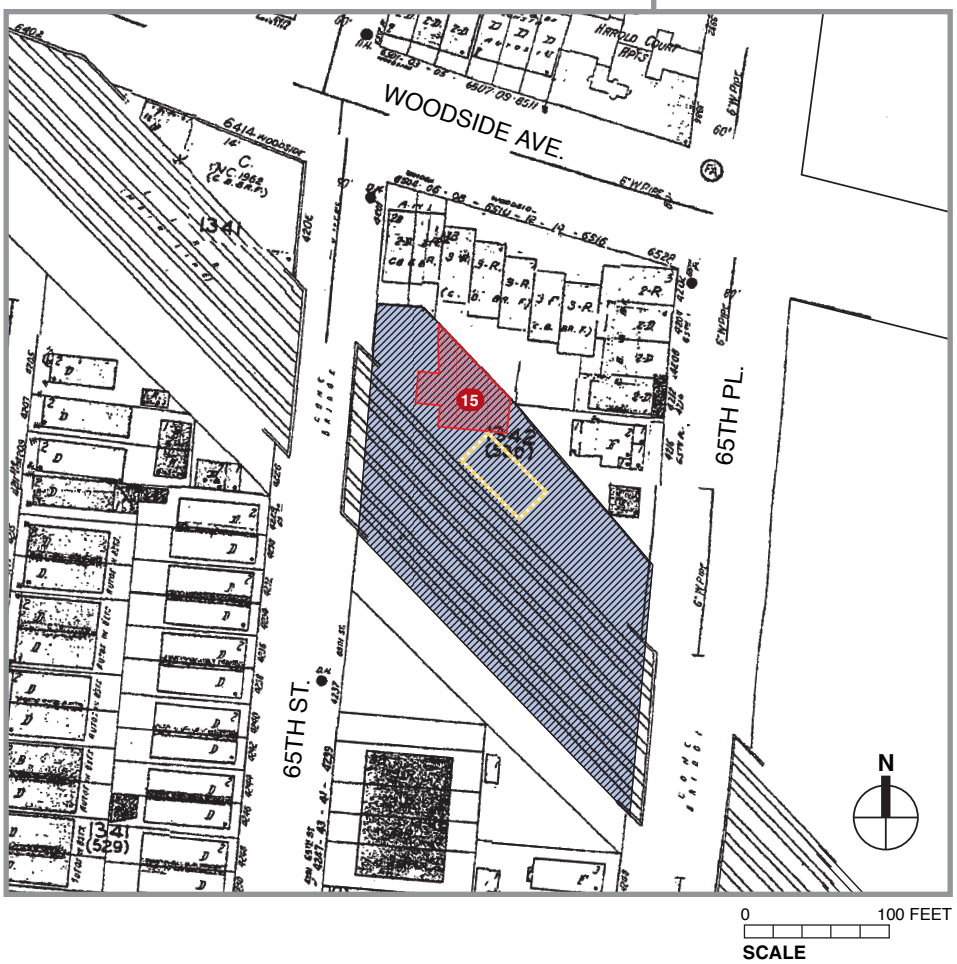


Sunnyside Rail Complex
Archaeological Resources
Figure 16

EAST SIDE ACCESS
REVISION 14-4M

12.2.05





LEGEND

- Area of Potential Effect Evaluated Post FEIS
- Limits of Excavation, Proposed Signal Hut
- 15 Potentially Sensitive Area and Reference Number

EAST SIDE ACCESS
REVISION 14-4M

Woodside Interlocking Archaeological Resources

Figure 17

Table 2
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref.	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered1	Proposed Construction
AREAS OF SENSITIVITY IDENTIFIED IN THE FEIS				
1	Area between Northern Blvd. & Yard A (Block 239, Lots 35 & 48)	Precontact Resources	Below approximately 4-20 feet of fill. Resources potentially at elevations of 300-288 feet (based on soil boring profiles prepared for Contract CQ028)	Cut and cover tunnel excavation. Construction of Yard Services Building/Vent Structure.
		Historic period resources: mid 19th century Payntar Homestead	In the lowest levels and beneath approximately 4 to 20 feet of fill. The top of the sensitive area ranges from elevations of 310-305 feet at Northern Blvd to 299-297 feet near Yard A	
2	Northern edge of Yard A	Precontact resources	Below approximately 4 to 8 feet of fill . Resources potentially at elevations of 307-293 feet	Construction in Yard A for new storage yard facility and construction of new yard systems including lighting and power
3	Northern edge of Yard A	Precontact resources	Below approx. 4-8 feet of fill between Thomson Ave & Queens Blvd. near 41st Ave. Resources potentially at elevations of 307-293 feet	Yard A storage yard facility
4, 5	Area in Yard A extending southwest from old LIRR trackbed to proposed tunnel alignment	Precontact resources	Below approximately 8-13 feet of fill. Resources in Area 4 potentially at elevations of 303-288 feet. Resources in Area 5 potentially at elevations of 306-289 feet in Yard A and 306 to 296 in the area of Amtrak bldgs 3 & 4	Cut and cover tunnel excavation. Construction in Yard A.
6	Area near Queens Boulevard	Precontact resources	Below approximately 2-17.5 feet of fill. Resources potentially at elevations of 317-307 feet on the rail embankments and 313-303 feet in Yard A.	Harold Interlocking Reconfiguration. New Sunnyside Station.
		Historic period resources: 19th-early 20th century residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and beneath approximately 2-17.5 feet of fill. The top of the sensitive area ranges from an elevation of 317 feet on the rail embankments to one of 313 feet in Yard A	
7	Triangular area of tracks bounded by north edge of Yard A, Dutch Kills St. and Thomson Ave. Bridge	Historic period resources: late 19th-early 20th cent. Residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation, including for new utilities
8	Area adjacent to and east of Dutch Kills St. and the Thomson Ave Bridge	Historic period resources: late 19th-early 20th cent. residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation including for new utilities. Harold Interlocking Reconfiguration.
9	Subsequent to the FEIS, a review of boring logs and re-analysis of sensitivity has resulted in the removal of this sensitive area, which was located along the LIRR Main Line between the 39th Street Bridge and 43rd Street.			

Table 2 (cont'd)
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref.	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[1]	Proposed Construction
AREAS OF SENSITIVITY IDENTIFIED IN THE FEIS				
10	Northern edge of Yard A	Precontact Resources	Below approx. 11-17 feet of fill. Resources potentially at approximately at elevations of 297-288 feet	Cut and cover tunnel excavation. Yard A storage yard facility.
		Historic period resources: ca.1650 grist mill between 41st Ave. and 40th Road	In the lowest levels and beneath approx. 11-17 feet of fill. The top of the sensitive area is approximated at an elevation of 297 feet	
11	L-shaped area adjacent to western end of loop track	Historic period resources: British & Hessian Revolutionary War troop occupation	In and below fill. Some areas may have up to 6.75' of surface removed, others up to 14' of fill added. The top of the sensitive area is approximated at an elevation of 346 feet	Harold Interlocking Reconfiguration
12	Portions of the area bounded by 43rd and 46th Sts, and 37th and Barnett Avenues	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 10 –20 feet of fill. The top of the sensitive area is approximated at an elevation of 340 feet	Harold Interlocking Reconfiguration, including filling and construction of retaining walls
AREAS OF SENSITIVITY IDENTIFIED FOR REVISION 14-4M				
13	Northern edge of Yard A between former Crane Street and former Nott Avenue (44th Drive)	Precontact Resources	Below approximately 5-10 feet of fill. Resources potentially at elevations of 293-303 feet near Crane Street and at elevations of 298-308 feet near former Nott Avenue.	Excavation in Yard A, including for new utilities.
14[2]	Area 0-50 feet west of the 39th St Bridge and 0-278 feet north of the LIRR Main Line	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 0-15 feet of fill. The top of the sensitive area is approximated at an elevation of 345 feet.	New sewer to be built parallel to the 39th Street Bridge. Present engineering indicates that sewer will be excavated outside the area of potential sensitivity.
15[2]	Woodside Interlocking: rear lots of former Lots 57/58, 59, and 60 of Block 1342	Historic period resources: 19th century residential shaft features (e.g., privies)	Anticipated just beneath the surface	Excavation for signal hut and retaining wall. Present engineering indicates that excavation will occur approximately 10 feet away from sensitive area.

Notes:

Except for the contract for the cut and cover tunnel excavation, which affects Areas 1, 4, 5, and 10, the estimated depth of potential archaeological sensitivity is based on geotechnical information contained in early design submittal packages (pre-50% design completion), and is expected to be refined as engineering proceeds and additional geotechnical information is compiled. Since much of the potentially affected area was formerly an alluvial area (a marsh), the area of potential precontact sensitivity has been approximated to extend for a depth of 10 feet (except Areas 1 and 10 where current geotechnical profiles based on boring logs taken in preparation for contract for the cut and cover tunnel were reviewed). The East Side Access Project is using a datum of 0=300.

Areas 14 and 15 are conservatively included in the event that the location of the proposed sewer moves east within the area of potential sensitivity and to account for the proximity of excavation to the sensitive area at Woodside Interlocking.

The assessments are contained in addenda to the original archaeological study prepared for the project (see Appendix A).[1] The conclusions of the archaeological assessments are described below. Areas identified as archaeologically sensitive, including types and potential depths of resources, are shown in Table 2. The areas of sensitivity are shown on Figures 16 and 17.

The addenda for the yard lead track's portal area, the retaining wall along Skillman Avenue, and the site of the 39th Street ventilation structure and a new sewer were submitted to SHPO and LPC for their review and comments (Addendum 1). SHPO and LPC have indicated that they require further clarification in terms of the APEs evaluated and areas of sensitivity determined (see correspondence in Appendix B). Therefore, presented in this document on Figure 16 is a schematic rendering that shows all the APEs for archaeological resources for this project, including those APEs evaluated in the FEIS, additional APEs evaluated for Revision 14-4M, and those APEs that still require evaluation. More specific maps showing the APEs and areas of archaeological sensitivity will be prepared and submitted to SHPO and LPC for their review.

In addition, the locations of all utilities that will involve excavation and locations of additional elements of Revision 14-4M, including the two new retaining walls, will be evaluated by a professional archaeologist consistent with the procedures set forth in the project's Programmatic Agreement. The new APEs for these elements, including areas along Skillman Avenue, areas north of the LIRR Main Line, in the area of the TBM launch pad, and on 43rd Street, are shown on Figure 16, and are designed to be conservative. As per the Programmatic Agreement, the archaeological evaluations for these APEs will be provided to SHPO and LPC for review. If any sensitive areas are identified in these areas, the same procedures will be followed as are described below for other sensitive areas already identified. Furthermore, the Construction Protection Plan prepared for the project for architectural and archaeological resources (described below) will be revised to include any new sensitive areas identified for Revision 14-4M. The revised CPP will be submitted to SHPO and LPC for review and approval.

Yard Lead Track Portal West of 43rd Street North of the Mainline (Addendum 1)

The assessment evaluated the archaeological sensitivity of the area where the yard lead track comes to grade north of the LIRR mainline. It concluded that the area has a low sensitivity for containing archaeological resources and, therefore, no further archaeological analysis of this area is warranted.

Area Between Thomson Avenue and Hunters Point Avenue (Addendum 1)

The assessment evaluated the potential for the rail complex between the Thomson Avenue and Hunters Point Avenue bridges, where some minor utility work is proposed, to contain archaeological resources. It concluded that the area is not sensitive for archaeological resources with the exception of a portion along the northern edge of LIRR's Existing Rail Yard, in the location of the old LIRR trackbed. The area of the old LIRR trackbed between Crane Street and former Nott Avenue (now 44th Drive) was elevated land near marshes and may have been utilized by Native Americans. It is possible that the fill covering this area—ranging in depth

[1] Addendum 1—Loop Track Portal North of the LIRR Mainline West of 43rd Street and Yard Area Between the Thomson Avenue and Hunters Point Avenue Bridges and 39th Street Substation and Proposed Sewer Parallel to the 39th Street Bridge, Historical Perspectives, Inc., January 2005; Addendum 2—Proposed Substation G02, Sunnyside Yard, Historical Perspectives, Inc., July 2005; Addendum 3—Woodside Interlocking, Historical Perspectives, Inc., July 2005.

from between 5 and 10 feet—may have served to protect potential precontact (Native American) resources, which may be buried beneath the fill. As described below, archaeological monitoring during construction will be conducted in this area to determine whether such resources are present. The remainder of the area of the old LIRR trackbed between Crane Street and the Hunters Point Avenue bridge and former Nott Avenue and the Thomson Avenue bridge was part of a marsh and, therefore, it is unlikely it would have been utilized by Native Americans as a camp site or food processing area.

39th Street Bridge Substation and Proposed Sewer Parallel to the 39th Street Bridge (Addendum 1)

The locations of the proposed 39th Street Substation and a proposed sewer west of and parallel to the 39th Street bridge were evaluated for their potential to contain archaeological resources. The report concluded that the site of the proposed substation at the northwest corner of 39th Street and Skillman Avenue was once on the upper slopes of a hill that has subsequently been significantly regraded. The removal of the original soils during the construction of the Sunnyside rail complex would have destroyed any potential precontact archaeological resources that may have been present. No potential historical archaeological sites were documented in this area. Therefore, this area has a low sensitivity for archaeological resources and no further archaeological analysis of this area is warranted.

The location of the proposed sewer (which is anticipated to extend north-south through the yard from just south of the LIRR mainline to the northern edge of the yard), including the area east of it to the 39th Street bridge, was evaluated for its potential to contain archaeological resources. The assessment concluded that this area has a low precontact sensitivity, and, therefore, no further analysis of such resources is required. However, areas between the site of the proposed sewer and the 39th Street bridge, north of the LIRR mainline, were determined to possess historic-period sensitivity relating to the occupation of the area by British and Hessian troops during the Revolutionary War (see sensitive area No. 14 on Figure 16). These sensitive areas are located between 0-50 feet west of the 39th Street bridge, and approximately 0-278 feet north of the LIRR mainline. These areas contain fill up of to 14.25 feet, which could have served to protect any archaeological resources, if present. Should excavation of the sewer—anticipated to be built as an open cut to a depth of approximately 5 feet—occur in these areas, it is possible that potential archaeological resources could be impacted, if excavation were to extend beneath the depth of the fill into the original soils. Therefore, archaeological monitoring during construction will be conducted in this area in order to avoid any adverse impacts to these potential archaeological resources. This monitoring will be conducted as part of the project's larger Construction Protection Plan (discussed immediately below).

Honeywell Street Substation (Addendum 2)

The assessment evaluated the potential for the area of the proposed G02 Substation and associated retaining wall at Honeywell Street and Skillman Avenue to contain potential archaeological resources. The APE consisted of an area at the northwest corner of Skillman Avenue and the Honeywell Street Bridge. The assessment determined that prior to yard construction, the APE was along the slopes of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge. A comparison of pre- and post-yard elevations indicates that the area was disturbed through the removal of soils, which would have destroyed any potential precontact resources. No historic-period structures were indicated on historic maps in the APE, therefore the APE is also not sensitive for historic-period resources.

Woodside Interlocking (Addendum 3)

The assessment evaluated the potential archaeological sensitivity of two areas that would require subsurface disturbance for proposed improvements at Woodside Interlocking. These consist of an area north of Woodside Avenue that is roughly bounded by Trimble Road, 63rd Street, 64th Street, and the LIRR right-of-way; and another area south of Woodside Avenue bounded by the LIRR right-of-way and 65th Street and 65th Place. The assessment determined that the APE once possessed few characteristics which would have been valued by Native Americans for camp, village, or processing sites, namely that it was a dry, elevated location that was not in close proximity to a fresh water source. Therefore, due to the distance from a source of fresh water, the APE has a low potential for precontact sensitivity and no further research or testing for precontact resources is warranted.

A review of historical maps indicates that the APE contains the former locations of three dwellings built prior to 1891. Based on the earliest recorded dates for the availability of municipal water and sewer service in this location dates to no earlier than 1903, the rear portions of former lots 57/58, 59, and 60 of Block 1342, are sensitive for deep shaft features such as privies (see Figure 17).

POTENTIAL IMPACTS DURING CONSTRUCTION

As described above, archaeological resources presented in the FEIS were re-evaluated based on updated boring and subsurface information, and compared to the proposed areas of construction for Revision 14-4M. MTA, in consultation with the SHPO, has developed an archaeological testing protocol for the areas in Queens identified as potentially containing archaeological resources. That protocol is incorporated in the East Side Access Project's Construction Protection Plan, which was approved by the SHPO in a letter dated April 5, 2004.

Due to access, safety, and contamination issues in the rail complex, the Construction Protection Plan recommends archaeological monitoring during construction. Archaeological testing in advance of construction is proposed for one area outside the rail complex—the archaeologically sensitive area located between 43rd and 48th Streets along the LIRR mainline.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

Any impacts to archaeological resources would be mitigated during construction in accordance with the provisions of the Construction Protection Plan developed for the project and approved by SHPO. No additional impacts are expected to occur during operations.

TRANSPORTATION

AFFECTED ENVIRONMENT

As described in the FEIS, the Long Island City/Sunnyside area has substantial existing traffic volumes, consisting of vehicles destined for the immediate area, as well as through traffic en route to Manhattan via the Queensboro Bridge. Traffic volumes in the area are expected to increase in the future as a result of two major actions, which were included in the FEIS No Build traffic analysis—the full buildout of the Queens West/Hunters Point Waterfront Development Project and the rezoning of a 32-block area in Long Island City by the New York City Department of City Planning. The FEIS concluded that based on the small percentage of LIRR passengers projected to drive or take a taxi to/from the new Sunnyside Station, the East Side

Access Project's vehicular trip generation in Queens would be below the level warranting detailed analysis for traffic or parking impacts in the area, according to guidance provided in New York City's *City Environmental Quality Review (CEQR) Technical Manual*.

POTENTIAL IMPACTS DURING CONSTRUCTION

Commuter Rail

In the Transportation section of Chapter 17, the FEIS described that some of the construction work at Harold Interlocking is likely to require the rerouting of some LIRR trains, either within the track complex at the interlocking itself or elsewhere. Specific service plans would be developed in conjunction with the formulation of construction staging plans. A chief objective of the construction staging plans would be to minimize disruption to LIRR and Amtrak operations and service during the East Side Access construction period at Harold Interlocking and elsewhere in the Sunnyside rail complex. Extensive coordination between the LIRR, Amtrak, project designers and contractors during final design and construction would establish schedules and work hours for each construction operation. One of the main benefits of the proposed modifications under Revision 14-4M would be the reduction in construction impacts to train operations. The proposed modifications to the yard lead track under Revision 14-4M would result in less disruption to train operations within Harold Interlocking and on the three existing loop tracks than in the FEIS design or the 2002 Interim design.

Street Disruptions: Vehicular Traffic and Parking

Under the FEIS design, the majority of construction activities in the Sunnyside rail complex area would be performed within the existing rail complex. The construction-related partial closures that would be required on certain streets and sidewalks in the vicinity of the rail complex would be of limited duration and would be coordinated with the New York City Department of Transportation. As a result, the FEIS concluded in Chapter 17 that no significant adverse traffic impacts would result from project-related construction activities. This conclusion remains valid for the Revision 14-4M design.

In the discussion on street disruptions in Chapter 17 of the FEIS, possible short-term outages at the 43rd and 48th Street rail bridges during construction were described. With Revision 14-4M, construction of the new rail bridges over 43rd and 48th Streets would require similar construction activity as was anticipated in the FEIS design, and similar disruptions would result. The Revision 14-4M design would also result in limited disruption to 43rd Street because of the possible need to relocate a sewer and to install electric duct banks in the sidewalk. As described in the FEIS, a Maintenance and Protection of Traffic Plan would be developed in coordination with NYCDOT to minimize disruption to traffic and pedestrian flows on those streets during construction.

In the FEIS design, a portion of a parking lot serving the GM facility west of 43rd Street would have been temporarily acquired for use as a staging area during construction, and the access drive to the GM facility would have had to be relocated. The staging area would have displaced approximately 28 parking spaces for the 2-year duration of construction but would not have had significant adverse impacts, as the GM facility has adequate remaining parking spaces. This construction staging area at the GM facility is no longer required for the Revision 14-4M design. As described earlier, a permanent easement would be required for a new retaining wall along the northern boundary of the GM property, and this easement would displace an estimated eight

parking spaces. This is a smaller number than was anticipated in the FEIS, and the GM facility would have adequate remaining parking spaces.

Construction on the west side of 43rd Street for the new yard lead track portal and substation in the Revision 14-4M design would be similar to what was contemplated in the FEIS design, which included demolition of one industrial building and construction of a fourth loop track in Sunnyside Yard. Accordingly, the effects on traffic of the truck trips generated by the two Revision 14-4M construction staging areas would be similar to those analyzed in the FEIS and found to be insignificant.

As described earlier, the project's construction activities would require temporary use of a church parking lot on the south side of 37th Avenue east of 43rd Street for approximately six months. The contractor would be required to restore the lot for parking on Sundays and accommodate the demand for parking during other days of the week. As a result, there would be no significant adverse impact for parking for the church during construction.

Based on the analysis presented above, construction activities under the Revision 14-4M design are not expected to result in any significant adverse impacts to vehicular traffic or parking conditions.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

Commuter Rail

As noted earlier, the primary purpose of the modifications proposed in Revision 14-4M is to improve rail operations in the Sunnyside Yard complex, and particularly to provide operational flexibility for LIRR while minimizing impacts to Amtrak operations that would result from increased LIRR service operating through the Sunnyside rail complex and along Harold Interlocking.

The Revision 14-4M design reduces the potential for delays to both LIRR and Amtrak operations by providing a yard lead (loop) track that has an adequate curve radius and increased capacity. It also offers a new benefit that greatly improves operational flexibility for LIRR at Sunnyside over the FEIS design and the 2002 Interim design. The previous designs provided access to LIRR's new midday storage yard for LIRR trains coming from GCT, but not those coming from Penn Station, limiting operational flexibility. In contrast, a new track connection to the midday storage yard from existing Loop Track A (which would be shared by LIRR and Amtrak) proposed in Revision 14-4M would permit LIRR yard access from Penn Station, a substantial advantage over the previous loop track designs. In summary, Revision 14-4M would improve operational flexibility for LIRR by permitting access to the midday storage yard from GCT and Penn Station, reduce delays and potential conflicts for both Amtrak and LIRR by increasing capacity on the loop track system, and eliminate construction-period impacts to Amtrak operations since the three existing loop tracks would remain where they are today.

In addition, the project's westbound bypass and eastbound reroute at Harold Interlocking would allow grade separation for certain Amtrak trains traveling between Penn Station and the Hell Gate Bridge, providing conflict-free access across Harold Interlocking. The overall effect would be to improve on-time performance and service reliability, and to reduce trip time for Amtrak service.

Street Disruptions: Vehicular Traffic and Parking

The Revision 14-4M design changes would generally not differ in terms of effects to traffic or parking conditions from the FEIS design or the 2002 Interim design. The loss of 20 to 30 on-street parking spaces along the west side of 43rd Street that would have occurred under the 2002 Interim design would no longer occur. Therefore, the Revision 14-4M design would provide a benefit relative to the 2002 Interim design. The Revision 14-4M design would permanently displace an estimated eight parking spaces at the GM repair facility, but adequate parking capacity would remain there and no significant adverse impact would occur.

In addition, the Revision 14-4M design would include a new access drive to the Sunnyside rail complex immediately north of the mainline rail viaduct over 43rd Street. This would result in a benefit to the GM facility, because workers at the Sunnyside rail complex would not longer use the GM access drive to access the rail complex.

Once the project is complete, the Revision 14-4M design elements would not change traffic patterns compared to the FEIS design or to existing conditions at Sunnyside Yard. Based on the analysis presented above, no significant adverse traffic or transportation impacts would result.

AIR QUALITY

AFFECTED ENVIRONMENT

As described in Chapter 10, "Air Quality," of the FEIS, the East Side Access Project would result in an overall decrease in regional pollutant emissions due to a reduction of vehicular miles traveled in the Long Island Transportation Corridor. With regard to potential localized mobile source air quality impacts in the Sunnyside/Long Island City area, the FEIS concluded that vehicular trip generation attributable to the East Side Access Project at all intersections in this area would be below the level warranting detailed mobile source air quality analysis, according to guidance provided in the *CEQR Technical Manual*.

POTENTIAL IMPACTS DURING CONSTRUCTION

No significant adverse air quality impacts or new violations of National Ambient Air Quality Standards (NAAQS) related to construction activities at the Sunnyside rail complex were identified in Chapter 17 of the FEIS. For the FEIS, a quantified mobile source air quality analysis was conducted for the intersection of Northern Boulevard and 39th Street. This analysis concluded that the maximum predicted 8-hour CO concentration at this intersection, including the effect of construction-related vehicles, would be well below the 8-hour NAAQS of 9 parts per million. The project modifications under Revision 14-4M would not significantly increase the number of vehicles per hour at the construction site, or alter the routes they would use to travel to and from the site, and would therefore not be expected to alter this conclusion.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

The Revision 14-4M design would include three new ventilation buildings that would provide emergency tunnel ventilation for the new East Side Access tunnels beneath Harold Interlocking and for the new tunnel yard lead (loop) track. These buildings would be located adjacent to the Honeywell Street bridge and at 39th Street on the north side of Skillman Avenue. Under emergency conditions, these buildings would be used to exhaust smoke from the segment of the train tunnel being ventilated.

Emergencies requiring such ventilation are by definition extremely rare and of very short duration. In the event that a tunnel fire or smoke condition did occur, the most important consideration would be to remove smoke from the tunnels below, to minimize danger to people in those below-grade spaces. Any smoke that would emerge from the louvers on the ventilation buildings would be diluted by the outside air. Since the proposed buildings would be located within the Sunnyside rail complex, away from other buildings in the surrounding neighborhood, the separation between the emergency tunnel exhaust louvers on the new buildings and the fresh air intakes on the nearest existing buildings in the surrounding neighborhood would be much greater than the minimum separation required by the New York City Building Code or the New York State Mechanical Code. No significant adverse stationary source air quality impacts would result from the proposed tunnel ventilation equipment.

As noted above, once the project is complete, the Revision 14-4M design elements would not change traffic patterns compared to the FEIS design or to existing conditions at Sunnyside Yard. Therefore, no significant adverse mobile source air quality impacts would result.

NOISE AND VIBRATION

AFFECTED ENVIRONMENT

For the FEIS, existing noise levels were measured in the vicinity of the proposed design changes, at Barnett Avenue between 46th and 48th Streets, a historic residential area with two-story private houses and some seven-story apartment buildings. The measured day-night noise level, L_{dn}, at this location was 68.0 dBA. This relatively high ambient noise level reflects the high level of train activity in the Sunnyside rail complex, as well as the moderate volume of vehicular traffic on Barnett Avenue.

POTENTIAL IMPACTS DURING CONSTRUCTION

Noise

In Chapter 17, the FEIS described that construction activities in Queens would be noisy, particularly when pile driving would occur, but the construction noise is generally not expected to be intrusive to the surrounding neighborhood. The yard complex is surrounded by industrial uses and existing noise levels outside the yards are high, especially along Northern Boulevard with its elevated subway.

The FEIS indicated that the construction work on Harold Interlocking between 43rd and 48th Streets would result in the greatest noise effects on nearby sensitive receptors. Residential uses exist just across Barnett Avenue, approximately 70 feet from the proposed construction area. The most intrusive activity in the FEIS design would be the pile-driving required to support the new viaduct between 43rd and 48th Streets. In this design, viaduct piles would be constructed via auger/cast-in-place methods to minimize construction noise, and this would occur during off-peak, daylight hours for approximately three months. While intrusive, most of the noise-intensive activity such as pile-driving would occur during the day and would be temporary in nature. Furthermore, a noise barrier could be installed along the construction alignment to minimize the noise effect on the adjacent neighborhood. At locations where it is feasible, plywood barriers would be erected around construction areas to reduce noise levels by interrupting the line of sight from the noise source to the receptor.

With the Revision 14-4M design, a widened embankment with retaining walls rather than a viaduct would be constructed between 43rd and 48th Streets. Modifications to the rail bridges at those streets would also still be required. These activities would require pile driving and other noisy construction, similar to what was envisioned in the FEIS design. Overall, the conclusions about noise from construction along the embankment remain unchanged from the FEIS.

The Revision 14-4M design would require demolition of buildings on the west side of 43rd Street north of the mainline tracks and construction of the new yard lead (loop) track and substation there. The FEIS design also included demolition of a building on the west side of 43rd Street. The FEIS design would have constructed a new bridge and driveway to the nearby GM facility on the west side of 43rd Street south of the mainline tracks. No construction activity would occur at the surface at this location with Revision 14-4M. Overall, the Revision 14-4M design changes would not bring construction activities closer to sensitive uses, including the Sunnyside Gardens residential neighborhood south of the rail embankment or the church north of the rail embankment. They also would not introduce new noisy activities that were not anticipated in the FEIS. As noted earlier, noisy construction activities, such as pile driving, would not be conducted in the vicinity of the New York Presbyterian Church on Sundays. The construction activities required for Revision 14-4M are similar in nature to those anticipated in the FEIS, and the FEIS conclusions about construction noise remain unchanged.

Construction activities associated with the Revision 14-4M design changes would adhere to the construction noise specifications developed for the East Side Access Project as a whole. These specifications are summarized in Table 3.

Table 3
Construction Noise Limits for East Side Access Project

Receptor	Noise Level–L_{eq} (dBA) (whichever is greater)	L_{max} Level (dBA, slow)
DAYTIME (7 AM TO 6 PM)		
Residences and buildings where people normally sleep	75 or Background + 5*	85* 90 (impact equipment)
Commercial Areas	80 or Background + 5*	None
Industrial Areas	85 or Background + 5*	None
EVENING (6 PM TO 10 PM)		
Residences and buildings where people normally sleep	Background + 5	85
Commercial Areas	None	None
Industrial Areas	None	None
NIGHTTIME (10 PM TO 7 AM)		
Residences and buildings where people normally sleep If Background<70-dBA If Background >70-dBA	 Background + 5 Background +3	 80 80
Commercial Areas	None	None
Industrial Areas	None	None

Notes:
1 Noise from impact equipment is exempt from the L_{eq} requirement, however is subject to a lot-line L_{max} limit of 90 dBA.
2 All measurements will be taken at the affected lot-line in accordance with Article 3.05.
3 Noise level limits are averaged over 20-minute intervals.
4 L_{max} noise level limits are the maximum noise level that occurs over 20-minute intervals

Vibration

Overall, the construction activities required for Revision 14-4M in Queens are similar to those required for the FEIS design, and no changes would occur with respect to vibration. One project element is notably different and could change vibration levels during construction, however—the construction of a tunnel for the yard lead track below 43rd Street using a soft ground tunnel boring machine. No tunnel in this location was envisioned in the FEIS.

The East Side Access Project has a Construction Protection Plan to protect any historic structures within 200 feet of construction activities. This plan applies to the Sunnyside Gardens Historic District, which encompasses the closest sensitive buildings to the yard lead track tunneling activities under 43rd Street. As noted earlier in the discussion of historic resources, the Construction Protection Plan has been reviewed and approved by the State Historic Preservation Office. The construction protection plan sets forth a three-step process to protect structures that could be affected by vibration:

- For structures that could be affected by project-induced vibration, a detailed inspection will be carried out, where access permits, on both the interior and exterior condition of the structure prior to the commencement of any excavation or construction activities. Video and photographic recording will be made of any potential weakness or signs of structural distress. Reports will be prepared for all structures where a pre-construction survey has been conducted, describing the condition of the structure in detail.
- During construction, structures that could be affected by construction activity will be monitored for movement, settlement, rotation, and construction-induced vibrations, using geotechnical and structural instrumentation installed on these or nearby structures. Monitoring results will be continually reviewed.
- If any data exceed threshold values, an immediate review of the excavation and construction work methods will take place to mitigate further adverse effects.

With implementation of these measures, no significant adverse impacts would occur to the historic buildings of the Sunnyside Gardens historic district from construction of the new yard lead track.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

Train Noise

Noise from rail operations along the proposed yard lead track system would not alter the conclusions of the FEIS regarding noise impacts. A new loop track was also envisioned in the FEIS design, and that track would have been at grade in the Sunnyside Yard complex. Moving a portion of the track into a tunnel would reduce the amount of train noise reaching nearby receptors. Noise from rail operations along the proposed yard lead track in the depressed Sunnyside rail complex would generally not be noticeable in the surrounding community, due to the slow speed of the trains using the track, and the high background noise from the frequent train passbys on the LIRR mainline passing overhead on the 43rd Street bridge.

The FEIS considered the effect of increased noise from new train operations throughout the LIRR system, and found that noise impacts would occur on certain segments. As mentioned above, existing noise levels were measured in the vicinity of the proposed design changes. Future noise levels resulting from increased train operations were predicted using the FTA detailed noise analysis methodology, and were found to exceed FTA impact criteria at Barnett

Avenue between 46th and 48th Streets. The FEIS concluded that there were no feasible mitigation measures to reduce these noise impacts.

Stationary Source Noise

The FEIS stated in Chapter 11, "Noise and Vibration," that all stationary equipment constructed for the East Side Access Project would be designed to meet all applicable noise standards and regulations and to avoid producing noise levels that cause impacts. Accordingly, the proposed electrical substation on 43rd Street would be designed to meet these standards and regulations, and therefore is not expected to result in any significant adverse noise impacts. Furthermore, because existing ambient noise levels are generally high, noise generated by the substation is not expected to represent a substantial or noticeable increase over existing levels in the surrounding neighborhood.

The proposed 43rd Street substation would be used for regular train operations rather than emergency conditions. For the proposed 43rd Street substation, the nearest noise receptor is a building belonging to the New York Presbyterian Church complex located at the corner of 43rd Street and 37th Avenue, directly across 43rd Street from the site of the proposed substation. This building is approximately 120 feet from the proposed substation, less than the screening distance of 250 feet listed in Table 4-1 of the FTA guidance manual *Transit Noise and Vibration Impact Assessment* (April 1995). Accordingly, a detailed noise assessment was performed to assess the potential for impacts using FTA noise impact criteria. Based on the results of this assessment, which are described below, no noise impacts would occur at the church building.

Existing noise levels at the nearest church building were estimated using noise measurements conducted for the FEIS. These FEIS measurements were performed at Barnett Avenue between 46th and 48th Streets, a location with similar noise characteristics to that of the church building. Both sites are similarly close to the elevated rail embankment and both have similar traffic noise from nearby surface streets. The hourly equivalent noise level, $L_{eq(1)}$, at the Barnett Avenue location during the times that the church building operates, conservatively assumed to be 7 AM to 9 PM, ranged between 62.3 dBA and 68.7 dBA.

The noise level that would be generated at the church building by the proposed 43rd Street substation was estimated to be 57.7 dBA, using the source reference SEL for substations provided in Table 6-7 of the FTA guidance manual and the distance from the proposed substation to the nearest church building.

Based on these existing noise levels mentioned above, and the FTA noise impact criteria for Category 3 noise receptor sites, the impact threshold for the noise generated by the proposed substation at the church building would be from 64 dBA, corresponding to the lower end of the existing $L_{eq(1)}$ range, to 68 dBA, corresponding to the upper end of the existing $L_{eq(1)}$ range. The project-generated noise level of 57.7 dBA is much lower than these impact threshold values. As a result, the proposed 43rd Street substation would not cause a noise impact at the church building, based on FTA noise impact criteria.

Revision 14-4M would also include three emergency ventilation structures with associated substations—two adjacent to the Honeywell Street bridge and one at 39th Street and Skillman Avenue and a new substation at Honeywell Street and Skillman Avenue. All of these structures would be located within the boundaries of the Sunnyside rail complex in an industrial area, and not in proximity to any sensitive receptors. Noise from operation of this equipment would therefore not result in any significant adverse impacts.

Mobile Source Vehicular Noise

As noted above, once the project is complete, the Revision 14-4M design elements would not change traffic patterns compared to the FEIS design or to existing conditions at Sunnyside Yard. Therefore, no significant adverse mobile source noise impacts would result.

For the two new access drives included in Revision 14-4M, the distance to the nearest noise receptor would be greater than the screening distance listed in Table 4-1 of the FTA guidance manual, *Transit Noise and Vibration Impact Assessment* (April 1995). Therefore, a general noise assessment is not required.

Vibration and Groundborne Noise from Yard Lead Track Tunnel near 43rd Street

A screening analysis was performed to assess the potential for vibration impacts from the proposed yard lead track tunnel on residential receptors located near the corner of 43rd Street and Barnett Avenue. Vibration levels generated by project-generated trains were predicted using the FTA general vibration assessment methodology, and compared to FTA vibration and ground-borne noise impact criteria. The FTA vibration criteria apply to three land use categories:

- *Land Use Category 1: High Sensitivity*—Buildings where low ambient vibration is essential for the operations within the building (e.g. vibration-sensitive research, hospitals with vibration-sensitive equipment, etc.), which may be well below levels associated with human annoyance.
- *Land Use Category 2: Residential*—All residential land uses and any buildings where people sleep, such as hotels and hospitals.
- *Land Use Category 3: Institutional*—Schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

FTA's vibration criteria for each of these categories are summarized in Table 4.

Table 4
Vibration and Ground-Borne Noise Impact Criteria

Land Use Category	Ground-borne Vibration Impact Criteria (VdB re 1 micro inch/second)		Ground-borne Noise Impact Criteria (dBA re 20 micro Pascals)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[2]
1	65 VdB[3]	65 VdB[3]	[4]	[4]
2	72 VdB	80 VdB	35 dBA	43 dBA
3	75 VdB	83 VdB	40 dBA	48 dBA

Notes:

1 "Frequent events" are defined as those with more than 70 vibration events per day. Most rapid transit projects fall into this category.

2 "Infrequent events" are defined as those with fewer than 70 vibration events per day. This category includes most commuter rail systems.

3 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

4 Vibration-sensitive equipment is not sensitive to ground-borne noise.

Source: *Transit Noise and Vibration Impact Assessment*, FTA, April 1995, pages 8-2 through 8-3.

The FTA general vibration assessment estimates vibration levels at specific locations as a function of distance from the track centerline, with a series of adjustment factors affecting the vibration source (i.e., train speed, crossovers and other special track work, type of transit structure, etc.), factors affecting the vibration path (i.e., geologic conditions that affect vibration propagation), and factors affecting the vibration receiver (i.e., floor-to-floor attenuation, amplification due to resonances of floors, walls, and ceilings, and radiated sound).

The closest sensitive receptors—residences located on the corner 43rd Street and Barnett Avenue—would be approximately 60 feet away from the new tunnel, measured laterally. Taking into account the difference in elevation between the receptors at grade and the tunnel underground, the diagonal distance would be approximately 73 feet.

Predicted vibration and ground-borne noise levels from trains operating in the new yard lead track tunnel below 43rd Street are shown in Table 5. These levels would not exceed the FTA impact criteria for "frequent" events. (The FTA defines "frequent events" as more than 70 vibration events per day.) Furthermore, given the large number of existing train movements in the vicinity of the proposed yard lead track tunnel near 43rd Street, the number of LIRR trains on the new yard lead track would not double, or otherwise substantially increase, the number of vibration events compared to existing conditions.

Table 5
Vibration and Ground-Borne Noise Impact Evaluation

Land Use Category	Vibration		Ground-Borne Noise		Threshold Exceeded
	FTA Criteria Level	Predicted Exposure Level	FTA Criteria Level	Predicted Exposure Level	
2 (Residences)	72	66	35	31	None

ENERGY

The project modifications described in Revision 14-4M would not have any substantial effect on the amount of energy consumed during the construction process at the rail complex or for operation of the overall project.

UTILITIES AND SUBSURFACE INFRASTRUCTURE

The FEIS and 2002 Technical Memorandum did not describe any significant adverse utility or infrastructure impacts related to construction activities at the Sunnyside rail complex. Revision 14-4M would not alter this finding or produce any such impacts. With the Revision 14-4M modifications, a sewer located beneath 43rd Street could require relocation. As described in the FEIS, utility service would be maintained during construction activities, resulting in no significant adverse impacts.

CONTAMINATED MATERIALS

AFFECTED ENVIRONMENT

Several of the proposed modifications included in Revision 14-4M have the potential to affect contaminated materials. The new construction activities in the Sunnyside rail complex, including construction of new ventilation buildings, the new yard lead track tunnel, and the revised location for launch of the tunnel boring machines, would require excavation of soils in Sunnyside Yard. All work to be performed in this area requires an agreement with Amtrak.

As described in Chapter 14, "Contaminated Materials," of the FEIS, the Sunnyside rail complex has been designated by the New York State Department of Environmental Conservation (NYSDEC) as a Class II Inactive Hazardous Waste Site. A plume of PCB-contaminated oil has been identified floating on the groundwater beneath Sunnyside Yard and LIRR's Existing Rail Yard. Amtrak is currently under a consent order to perform remedial investigations in Sunnyside Yard. For the East Side Access Project, an extensive program of soil and groundwater investigation was undertaken in the area that would be affected by the East Side Access Project in the Sunnyside rail yard, both before and after publication of the FEIS, to further define the extent of the contamination there.

In addition, each of the buildings to be demolished as part of Revision 14-4M (including the industrial buildings along 43rd Street, the Amtrak buildings at Sunnyside Yard, and the taxi stand at 39th Street) could contain contaminated materials including petroleum storage tanks, asbestos-containing materials, and lead-based paint. Once the buildings are demolished, excavation would be required on those properties, potentially affecting contaminated soil and groundwater, if any is present.

POTENTIAL IMPACTS DURING CONSTRUCTION

In Queens at Sunnyside Yard, Existing Rail Yard, and Harold Interlocking, construction activities (as described in the FEIS) would include cut-and-cover construction and soft-ground tunneling techniques. These activities would require the excavation of large amounts of soil that may be contaminated. They would also require dewatering of contaminated groundwater. The same precautions described in the FEIS with respect to contaminated materials would be followed under Revision 14-4M.

Special care will be taken at Sunnyside Yard, including ongoing coordination with Amtrak and NYSDEC, to ensure that the project will not interfere with any remediation efforts at the yard. These activities are described in the FEIS. As noted there, the project will construct tunnels deep beneath Sunnyside Yard to avoid affecting contaminated areas, and, where excavation is required, will create a "bathtub" area enclosed by a slurry cut-off wall with limited permeability to minimize the amount of dewatering required. This will avoid the impacts associated with encountering the contaminated plume in the groundwater at the Existing Rail Yard and Sunnyside Yard. For the excavation required for the westbound bypass and eastbound reroute, the tunnel launch wall, and the portal of the tunnel yard lead track, the same techniques would be used. During construction, the excavation area would first be enclosed with virtually watertight walls constructed using slurry and jet grout. Soils would then be excavated and soil and groundwater would be removed from the area, tested, and disposed of properly. Monitoring would be performed throughout construction to determine whether the plume of contaminated material in the groundwater beneath the yard moved. If it moves, water from dewatering could

be reinjected to reduce drawdown, or additional extraction wells or slurry walls could be installed to capture oil and other contamination.

Precautions to be followed during construction are set forth in the East Side Access Project's Environmental Health and Safety Plan (HASP). In addition, contract specifications require the contractor to submit a site-specific HASP that includes health and safety requirements related to specific environmental conditions present at the site.

An environmental site assessment (Phase I) has been conducted for the buildings at 43rd Street proposed for acquisition by MTA. The Phase I employed a four-part investigation—past and current historical land use review, contaminated materials database and records research, a site inspection, and interviews with knowledgeable personnel—to determine the potential presence of contaminated materials on or below the buildings, as well as the need for further detailed subsurface site investigations (Phase II). Based on the results of the Phase I investigation, soil and groundwater testing is recommended prior to demolition of the buildings, because of the potential for subsurface contamination that may have migrated from nearby properties. No underground storage tanks were identified at the buildings to be demolished during the Phase I site inspection. However, it is possible that underground storage tanks may be present.

Lead-based paint and asbestos-containing materials (ACMs) may also be present in the structures to be demolished. Prior to any demolition activities with the potential to disturb suspect ACMs, an asbestos survey would be conducted. If these materials prove to contain asbestos, they would be properly removed and disposed of in accordance with all state and federal regulations. Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—*Lead Exposure in Construction*).

Since the buildings that would be demolished were constructed after 1987, it is unlikely that any fluorescent lights and lighting fixtures include polychlorinated biphenyl (PCB)-containing and/or mercury-containing components (including capacitors and potting compounds). However, any disposal of such lights and/or lighting fixtures would be performed in accordance with applicable federal, state, and local regulations and guidelines, unless labeling or test data indicate that they do not contain mercury or PCBs.

Prior to any demolition activities, a plan would be developed to address hazardous materials or chemicals that may be encountered in the buildings or in the soil or groundwater beneath the buildings. The plan would describe the requirements for handling, management, treatment, and disposal of contaminated materials encountered during construction. The protocols described in the hazardous material plan would be in accordance with relevant local, state, and federal regulations. The plan would identify minimum requirements for Health and Safety Plans (HASPs) to be submitted by each construction contractor prior to commencement of work at the site. The HASPs would comply with 29 CFR 1910.120 and would include health and safety requirements related to site-specific environmental conditions at the site.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

As described in Chapter 14 of the FEIS, the mitigation measures implemented during construction would ensure that any contaminated materials that are on the project site would not result in significant adverse impacts once the construction is complete and the project operational. The proposed project modifications under Revision 14-4M would not alter the mitigation measures or FEIS conclusions. In the Sunnyside rail complex, the project would be

constructed to avoid any effects on the contaminated plume beneath the yards, and the new railroad-related facilities created as part of the project would comply with all applicable regulations regarding contaminated materials, to avoid creating new contamination at any of the project sites. Overall, operation of the proposed project with or without the proposed modifications would not result in significant adverse impacts related to contaminated materials.

NATURAL RESOURCES

AFFECTED ENVIRONMENT

As described in the Chapter 15, "Natural Resources," of the FEIS, Sunnyside Yard is located more than 1,000 feet from the East River and Newtown Creek, and approximately 400 feet from the north end of Dutch Kills. Developed parcels and streets lie between the yard and this water body. Existing Rail Yard/Arch Street Yard is not close to a surface water resource. However, a drainage system serving the yards discharges to Dutch Kills as well as to the city sewer system, and portions of the Sunnyside rail complex are included in the 100- and 500-year floodplains. Newtown Creek and Dutch Kills generally do not attain the goals of their water quality classifications. Few aquatic species are known to exist in Newtown Creek or Dutch Kills because of the high level of pollution.

In the Sunnyside rail complex, no wetland indicator species were observed during the site inspection conducted for the FEIS. A small, linear depression of wet soils was observed, but this area has low value as a potential wetland resource and does not provide any sensitive habitat or ecological function. There are no federally mapped wetlands on the site. Overall, no significant natural resources were identified in the Sunnyside Yard rail complex. In addition, no significant natural resources are present in other areas that would be affected by the work proposed as part of the Revision 14-4M design.

POTENTIAL IMPACTS DURING CONSTRUCTION

The FEIS describes, in the Natural Resources section of Chapter 17, that during construction activities, there would be increased potential for on-site erosion and sedimentation at construction sites where soils would be disturbed. A detailed stormwater management plan will be prepared under NYSDEC State Pollutant Discharge Elimination System (SPDES) permitting requirements for any construction sites larger than 1 acre, and will be implemented during construction. Stormwater management plans will be developed as part of the design process, with implementation to be carried out by the contractors under supervision of the owner, construction manager, and the SPDES permitting and enforcement program administered by NYSDEC. Stormwater management plans would also be implemented for construction activities associated with Revision 14-4M. Therefore, no new impacts would occur as a result of the proposed project modifications.

POTENTIAL IMPACTS FROM COMPLETED PROJECT

The Revision 14-4M design changes would not affect any significant natural resources. The new structures proposed would not significantly increase the amount of impervious area over existing conditions. All of the structures proposed under Revision 14-4M would be located outside the 100-year and 500-year floodplains. Some of the trackwork proposed in the Harold Interlocking would be located in the 100-year floodplain, as was described in the FEIS. The new structures

proposed in the Sunnyside rail complex as part of Revision 14-4M would not alter any existing floodplain characteristics.

SAFETY AND SECURITY

Revision 14-4M significantly improves the safety of the new system as it was designed in accordance with the latest NFPA 130 standards (2003), which were developed to protect the lives of railroad customers, employees and emergency personnel in the event of a fire. The modifications proposed include several structures near Honeywell Street and 39th Street that would provide ventilation to the tunnels, safe egress for passengers and employees, and rapid access for emergency personnel.

As described in the Safety and Security section of Chapter 17 of the FEIS, public access to all construction sites would be restricted. Standard safety and security measures would be followed and the most stringent provisions of the applicable statutes and regulations of New York City and New York State, and the Department of Labor, Occupational Safety and Health Administration, pertaining to the safe performance of the work, would be observed. The proposed project modifications would not alter the findings of the FEIS related to safety and security as the same safety and security measures would be followed.

The safety and security procedures that would be in place at the site, which were described in the FEIS, would not be affected by the proposed project modifications.

The Revision 14-4M design would include one new substation on or near 43rd Street to provide power to trains ("traction power"), a new substation at Honeywell Street near Skillman Avenue, and new substations associated with the new tunnel ventilation buildings adjacent to the Honeywell Street bridge and 39th Street bridge. Substations produce electromagnetic fields (EMF) generated by electric current, which increase proportionately with electric loads. The substations would be designed to minimize magnetic field levels outside the property boundaries through the use of state-of-the-art shielding. Although some public concern exists regarding possible effects of EMFs on health, no cause and effect relationship has been established and no federal and state regulatory agencies have identified a specific magnetic field level that is unsafe.

ENVIRONMENTAL JUSTICE

Most of the proposed changes associated with Revision 14-4M in Queens would occur within the massive Sunnyside rail complex, and would not have any effect outside the yard. Those project elements proposed for the eastern end of the rail complex, close to the Sunnyside Gardens residential complex, would not raise issues of environmental justice.

The census tract that includes the residential neighborhood closest to the yard lead track is Tract 183, which extends from Barnett Avenue to 47th Avenue, 43rd Street to 46th Street. According to the 2000 Census, 61 percent of the people who live in this census tract are minority (including Black, Asian, Hispanic, and other ethnic groups excluding White alone), compared with 67 percent for Queens as a whole. Construction activity for Revision 14-4M project elements would also occur near Tract 181 (extending from Skillman Avenue to Queens Boulevard, 39th Place to 43rd Street) and Tract 169 (located on the blocks bounded by Barnett Avenue to the north, 53rd and 52nd Streets to the east, Skillman Avenue to the south, and 46th Street to the west). These two tracts also have minority populations lower than Queens as a whole, with 63 and 52 percent respectively.

All but one of the census tracts closest to the eastern edge of Sunnyside Yard, where most of the Revision 14-4M work would occur, report a larger percentage of their population living below poverty in 1999, compared to 15 percent in Queens as a whole. Tract 183, closest to the mainline tracks and Sunnyside rail complex, reported 20 percent of its population living below poverty in 1999, and Tract 181 reported 19 percent. Tract 169, which is closest to the rail work near 48th Street, reported a percentage of 11 percent, which is lower than for Queens as a whole.

In addition to residents of the immediate area, construction activities would also affect the 2,000-member New York Presbyterian Church, a large church complex, which serves a predominantly Korean congregation. Similar construction activities were also anticipated near the church in the FEIS design. Construction activities near the church would not be conducted on Sundays.

Construction of the project's Revision 14-4M elements would also require acquisition of privately owned property currently occupied by businesses. No information is available about the racial or ethnic characteristic of the owners of those businesses. As described above, owners of the businesses would be provided relocation assistance and would be compensated for their property in accordance with federal law.

All the census tracts in close proximity to the Revision 14-4M project elements have minority populations lower than that of Queens as a whole. All but Tract 169 have slightly larger percentages of their population living in poverty than in the borough as a whole. Each census tract except the one near 48th Street therefore contains populations that may be of concern for environmental justice. Nevertheless, as described above, the proposed Revision 14-4M project modifications are not expected to result in significant adverse impacts. Therefore, the proposed project modifications would not have a disproportionately high and adverse effect on minority or low-income populations and would not result in environmental justice impacts.

PROCESS AND PUBLIC PARTICIPATION

EAST SIDE ACCESS PROJECT

The public participation effort for the East Side Access Project is being performed in compliance with the National Environmental Policy Act (NEPA). Public outreach efforts are also consistent with the requirements of Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations") and Section 106 of the National Historic Preservation Act (NHPA), as implemented by federal regulations appearing at 36 CFR Part 800.

The primary goal of the public outreach program is to create a public forum for the exchange and discussion of information among the project team, concerned individuals and federal, state, and local agencies. The program has encouraged dialogue between all interested parties, beginning early in the planning process, continuing throughout the Environmental Impact Statement (EIS) process, and extending beyond the publication of the Final EIS (FEIS) and issuance of the ROD, to address issues as they arise during the later phases of design and construction.

The East Side Access Project has conducted an extensive public participation program, beginning in 1995 during preparation of the Major Investment Study, and continuing through preparation of the Draft EIS (DEIS) and FEIS in 2001. This program included presentations and meetings for interested parties, presentations and question and answer sessions at community board meetings in New York City, general information meetings for the public, presentations

and meetings with transit organizations, technical and citizens advisory committee meetings, meetings with relevant regulatory and environmental agencies, public hearings, and printed materials (fact sheets, brochures, etc.). Further details of the public participation program undertaken throughout the EIS process are provided in the FEIS (see Chapter 23, "Process and Public Participation").

Since the publication of the FEIS and issuance of the ROD, public outreach activities for the East Side Access Project have included several individual meetings with affected stakeholders. Representatives of the East Side Access Project also regularly participate in meetings of Community Boards representing areas affected by the project.

REVISION 14-4M DESIGN CHANGES IN QUEENS

MTA is coordinating with city, state, and federal agencies regarding the design changes proposed in Queens as part of Revision 14-4M. These agencies include the New York City Department of Transportation, New York City Fire Department, New York City Department of City Planning, SHPO, New York City Landmarks Preservation Commission, and other relevant agencies.

Public outreach for the proposed Revision 14-4M design changes in Queens has included the meetings and correspondence detailed in Table 6.

Table 6
Stakeholder Meetings and Correspondence for Revision 14-4M Design Changes in Queens

Date	Stakeholder or Representative	Description
2/27/2004	3840 43rd Street Property Owner's Representative	Meeting to advise of the need to acquire the property (for the interim design) and describe the appraisal process.
3/29/2004	3830 43rd Street Property Owner 3832-3834 43rd Street Property Owner 3838 43rd Street Property Owner	Letters mailed to property owners describing the need to acquire their properties (for the interim design), and offering a meeting with MTA. Letters were followed by telephone conversations to discuss the appraisal process.
5/10/2005	Queens Community Board 2	Briefing to review Revision 14-4M design and effects on community, and provide project update.
7/21/2005	Queens Borough President	Briefing to review Revision 14-4M design and effects on community, and provide project update.
7/27/2005	General Motors	Meeting to review Revision 14-4M design and effects on General Motors property.
8/3/2005	Refron	Meeting to review of Revision 14-4M design and effects on Refron property
10/6/2005	Queens Community Board 1	Briefing to review Revision 14-4M design and effects on community, and provide project update.

Note: Meeting minutes are available upon request.

D. CONCLUSIONS

This analysis demonstrates that the proposed project revisions in Queens would not result in significant adverse impacts or changes to the conclusions of the FEIS. With Revision 14-4M, the project activities in Queens both during construction and during operation of the completed project would not be substantially different from what was analyzed in the FEIS. The proposed project modifications in Queens would occur almost entirely within the Sunnyside rail complex, a vast railroad complex that is separated from and below the grade of the surrounding neighborhoods. The preferred alternative for the East Side Access Project analyzed in the FEIS included extensive project construction in the Sunnyside rail complex, and the proposed modifications would overall not be substantially different in terms of adverse effects during construction or operation from those of the FEIS design. The proposed Revision 14-4M project modifications would result in no additional significant adverse impacts to land use and social conditions, economic conditions, visual and aesthetic resources, historic and archaeological resources, transportation, air quality, noise and vibration, energy, utilities and subsurface infrastructure, contaminated materials, natural resources, safety and security, or environmental justice. Activities would occur in similar locations and would be of a similar nature to those evaluated in the FEIS. As a result, a supplemental EIS will not be necessary and this environmental analysis will be maintained in the project files to document compliance with the NEPA process with regard to this design modification. ✷

Appendix A

Addenda to the East Side Access Project Stage 1A Archaeological Assessment

Addendum 1 — *Loop Track Portal North of the LIRR Mainline West of 43rd Street, Yard Area Between the Thomson Avenue and Hunters Point Avenue Bridges, and 39th Street Substation and Proposed Sewer Parallel to the 39th Street Bridge*, Historical Perspectives, Inc., January 2005

Addendum 2 — *Proposed Substation G02, Sunnyside Yard*, Historical Perspectives, Inc., July 2005

Addendum 3 — *Woodside Interlocking*, Historical Perspectives, Inc., July 2005

Addendum 4 — *New Revision 14-4M Areas of Potential Effect*, to come

Addendum 1 — *Loop Track Portal North of the LIRR Mainline West of 43rd Street, Yard Area Between the Thomson Avenue and Hunters Point Avenue Bridges, and 39th Street Substation and Proposed Sewer Parallel to the 39th Street Bridge,* Historical Perspectives, Inc., January 2005

117 East 29th Street
New York, NY 10016
tel: 212 696-0670
fax: 212 213-3191
www.akrf.com

January 19, 2005

Mr. Douglas Mackey
Historic Preservation Program Analyst – Archaeology
New York State Office of Parks, Recreation and Historic Preservation
Bureau of Historic Preservation
Peebles Island, P.O. Box 189
Waterford, NY 12188-0189

Re: **MTA/LIRR East Side Access**
Addendum to Stage 1A Archaeological Assessment (HPI, 1999)
04PR01563/formerly 00PR4431, Queens County

Dear Doug:

Enclosed for your review is an addendum prepared by Historical Perspectives, Inc. to the original Stage 1A Archaeological Assessment prepared for the East Side Access Project (*Stage 1A Archaeological Assessment, MTA/LIRR East Side Access Project*, Historical Perspectives, Inc., December 1999).

This addendum evaluates the potential for four areas in the Sunnyside Rail complex in Queens to contain archaeological resources. As project engineering has proceeded with the MTA/LIRR East Side Access Project, new project elements have been added that were not previously evaluated in the Final Environmental Impact Statement (FEIS) prepared for the project (March 2001). The four new areas were not located in the original Area of Potential Effect (APE) established for archaeological resources, and, therefore, they were not assessed for their potential to contain archaeological resources. These new areas are located as follows: 1) at the northeastern end of the yard in the area of the loop track, 2) the area consisting of the Sunnyside Yard complex between the Thomson Avenue and Hunters Point Avenue bridges, 3) the northwest corner of Skillman Avenue and 39th Street, and 4) an area west of the 39th Street Bridge in the Sunnyside Rail complex.

Since completion of the Stage 1A and the project's FEIS, archaeological protocols have been developed to evaluate the presence/lack of presence of archaeological resources in areas identified as archaeologically sensitive. These protocols are contained in *Long Island Rail Road East Side Access Construction Protection Plan* and *Long Island Rail Road East Side Access Advance Field Testing Plan*, which were submitted to SHPO for review and accepted respectively in April and June 2004. As engineering proceeds, new project elements that have the potential to affect archaeological resources will continue to be evaluated and appropriate protocols developed to avoid adverse effects on archaeological resources.

Please let me know if you have any questions at (212) 340-9745.

Sincerely,
AKRF, INC.

Claudia Cooney
Technical Director

cc: Gina Santucci, LPC
Robert Gould, MTA/LIRR East Side Access Project
Audrey Heffernan, MTA Capital Construction
Nina Chung, FTA Region 2
Ed Morin, URS Corp.
Julie Cowing, AKRF, Inc.

ADDENDUM
STAGE 1A ARCHAEOLOGICAL ASSESSMENT
MTA/LONG ISLAND RAIL ROAD EAST SIDE ACCESS PROJECT
LOOP TRACK PORTAL
NORTH OF THE LIRR MAIN LINE WEST OF 43RD STREET
AND
YARD AREA BETWEEN THE THOMSON AVENUE AND HUNTERS POINT AVENUE BRIDGES
AND
39TH STREET SUBSTATION AND PROPOSED SEWER PARALLEL TO THE 39TH STREET BRIDGE

January 2005

INTRODUCTION

As a result of ongoing project engineering, the Queens Alignment has been redesigned, resulting in the addition of four new project elements in areas not previously evaluated archaeologically. This addendum refers to the following sections of the original Stage 1A prepared for the project, *Stage 1A Archaeological Assessment, MTA/LIRR East Side Access Project,* prepared by Historical Perspectives, Inc., December 1999 ("Stage 1A"):

- 3.3 EXISTING CONDITIONS (pages AR3-46 to -64), ***3.3.1 Prehistoric Archaeological Potential*** (AR3-68) of the Stage 1A (Loop Track Area).

- 3.3 EXISTING CONDITIONS (pages AR3-17 and -18); and ***3.3.1 Prehistoric Archaeological Potential*** (page AR3-68) of the Stage 1A (Yard Area between Thomson Avenue and Hunters Point Avenue Bridges).

- 3.3 EXISTING CONDITIONS (pages AR3-35 to -46), ***3.3.1 Prehistoric Archaeological Potential*** (AR-68), and ***3.3.2 Historical Archaeological Potential*** (AR3-69) of the Stage 1A (39th Street Substation and Sewer Parallel to the 39th Street Bridge).

The four new APEs are described below and shown on Figure A, "Area of Potential Effect." The archaeological assessment for the Loop Track Area is then presented first, followed by the archaeological assessment for the Yard Area Between the Thomson Avenue and Hunters Point Avenue Bridges. The archaeological assessments for the 39th Street Substation and proposed Sewer Parallel to the 39th Street Bridge are presented together since they are in the similar vicinity, and follow last.

Figures 1-18 of the Stage 1A prepared by Historical Perspectives, Inc. have been appended to this addendum and are referenced herein.

1. Loop Track Area

In association with the portal (coming to grade from a tunnel) of a proposed fourth loop track, a new area has been added to the MTA/LIRR East Side Access Project. It encompasses the area north of the LIRR Main Line between 43rd Street (42nd Place), the former Long Island Rail Road trackbed, and the original APE for the loop track assessed in the project's original Stage 1A.

Subsurface excavation would be required in this area to bring the bored loop track to grade, and would involve the demolition of six commercial buildings on the west side of 43rd Street, construction of the Tunnel Boring Machine (TBM) reception chamber, and construction of a portion of the Yard Lead Approach Structure which would transition trains from the bored tunnel to grade. This work is expected to be constructed under Construction Contract CQ041.

2. Yard Area between the Thomson Avenue and Hunters Point Avenue Bridges

New work is proposed in the Sunnyside Yard complex in the area bounded by Sunnyside Yard/ Yard A to the north, Thomson Avenue to the east, Skillman Avenue to the south, and Hunters Point Avenue to the west. This work includes installation of utilities, an open cut for a proposed cross connector to pass beneath the LIRR main line tracks, pier supports for Thomson Avenue, as well as a new retaining wall along Skillman Avenue. This work would occur under a number of construction contracts: CH060, CH054, and CQ033.

3. 39th Street Bridge

A proposed new substation would be built in Sunnyside Yard at the northwest corner of Skillman Avenue and the 39th Street Bridge, replacing a taxi brokerage. In addition a new access bridge would be built from Skillman Avenue over the loop track and the LIRR Main Line. This new bridge would be built just west of the proposed new substation. This work is expected to be constructed under Construction Contract CS079.

4. Sewer Parallel to the 39th Street Bridge

A new sewer is proposed to be constructed in Sunnyside Yard west of and parallel to the existing 39th Street Bridge. The sewer would be built commencing roughly south of the LIRR Main Line north to the northern edge of Yard A. It is presently contemplated that the sewer would be built as an open cut and extending approximately five feet in depth. This work is expected to occur under Construction Contract CH053.

ARCHAEOLOGICAL ASSESSMENT OF THE LOOP TRACK AREA

- **APE Between the 39th Street Bridge and 43rd Street (Laurel Hill Avenue)**

Former Van Buren (41st) Street (North of Middleburg Avenue)
Beginning at northern boundary of the previously-assessed part of the former Van Buren Street (See page AR3-49), the added section of the former Van Buren Street extends from 565 feet to 605 feet north of Middleburg Avenue on the east side of Van Buren, and from 582 feet to 600 feet north of Middleburg on the west side of Van Buren. In both cases the northern boundary is the old Long Island Railroad trackbed. No historical structures are recorded in this Van Buren Street section of the APE.

Prior to construction of the railyard, this Van Buren Street section of the APE was part of the northern slope of a large hill or ridge whose summit lay about 1,400 feet to the south, at what is now Skillman Avenue. In 1907, the elevations in this part of the APE ranged between 37.75 feet and 32.75 feet[1], sloping downward to the northeast (Figure 8).

Current elevations in this section of the APE lie between 30 and 32 feet (MTA/LIRR 1999:5). The change in elevation between 1907 and the present indicates that between 0.75 and 7.75 feet of the pre-Yard ground surface were removed during or subsequent to Yard construction. Depth of ground disturbance generally decreases from west to east.

Since prehistoric archaeological remains are generally within three to four feet of the predevelopment ground surface, it is possible that potential undisturbed or partially-disturbed remains have survived in this section of the APE. For recommendations and mitigation measures see Section 3.5.

Former Block 74
Beginning at northern boundary of the previously-assessed part of former Block 74 (See page AR3-50), the added section of Block 74 extends from 565 feet to 605 feet north of Middleburg Avenue on the east side of former Van Buren Street, and from 460 feet to 635 feet north of Middleburg on the west side of former Madden Street (42nd Place). In both cases the northern boundary is the old Long Island Railroad trackbed. No historical structures are recorded in this Block 74 section of the APE.

Prior to construction of the railyard, this Block 74 section of the APE was part of the northern slope of a large hill or ridge whose summit lay about 1,500 feet to the south, at what is now Skillman Avenue. In 1907, the elevations in this part of the APE ranged between 37.75 feet and 27.75 feet, sloping downward to the northeast.

Current elevations in this section of the APE lie between 30 and 37 feet, sloping upward from west to east. The contours are somewhat obscured due to the stockpiling of construction materials there during the time of the topographic survey. A hill labelled "PILE" at the center of

[1] The East Side Access Project is using a datum of 0=300. Therefore, to translate to the ESA elevation, 300+ should be added. In this case, elevation 32.75 = ESA elevation of 332.75.

the Block 74 APE rises to a height of 41.8 feet (MTA/LIRR 1999:5). A comparison of the elevations of 1907 and the present indicates that in the western parts of the APE between 0.0 and 7.75 feet of the predevelopment surface has been removed, while on the eastern side, it suggests the addition of between 0.0 and 9.25 feet of fill.

Since prehistoric archaeological remains are generally within three to four feet of the predevelopment ground surface, it is possible that due to the shallow disturbance and the presence of a protective fill overmantle, potential prehistoric remains may have survived undisturbed or partially-disturbed on parts of this APE. For recommendations and mitigation measures see Section 3.5.

Former Madden Street (42nd Street – North of Middleburg Avenue)

Beginning at northern boundary of the previously-assessed part of the former Madden Street (See page AR3-51 to AR3-52), the added section of Madden Street extends from 401 feet to 647 feet north of Middleburg Avenue on the east side of Madden, and from 460 feet to 635 feet north of Middleburg on the west side of Madden. In both cases the northern boundary is the old Long Island Railroad trackbed. No historical structures are recorded in this Madden Street section of the APE.

Prior to construction of the railyard, this Madden Street section of the APE was part of the northern slope of a large hill or ridge whose summit lay about 1,500 feet to the south, at what is now Skillman Avenue. In 1907, the elevations in this part of the APE ranged between 32.75 feet and 27.75 feet, sloping downward toward the northeast.

Current elevations in this section of the APE range from just below 35 feet at the north and south edges of the APE, to above 38 feet along the eastern side of the APE. A "PILE" of construction materials, mostly on Block 74 to the west of Madden Street extends onto the APE, obscuring the current topographic contours, and raising the elevation of the northwestern corner of the APE above 38 feet (MTA/LIRR 1999:5).

A comparison of the pre-Yard and present elevations indicates that between 2.25 and 10.25 feet have been added during or subsequent to Yard construction. Potential prehistoric remains may have survived, protected from subsequent subsurface disturbance by the fill overmantle. For recommendations and mitigation measures see Section 3.5.

Former Block 71

Beginning at northern boundary of the previously-assessed part of former Block 71 (See page AR3-52 to AR3-53), the added section of Block 71 extends from 401 feet to 647 feet north of Middleburg Avenue on the east side of former Madden Street, and from 60 feet north of Middleburg on the west side of former Laurel Hill (43rd)Avenue, following the curve of 42nd Place/43rd Avenue, which also becomes the northern boundary of this new part of the APE. No potential historical remains are indicated on this part of the APE.

Prior to construction of the railyard, this Block 71 section of the APE was part of the northern slope of a large hill or ridge whose summit lay about 1,500 feet to the southwest, at what is now Skillman Avenue.

In 1907 the northern 175 feet of the APE were in a relatively level area at the base of the hill, with elevations between 32.75 and 27.75 feet. (Figure 8)

At present the northern 175 feet of the Block 71 APE slope upward to Laurel Hill Avenue, rising from elevations of below 35 feet in the northwestern corner of this part of the APE to approximately 43 feet at the southeastern corner of this part of the APE (MTA/LIRR 1999:5).

A comparison of the pre-Yard and current elevations indicates that between 2.25 feet and as much as 15.25 feet of fill have been added to this part of the APE, with the amount of fill increasing toward the east, as one approaches Laurel Hill (43rd) Avenue. Although four woodframe buildings associated with the construction storage yard were recorded near Laurel Hill Avenue in the 1999 survey (See *Block Histories* below, Appendix 3.7.1), there is no indication of basements or deep foundations, and given a standard foundation depth of four feet in a part of the APE having a fill overmantle a minimum of 4.25 feet thick, it is unlikely that the construction of these buildings would have impacted the pre-Yard surface.

Potential prehistoric remains may have survived, protected from subsequent subsurface disturbance by the fill overmantle. For recommendations and mitigation measures see Section 3.5.

In 1907, the elevations in the remaining, southern part of the Block 71 APE ranged from 42.75 feet at the southernmost corner along Laurel Hill Avenue, down to 27.75 feet, sloping downward to the north. (Figure 8)

At present, the APE slopes steeply upward east of the Loop Track right-of-way, rising from 34 feet at the right-of-way, to between 45 and 47 feet at Laurel Hill Avenue (MTA/LIRR 1999:5). A comparison of the current and pre-Yard elevations indicates the addition of more than 2.25 feet of fill over the entire area during or subsequent to Yard construction. This layer of fill increases to as much as 14.25 feet thick as Laurel Hill (43rd) Avenue is approached on the east. As noted in the Appendix 3.7.1 (see *Block Histories* below), four two-story cinder block buildings stood along Laurel Hill Avenue, and the northernmost of the structures had basements in their rear one-story sections. This would likely have penetrated the existing fill layer in the western part of the APE, where it is the thinnest, and impacted any potentially surviving prehistoric archaeological deposits. In the remainder of this part of the APE, however, there is no indication of basements or deep foundations. Given the location of these structures in the area of the greatest amount of fill, it is likely that the fill overmantle would have protected portions of the pre-Yard surface and any shallowly-buried prehistoric cultural materials from construction impacts. For recommendations and mitigation measures see Section 3.5.

3.3.1 Prehistoric Archaeological Potential

As described in the Stage 1A report, portions of the original APEs assessed were identified as potentially sensitive for prehistoric archaeological resources based on documentary and archaeological data indicating that Native Americans had inhabited the Sunnyside Yard vicinity during the pre- and proto-historic periods. In addition, as part of that study, subsurface disturbance and its impact on and elimination of potential resources in the APEs was also assessed to determine whether potential archaeological materials may still be present.

Based on the conclusions from these two lines of research, sections of the APEs were then rated as having high, moderate or low prehistoric archaeological sensitivity. The full discussion and explanation of the determination of prehistoric sensitivity can be found on pages AR3-65 through AR3-68 of the Stage 1A report. Areas given a high sensitivity rating were those which were in near proximity to a fresh water source (e.g., a creek or marsh). No APE locations were rated as having moderate sensitivity. Areas given a low sensitivity rating were those that were located over 1,000 feet from a fresh water source, in this case Dutch Kills Creek and its marshes. Areas located within the marsh were also given a low sensitivity rating as they would not have been habitable or suitable for other archaeologically-visible activities. APEs with a low sensitivity rating were not mapped and were not recommended for further archaeological evaluation.

Based on the abovementioned criteria, the APE that is the subject of this addendum was determined to be over 1,000 feet from a fresh water source. Therefore, following the same approach used in the Stage 1A evaluation, this APE has been given a low sensitivity rating for prehistoric archaeological resources and no further archaeological evaluation is recommended. This addendum adds the following locations within the APE under the heading: Low Potential Sensitivity (page AR3-68).

Van Buren Street (North of Middleburg Avenue)
Block 74 (North of the Loop Track)
Madden Street (North of Middleburg Avenue)
Block 71 (North of the Loop Track)

3.3.2 Historic Archaeological Potential

As described above, no historical structures are recorded in this APE. Therefore, the APE possesses a low sensitivity for historical period archaeological resources and no further archaeological evaluation is warranted.

3.5 Mitigation Recommendations

This addendum repeats the recommendations of the original report (page AR3-70): "for areas determined to have a Low Potential Sensitivity rating for prehistoric resources, further consideration, research, testing or other mitigation of these locations for buried cultural remains from the prehistoric period is not recommended." In addition, no further consideration of historical period resources is recommended. Therefore, no additional mitigation beyond that discussed in earlier addenda and the original report is recommended.

3.7 Appendix

3.7.1 Block Histories

- **APE Between the 39th Street Bridge and 43rd Street (Laurel Hill Avenue)**

Van Buren Street (North of Middleburg Avenue)

This added section of the APE on Van Buren Street extends from 565 feet to 605 feet north of Middleburg Avenue on the east side of Van Buren, and from 582 feet to 600 feet north of Middleburg on the west side of Van Buren. In both cases the northern boundary is the old Long Island Railroad trackbed.

This area was owned by T. B. Van Buren in the 1870s, and Van Buren Street was laid out on paper in the same decade. The surrounding blocks were lotted before 1891, but there is no evidence of any dwellings or other structures built within the APE (Beers 1873; Dripps 1874; Sanborn 1898). (Figure 16)

No potential historical archaeological resources are recorded in this Van Buren Street section of the APE.

Block 74 (North of the Loop Track)

This added section of Block 74 extends from 565 feet to 605 feet north of Middleburg Avenue on the east side of former Van Buren Street, and from 460 feet to 635 feet north of Middleburg on the west side of former Madden Street (42nd Place). In both cases the northern boundary is the old Long Island Railroad trackbed.

This area was owned by T. B. Van Buren in the 1870s, and although lotted before 1891, there is no evidence of any dwellings or other structures built within the APE (Beers 1873; Dripps 1874; Sanborn 1898). (Figure 16)

No potential historical archaeological resources are recorded in this Block 74 section of the APE.

Madden Street (North of Middleburg Avenue)

This added section of the APE on Madden Street extends from 401 feet to 647 feet north of Middleburg Avenue on the east side of Madden, and from 460 feet to 635 feet north of Middleburg on the west side of Madden. In both cases the northern boundary is the old Long Island Railroad trackbed.

This area was owned by T. B. Van Buren in the 1870s, and Madden Street was laid out on paper in the same decade. The surrounding blocks were lotted before 1891, but there is no evidence of any dwellings or other structures built within the APE (Beers 1873; Dripps 1874; Sanborn 1898). (Figure 16)

No potential historical archaeological resources are recorded in this Van Buren Street section of the APE.

Block 71 (North of the Loop Track)

This addendum section of the Block 71 APE extends from 401 feet to 647 feet north of Middleburg Avenue on the east side of former Madden Street, and from 60 feet north of Middleburg on the west side of former Laurel Hill (43rd)Avenue, following the curve of 42nd Place/43rd Avenue, which also becomes the northern boundary of this new part of the APE.

The APE has been divided into a northern section which comprises the northern 150 feet of the APE, and the southern section which is the remainder of the APE.

Both sections were owned by T. B. Van Buren in the 1870s, and although lotted before 1891, there is no evidence of any dwellings or other structures built within the APE prior to Yard construction (Beers 1873; Dripps 1874; Sanborn 1898). (Figure 16)

No structures are recorded on the northern section of the APE through the 1970s. At the time of the 1999 topographical survey, northern section of the APE was being utilized as a construction storage yard. Three one-story woodframe structures, as well as a number of sheds were erected there, along the Laurel Hill (43rd) Avenue and 42nd Place/43rd Avenue frontage (MTA/LIRR 1999:5). Neither basements nor deep foundations are indicated. These buildings are not recorded in the current Sanborn atlas, which shows the area as vacant.

No structures are recorded on the southern section of the APE through the 1970s. A group of three two- and one-story buildings were constructed there in 1984, 1988 and 1988. The 1999 Sanborn atlas indicates that the northern two buildings have basements recorded in their rear (western) sections. No other basements are recorded.

No potential historical remains are recorded on the Block 71 part of the APE.

ARCHAEOLOGICAL ASSESSMENT OF THE YARD AREA BETWEEN THE THOMSON AVENUE AND HUNTERS POINT AVENUE BRIDGES

- **APE between the Hunters Point and Thomson Avenue Bridges**

Former Block 72; Former Arch Street; Former Block 89; Former Beech Street; Former Block 90; Former Crane Street; Former Block 91; Former Davis Street; Former Block 92; Former Pearson Street; Former Block 93; Former Anable Avenue/Amstel Place; Former Block 94; Former Court Street; Former Block 95; Former Nott Avenue; Former Block 196; Former Purves Street; Former Block 199

These former blocks and streets, between the current Skillman Avenue on the south and the old Long Island Rail Road trackbed on the north, were evaluated in the original report (AR3-17 and 18).

No potential historical archaeological sites were documented in this area (Wolverton 1891; Figures 17 and 18).

Based on the evaluation of this part of the APE as a section of extensive marshland with none of the dry, elevated locations preferred by prehistoric Americans for their campsites, settlements and processing areas (Figure 3; Conner 1852), this section of the project site has very low potential for hosting prehistoric archaeological remains. It was considered not sensitive, and no further study or other investigation was recommended. For further discussion, see pages AR3-65 to 67 in the original report.

Former Block 202
Former Dutch Kills Street (south of the Long Island Railroad trackbed)

This block and street forms a triangle bounded by present Skillman Avenue (formerly Meadow Street), the Thomson Avenue Bridge and former Block 199. It occupies approximately 214 feet of frontage along Skillman Avenue, and ranges between 0.0 feet and approximately 188 feet north of present Skillman.

No potential historical archaeological sites were documented in this area (Wolverton 1891; Figures 17 and 18).

Prior to filling at the turn of the century, this area of the APE was part of the extensive marshland surrounding Dutch Kills and its tributaries (Figure 3; Conner 1852). The edge of the swamp is demarcated most clearly on the 1874 topographic map, where all land to the southeast of the Long Island Rail Road trackbed, including this APE, is marsh and/or creekbed (Figure 4). The 1907 topographic map, drawn prior to railyard construction, but subsequent to road building and filling activities in the vicinity of this area, records elevations there below 2.75 feet (Figure 6).

Although the marshes which once existed in the APE would have been attractive hunting and

gathering locations for prehistoric Americans, it is unlikely that any sort of pre- or proto-historic campsite, settlement or processing area would have been located within the marsh, rather than on nearby dry, elevated land. As a result, this section of the project site is considered to have a very low potential for hosting prehistoric archaeological remains, and is not sensitive.

Long Island Rail Road Trackbed (Hunters Point Avenue to Thomson Avenue)

The old LIRR trackbed was completed through this section of the APE by 1861. Built at the western edge of the Dutch Kills marshes, historical maps indicate that some locations were dry ground at the edge of the marsh, and others were within the marsh itself.

A comparison of 19th-century maps identifies an area of elevated, dry ground in this part of the APE, between and including former Crane Street on the west and former Nott Avenue (the existing portion of this street north of the Yard is now 44th Drive) to the east (Figure 3; Beers 1873). This appears to be the base of large hill which has its summit to the northwest. Elevations from the 1907 topographical map are only available for the area between former Anable and Nott Streets, but appear to be between 2.75 feet and 7.75 feet (Figure 5). Intersection elevations from the 1903 atlas give elevations of between 5 and 6 feet along the south side of the embankment. This may be due to extensive filling operations carried out on the adjoining properties, subsequent to trackbed construction but prior to yard construction.

Current elevations in this area of the APE rise gradually from above 8 feet on the west to 13 feet on the east (Amtrak 1994:2-4,7), indicating the deposit of a protective fill overmantle of between approximately 5 and 10 feet thick, most likely deposited at the time the LIRR trackbed was first constructed. This indicates that the embankment fill has protected the pre-development surface, and any potential buried prehistoric cultural materials, from subsequent construction impacts.

No historical structures were recorded in the Thomson Avenue to Skillman Avenue section of the old LIRR trackbed in this APE.

Construction excavation for this section of the APE may eradicate any potentially surviving buried cultural materials from the prehistoric period. For recommendations and mitigation measures, see Section 3.5.

In contrast, the remaining two sections of the old LIRR track embankment, lying between the west side of Crane Street and the Hunters Point Avenue Bridge, and between the east side of Nott Avenue and the Thomson Avenue Bridge were not dry, elevated locations prior to trackbed construction.

Prior to filling operations which accompanied the building of the trackbed embankment, this section of the APE was part of the extensive marshland surrounding Dutch Kills and its tributaries (Figures 3 and 4; Conner 1852). The 1907 topographic map, drawn after embankment construction and other pre-yard filling operations, generally records swamp elevations as below 2.75 feet (Figure 5).

As discussed in the prehistoric overview section of the original report, salt marshes, such as the one surrounding Dutch Kills and its tributaries offered valuable resources to pre- and proto-historic Native Americans. Because a marsh, undergoes regular inundation or partial inundation, however, it is extremely unlikely that Native Americans would have established a campsite, processing area, or larger settlement within its boundaries. Therefore, this part of the APE has a very low potential for prehistoric archaeological remains, and is not considered sensitive.

No potential historical archaeological sites have been documented in this area (Figures 17 and 18; Wolverton 1891).

3.3.1 Prehistoric Archaeological Potential

The LIRR trackbed section of this APE, from former Crane Street to former Nott Avenue, has been identified as having potential prehistoric sensitivity, based on the documentary and archaeological data indicating that Native Americans inhabited the vicinity during the pre- and proto-historic eras, as well as data describing the pre-development environment and topography of the APE. Sensitivity is also determined by a location's lack of deep subsurface disturbance, which can eliminate this potential. Areas with moderate and high sensitivity ratings are considered to have the potential for archaeological sensitivity; in those locations, disturbance by project-related work could result in significant impacts.

Based on these factors, the following section of the LIRR trackbed is rated as having a high potential prehistoric sensitivity (A more detailed discussion of the determination of prehistoric archaeological potential is found in the original Stage 1A report on pages AR3-65 to AR3-68):

- APE between the Hunters Point and Thomson Avenue Bridges:
  Location #13: Old LIRR Embankment (Former Crane Street to Former Nott Avenue)

This area is an addition to the areas identified in the Stage 1A report as having "High Potential Sensitivity" on pages AR3-67 to AR3-68. Please see Figure B, "Areas of Potential Archaeological Sensitivity."

3.5 Mitigation Recommendations

The installation of utilities and work required to convert Yard A into a new East Side Access storage yard, including grading and laying of new tracks, could affect potential prehistoric resources beneath a fill overmantle of approximately five to ten feet deep, if construction were to extend below the current surface to this depth range. At this time, the depth and extent of proposed construction is not known. Therefore, it is recommended that this area be added to the Stage 1B Archaeological Field Testing Protocol found within Appendix D of the *Long Island Rail Road East Side Access Construction Protection Plan*, prepared for the East Side Access Project and approved by SHPO in April 2004. This protocol stipulates that once construction locations and impact depths have been confirmed, they will be compared to the potentially-

affected areas of sensitivity to evaluate the potential for adverse effects. Due to issues of contamination and shallow groundwater in the Sunnyside Yard complex, construction within any sensitive areas in the complex would be monitored by a professional archaeologist as described in Appendix D of the Construction Protection Plan.

3.7 Appendix

3.7.1 Block Histories

- **APE between the Hunters Point and Thomson Avenue Bridges**

Former Block 202
Former Dutch Kills Street (south of the Long Island Railroad trackbed)

This block and street forms a triangle bounded by present Skillman Avenue (formerly Meadow Street), the Thomson Avenue Bridge and former Block 199. It occupies approximately 214 feet of frontage along Skillman Avenue, and ranges between 0.0 feet and approximately 188 feet north of present Skillman.

Prior to filling at the turn of the century, this area of the APE was part of the extensive marshland surrounding Dutch Kills and its tributaries (Figure 3; Conner 1852). The edge of the swamp is demarcated most clearly on the 1874 topographic map, where all land to the southeast of the Long Island Rail Road trackbed, including this APE, is marsh and/or creekbed (Figure 4).

No potential historical archaeological sites were documented in this area (Wolverton 1891; Figures 17 and 18).

Long Island Rail Road Trackbed (Hunters Point Avenue to Thomson Avenue)

The old LIRR trackbed was completed through this section of the APE by 1861. Built at the western edge of the Dutch Kills marshes, historical maps indicate that some locations were dry ground at the edge of the marsh, and the remainder was built on fill within the marsh itself.

A comparison of 19th-century maps identifies an area of elevated, dry ground in this part of the APE, between the west side of former Crane Street on the west and the east side of former Nott Avenue to the east (Figure 3; Beers 1873). This appears to be the base of large hill which has its summit to the northwest.

In contrast, the remaining two sections of the old LIRR track embankment, lying between Crane Street and the Hunters Point Avenue Bridge, and between Nott Avenue and the Thomson Avenue Bridge were not dry, elevated locations prior to trackbed construction.

Prior to filling operations which accompanied the building of the trackbed embankment, this section of the APE was part of the extensive marshland surrounding Dutch Kills and its tributaries (Figures 3 and 4; Conner 1852). The 1907 topographic map, drawn after embankment construction and other pre-yard filling operations, generally records swamp elevations as below 2.75 feet (Figure 5).

No historical structures were recorded in the Hunters Point Avenue Bridge to Thomson Avenue Bridge section of the old LIRR trackbed in this APE.

ARCHAEOLOGICAL ASSESSMENT OF THE 39TH STREET BRIDGE AND THE SEWER PARALLEL TO THE 39TH STREET BRIDGE

- **APE between Honeywell Street and 39th Street Bridges**

Former Block 115

Historical maps record no structures in this part of the APE.

The Block 115 section of the APE lies between former Van Pelt and Harold Streets, with former Middleburg Avenue on the south, and the Loop Track APE on the north. Prior to yard construction, elevations ranged from 37.75 feet in northwest to above 42.75 feet in the southeast corner, sloping upward as one proceeds southeasterly. (Figure 7) At present, elevations are between 22 and 26 feet (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002). Regrading during yard construction would have removed between 11.75 to as much as 20.75 feet of the pre-construction surface, effectively eliminating all potential prehistoric or shallowy-buried Revolutionary War archaeological deposits.

Former Middleburg Avenue (between Van Pelt and Harold Streets)

Historical maps record no structures in this part of the APE.

Pre-yard elevations in the former Middelburg Avenue section of the APE were between 42.75 and 47.75 feet, sloping up toward the south. (Figure 7) Current elevations are between 22 and 25 feet (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002), indicating a regrading during yard construction that removed between 17.75 and 25.75 feet of the pre-construction surface. This would have destroyed all potential prehistoric archaeological resources, as well potential deposits from British troops who camped in this vicinity during the Revolutionary War.

Former Block 116 (North of the Main Line)

The new APE section on former Block 116 comprises most of the northern part of the block, north of the Main Line APE, which was covered in the original report (Pages AR-43 to -44). Beginning on the south side of former Middleburg Avenue, it extends southward 356 feet along the west side of former Harold Street, to the beginning of the Main Line APE. The western boundary runs along the eastern side of the former Van Pelt Street 427 feet from the south side of former Middleburg Avenue, ending at the Main Line APE.

Historical maps record no structures in this section of the APE.

Prior to yard construction, this part of Block 116 sloped upward as one proceeded southward, with elevations rising from above 42.75 feet at Middleburg Avenue to above 57.75 feet at the edge of the Main Line APE. (Figure 7) In order to discuss the topographical changes which have taken place in this area during railyard construction in the early 20th century, it is necessary

divide this part of the APE into four sections, based on the contour lines shown on the 1907 map. (Figure 7)

The first section, which lies between the 42.75 and 47.75 contour lines, extends 48 feet south of Middleburg Avenue along the western side of the former Harold Street, and 0 feet south of Middleburg along the eastern side of Van Pelt Street. (Figure 7) At present, elevations in this part of the APE lie between 20 and 25 feet (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002), indicating that between 17.75 and 27.75 feet of the pre-yard surface have been removed during or after railyard construction. This regrading would have effectively destroyed any potential archaeological deposits from the prehistoric period or shallowly-buried Revolutionary War remains.

The second section of this area of the APE, immediately south of the first section, extends between 48 and 200 feet south of former Middleburg Avenue along the western side of former Harold Street, and between 0 and 136 feet south of Middleburg along the eastern side of old Van Pelt Street. This section had elevations between 47.75 and 52.75 feet in 1907. (Figure 7) At present, elevations rise from approximately 22 to 70 feet as one goes eastward, becoming increasingly steep and elevated on the earthen bank supporting a section of the present 39th Street Bridge (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002).

Except for a small part of this second section (which presently lies above an elevation of 45 feet) this indicates a regrading for yard construction which would have removed a minimum of 2.75 feet and up to 30.75 feet of the pre-yard surface. Because potential prehistoric archaeological resources, as well as potential cultural deposits from British troops who camped in this vicinity during the Revolutionary War would be expected within three to four feet of the pre-yard surface, the removal of 2.75 feet of this surface would have destroyed most of these shallowly-buried archaeological resources. In addition, the position of the area with the least amount of regrading is along the side of a steep hill or bank. The subsequent 97 years (1907—2004) of weathering and human impacts to exposed potential archaeological resources would have eliminated any surviving potential sensitivity.

The areas which lie above the ***present*** 45-foot contour line, roughly the easternmost 50 feet of the second section, along the present 39th Street Bridge, would have only experienced a regrading of less than 2.75 feet, and the possibility of the addition of a layer of fill which may be as much as 17.25 feet thick near the Bridge. This fill overmantle would have protected any potential prehistoric or shallowly-buried Revolutionary War remains from subsequent subsurface disturbance. Excavation in this section of the APE could disturb any potentially surviving buried cultural materials from the prehistoric and historical periods. For recommendations and mitigation measures, see Section 3.5.

The third section of this area of the APE lies between the 1907 map's 52.75- and 57.75-foot contour lines, immediately south of the second section. (Figure 7) This third section extends from 200 to 333 feet south of former Middleburg Avenue along the western side of former Harold Street, and from 136 to 283 feet south of Middleburg on the eastern side of former Van Pelt Street. At present, elevations range from 20 feet to 72 feet, with the greatest elevations

along the side of the present 39th Street Bridge (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002),

Except for a small part of this third section (which presently lies above an elevation of 50 feet) this indicates a regrading for yard construction which would have removed a minimum of 2.75 feet and up to 37.75 feet of the pre-yard surface. Because potential prehistoric archaeological resources, as well as potential cultural deposits from British troops who camped in this vicinity during the Revolutionary War would be expected within three to four feet of the pre-yard surface, the removal of 2.75 feet of this surface would have destroyed most of these shallowly-buried archaeological resources. In addition, the position of the area with the least amount of regrading is along the side of a steep hill or bank. The subsequent 97 years (1907—2004) of weathering and human impacts to exposed potential archaeological resources would have eliminated any surviving potential sensitivity.

The areas which lie above the ***present*** 50-foot contour line, roughly the easternmost 50 feet of the third section, along the present 39th Street Bridge, would have only experienced a regrading of less than 2.75 feet, and the possibility of the addition of a layer of fill which may be as much as 14.25 feet thick near the Bridge. This fill overmantle would have protected any potential prehistoric or shallowly-buried Revolutionary War remains from subsequent subsurface disturbance. Excavation in this section of the APE could disturb any potentially surviving buried cultural materials from the prehistoric and historical periods. For recommendations and mitigation measures, see Section 3.5.

The fourth and southernmost section of this area of the APE lies between the 1907 map's 57.75- and 62.75-foot contour lines, immediately south of the third section. (Figure 7) This fourth section extends from 333 to 356 feet south of former Middleburg Avenue along the western side of former Harold Street, and from 283 to 427 feet south of Middleburg on the eastern side of former Van Pelt Street. At present, elevations range from 30 feet to 65 feet, with the greatest elevations along the side of the present 39th Street Bridge (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002).

Except for a small part of this fourth section (which presently lies above an elevation of 55 feet) this indicates a regrading for yard construction which would have removed a minimum of 2.75 feet and up to 32.75 feet of the pre-yard surface. Because potential prehistoric archaeological resources, as well as potential cultural deposits from British troops who camped in this vicinity during the Revolutionary War would be expected within three to four feet of the pre-yard surface, the removal of 2.75 feet of this surface would have destroyed most of these shallowly-buried archaeological resources. In addition, the position of the area with the least amount of regrading is along the side of a steep hill or bank. The subsequent 97 years (1907—2004) of weathering and human impacts to exposed potential archaeological resources would have eliminated any surviving potential sensitivity.

The areas which lie above the ***present*** 55-foot contour line, roughly the easternmost 50 feet of the third section, along the present 39th Street Bridge, would have only experienced a regrading of less than 2.75 feet, and the possibility of the addition of a layer of fill which may be as much as

7.25 feet thick near the Bridge. This fill overmantle would have protected any potential prehistoric or shallowly-buried Revolutionary War remains from subsequent subsurface disturbance. Excavation in this section of the APE could disturb any potentially surviving buried cultural materials from the prehistoric and historical periods. For recommendations and mitigation measures, see Section 3.5.

Former Block 116 (South of the Loop Track)

A second new area of former Block 116, south of the Loop Track APE, comprises the southeastern section of the block, with a 100-foot frontage on present Skillman Avenue extending west from the west side of 39th Street. This part of the APE ranges 130 feet north of present Skillman Avenue along the west side of 39th Street, and 120 feet north of Skillman along its western boundary.

No potential historical archaeological sites were documented in this area (Figures 11 and 16).

According to the 1907 "Contour Map of Sunnyside Yard" (Figure 7) which details pre-yard contours and elevations, this part of the APE was once on the upper slopes of a hill which probably reached it summit south of Skillman Avenue. Pre-development elevations in this section of the yard were greater than 77.25 feet, increasing as one proceeded to the southwest.

Current elevations in this area of the APE lie between 70 and 35 feet (Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated 2002), indicating that at least 7.25 to greater than 32.25 feet of the pre-yard surface were removed at the time of rail yard construction. This regrading would have effectively destroyed any potential archaeological deposits from the prehistoric period.

3.3.1 Prehistoric Archaeological Potential

The area of the former Block 116, extending from 188 to 356 feet south of former Middelburg Avenue along the west side of former Harold Street, and approximately 50 feet west of former Harold Street, has been identified as having potential prehistoric sensitivity, based on the documentary and archaeological data indicating that Native Americans have inhabited the vicinity during the pre- and proto-historic eras, as well as data describing the pre-development environment and topography of the APE. Sensitivity is also determined by a location's lack of deep subsurface disturbance, which can eliminate this potential. Areas with no or low sensitivity ratings are ***not*** considered to have the archaeological potential to be impacted, and are not mapped

Based on these factors, the APE for the 39th Street Substation and proposed sewer is rated as having a low potential prehistoric sensitivity (A more detailed discussion of the determination of prehistoric archaeological potential is found in the original report on pages AR3-65 to AR3-68), and the following area is an addition to the list of areas determined to possess "Low Potential Sensitivity" as found on page AR3-68 in the original report:

- Block 116 (eastern 50 feet between 188 and 356 feet south of former Middleburg Avenue)

3.3.2 Historical Archaeological Potential

The same area of the former Block 116, extending from 188 to 356 feet south of former Middelburg Avenue along the west side of former Harold Street, and approximately 50 feet west of former Harold Street, has been identified as being potentially sensitive for archaeological resources relating to the British and Hessian troops who occupied the area during the Revolutionary War (1776—1783) (Figures 19, 20). This area is located approximately 0-50 feet west of the 39th Street Bridge and 0-278 feet north of the LIRR Main Line. Soldiers' huts were visible for decades after the Revolution, and the discovery of related artifacts in the plow zones of area farms was common into the late 19th century (Seyfried 1984b).

The following area is an addition to the list of areas determined to possess historical archaeological potential as discussed on page AR3-69 in the original report:

- APE between the Honeywell Street and 39th Street Bridges:
  Location #14: Block 116 (eastern 50 feet between 188 and 356 feet south of former Middleburg Avenue, a.k.a. an area approximately 0-50 feet west of the 39th Street Bridge and 0-278 feet north of the LIRR Main Line)

Please see Figure B, "Areas of Potential Archaeological Sensitivity."

3.5 Mitigation Recommendations

This addendum repeats the recommendations of the original report for mitigation measures for locations determined to have a low sensitivity rating for prehistoric archaeological resources (page AR3-70): "[F]urther consideration, research, testing or other mitigation measures of these locations for buried cultural remains from the **prehistoric period** is not recommended.

Because the area potentially sensitive for shallowly-buried Revolutionary War remains in the new Block 116 section of the APE (eastern 50 feet between 188 and 356 feet south of former Middleburg Avenue, a.ka. an area approximately 0-50 feet west of the 39th Street Bridge and 0-278 feet north of the LIRR Main Line) lies approximately 50 feet to the east of the proposed construction impact zone, it is possible that the potentially sensitive location can be avoided. This would mean that no construction involving subsurface excavation or disturbance would occur in this location, including regrading.

If avoidance is not possible, e.g. if construction of the sewer were to occur in the sensitive area described above and excavation would extend beneath the fill into sensitive soils, potential adverse impacts to archaeological resources could occur. Therefore, it is our recommendation that this area be added to the Stage 1B Archaeological Field Testing Protocol found within Appendix D of the *Long Island Rail Road East Side access Construction Protection Plan,* prepared for the East Side Access Project and approved by SHPO in April 2004. This protocol

stipulates that once construction locations and impact depths have been confirmed, they will be compared to the potentially-affected areas of sensitivity to evaluate the potential for adverse effects. Due to issues of contamination and shallow groundwater in the Sunnyside Yard complex, construction within any of the sensitive areas in the complex would be monitored by a professional archaeologist as described in Appendix D of the Construction Protection Plan.

3.7 Appendix

3.7.1 Block Histories

- **APE between Honeywell Street and 39th Street Bridges**

Former Block 115

The Block 115 section of the APE lies between former Van Pelt and Harold Streets, with former Middleburg Avenue on the south, and the Long Island Rail Road right-of-way on the north. During the 19th century the block was part of the much larger Bragaw farm, and the block was divided into lots by the 1890s, but no structures are recorded there (Dripps 1874; Figure 11).

Although there are no recorded historical structures in this part of the APE, sections of the railroad yard along Middelburgh Road/Middleburg Avenue were heavily manned by British troops during the Revolutionary War occupation of 1776 to 1783. Soldiers were bivouacked in the farmhouses, and others built their huts and pitched their tents on the farms all along the road and in the fields. Into the 1880s and 1890s some of the huts were still visible, and there were regular reports of farmers plowing up Revolutionary War relics (Munsell 1882; Seyfried 1984b).

Former Middleburg Avenue (between Van Pelt and Harold Streets)

The Middleburg Avenue sections of this APE extend eastward from the east side of former Van Pelt Street to the west side of former Harold Street. Although Middleburg Avenue was the area's major east/west route during the 18th century, no structures are recorded within the roadbed itself. Despite 19th-century street widenings, no adjacent homelots were added to this section of the APE, and historical maps record no buildings in the vicinity, before or after the construction of the LIRR roadbed in 1861 (Sidney 1849; Figure 11).

Although there are no recorded historical structures in this part of the APE, sections of the railroad yard along Middelburgh Road/Middleburg Avenue were heavily manned by British troops during the Revolutionary War occupation of 1776 to 1783. Soldiers were bivouacked in the farmhouses, and others built their huts and pitched their tents on the farms all along the road and in the fields. Into the 1880s and 1890s some of the huts were still visible, and there were regular reports of farmers plowing up Revolutionary War relics (Munsell 1882; Seyfried 1984b).

Former Block 116 (North of the Main Line)

This APE section of former Block 116 comprises most of the northern part of the block. Beginning on the south side of former Middleburg Avenue, it extends southward 356 feet along the west side of former Harold Street. The western boundary runs along the eastern side of the former Van Pelt Street 427 feet from the south side of former Middleburg Avenue. During the 19th century the block was part of the much larger Bragaw farm, and the block was divided into lots by the 1890s, but no structures are recorded there (Dripps 1874; Figure 11).

Although there are no recorded historical structures in this part of the APE, sections of the railroad yard along Middelburgh Road/Middleburg Avenue were heavily manned by British troops during the Revolutionary War occupation of 1776 to 1783. Soldiers were bivouacked in the farmhouses, and others built their huts and pitched their tents on the farms all along the road and in the fields. Into the 1880s and 1890s some of the huts were still visible, and there were regular reports of farmers plowing up Revolutionary War relics (Munsell 1882; Seyfried 1984b).

Former Block 116 (South of the Loop Track)

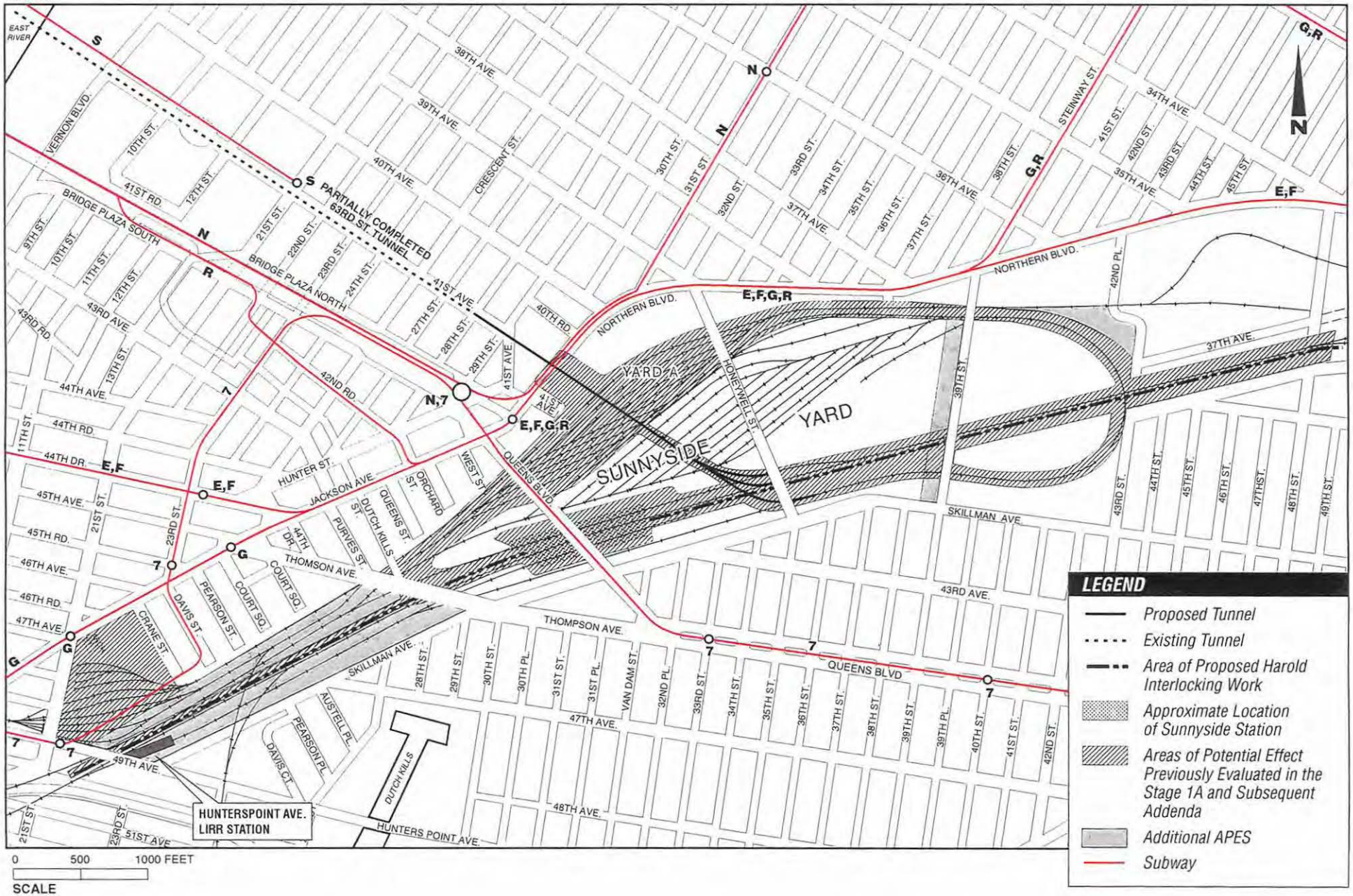
The section of former Block 116 comprises the southeastern section of the former block, with a 100-foot frontage on present Skillman Avenue extending west from former Harold Street. This part of the APE ranges 130 feet north of present Skillman Avenue along former Harold Street, and 120 feet north of Skillman along its western boundary.

During the 19th century the block was part of the much larger Bragaw farm, and the block was divided into lots by the 1890s, but no structures are recorded there (Dripps 1874; Figure 11).

9.0 Additional Bibliography

Parsons Brinckerhoff Quade & Douglas, Inc./STV Incorporated
2002 "Demolition of Superior Reed Building and Existing Rail Yard: Site Survey Plan." 95 sheets. Contract No. CQ025, Drawing No. CQ025-CT-1011. August 9.

12.27.04



MTA / LIRR

East Side Access

Figure A

Queens Alignment and Area of Potential Effect – Archaeological Resources

STAGE 1A ARCHAEOLOGICAL ASSESSMENT
MTA/LIRR EAST SIDE ACCESS PROJECT

HISTORICAL PERSPECTIVES, INC.
DECEMBER 1999

3.0 SUNNYSIDE YARD AND YARD A
ARCHAEOLOGICAL RESOURES EVALUATION

FIGURE 1-18

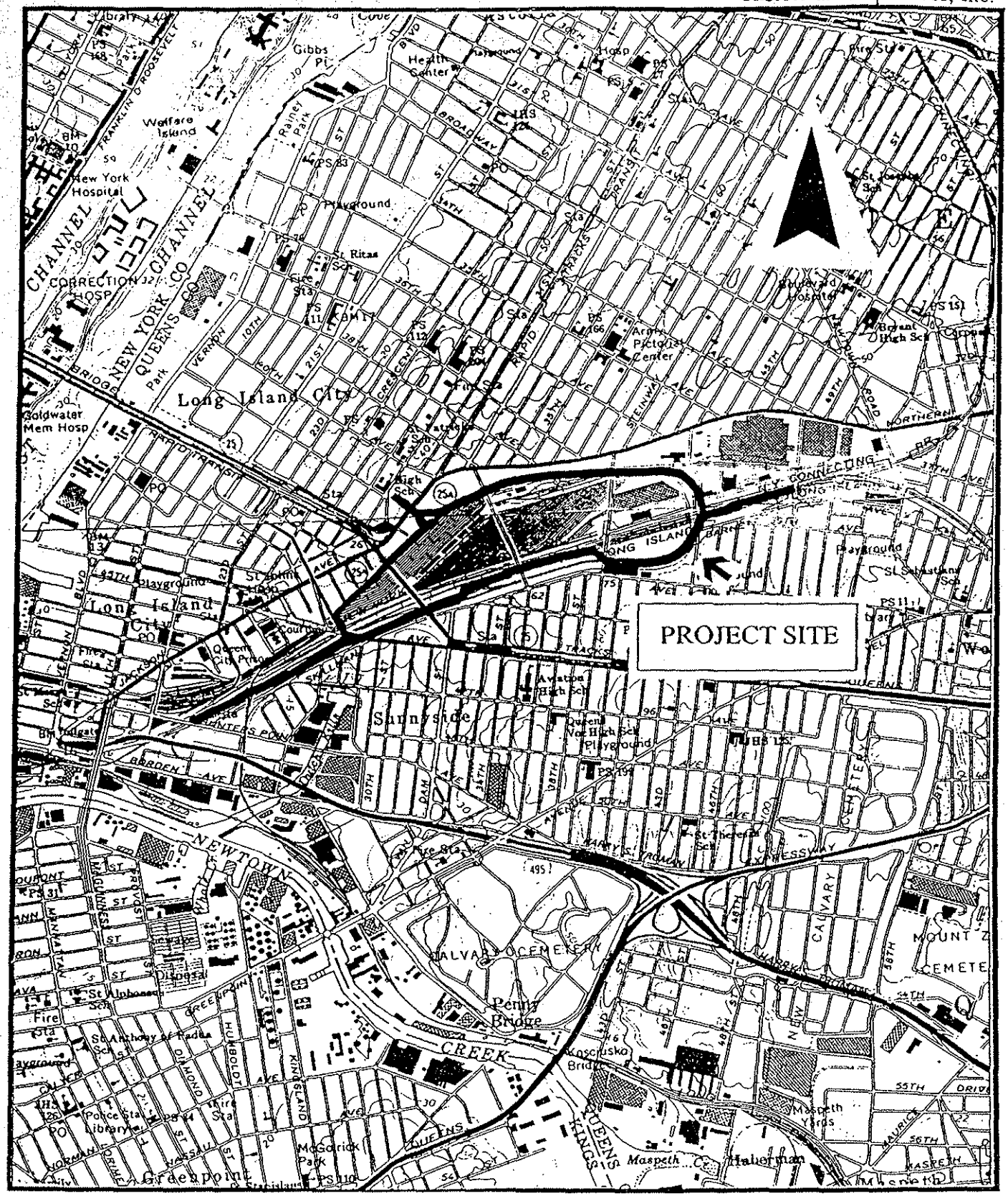


FIGURE 1

Project Site Location: *U.S.G.S., Central Park and Brooklyn Quads*, 1979
Scale 1:24,000

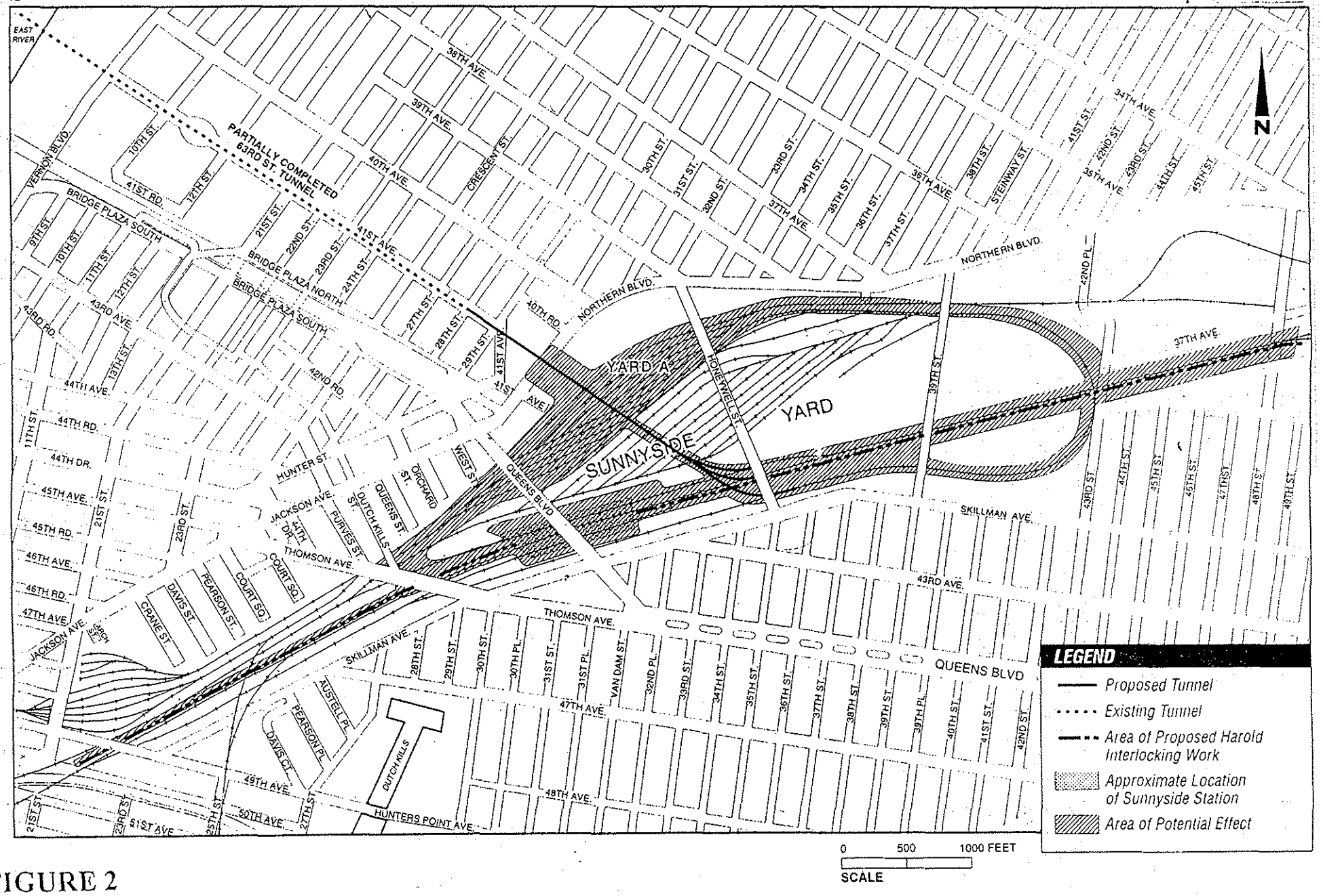


FIGURE 2
Project Site Boundaries.

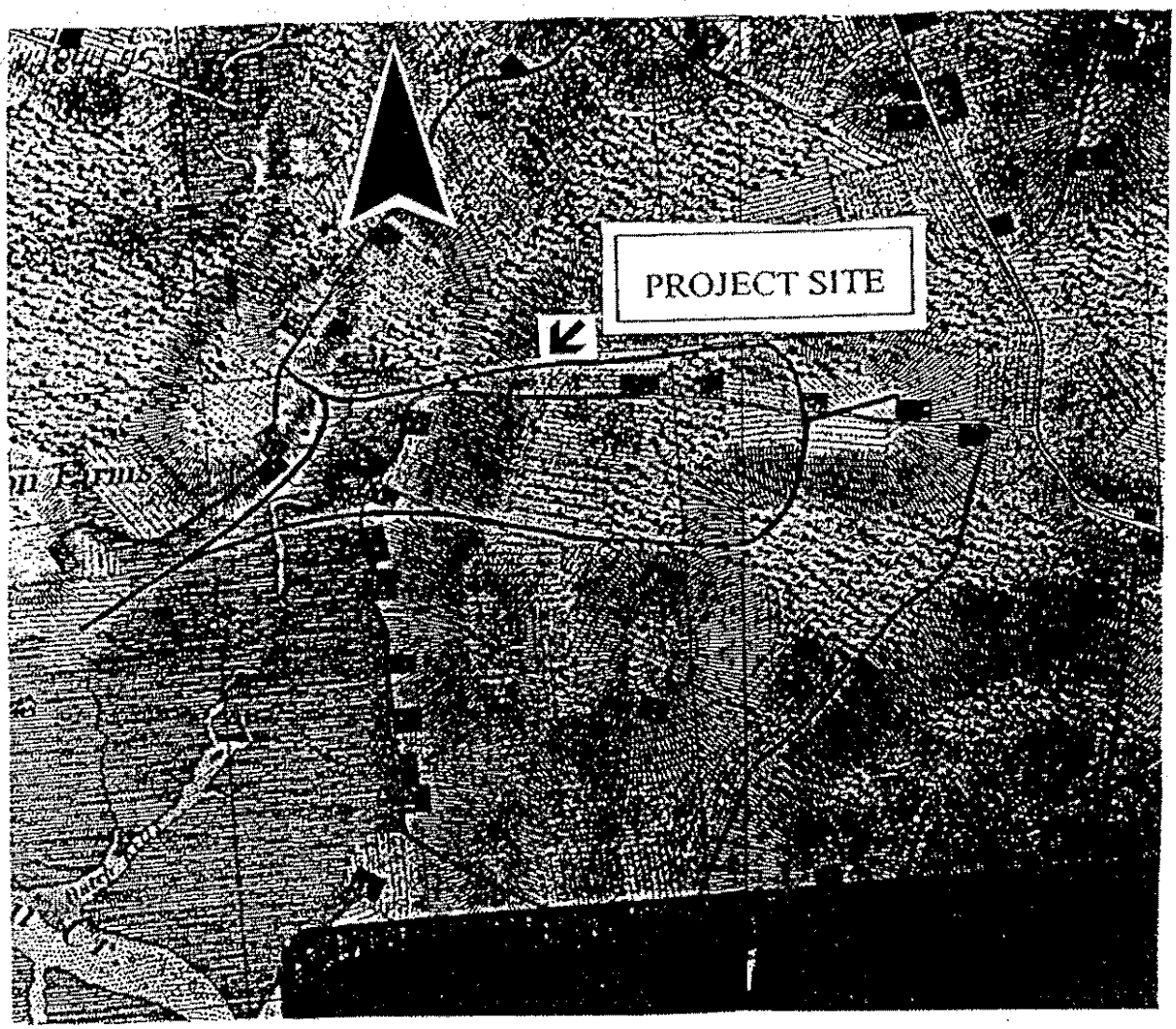


FIGURE 3
Coast Survey, U.S.C.& G.S., 1844-1845
Original scale: 1/30,000

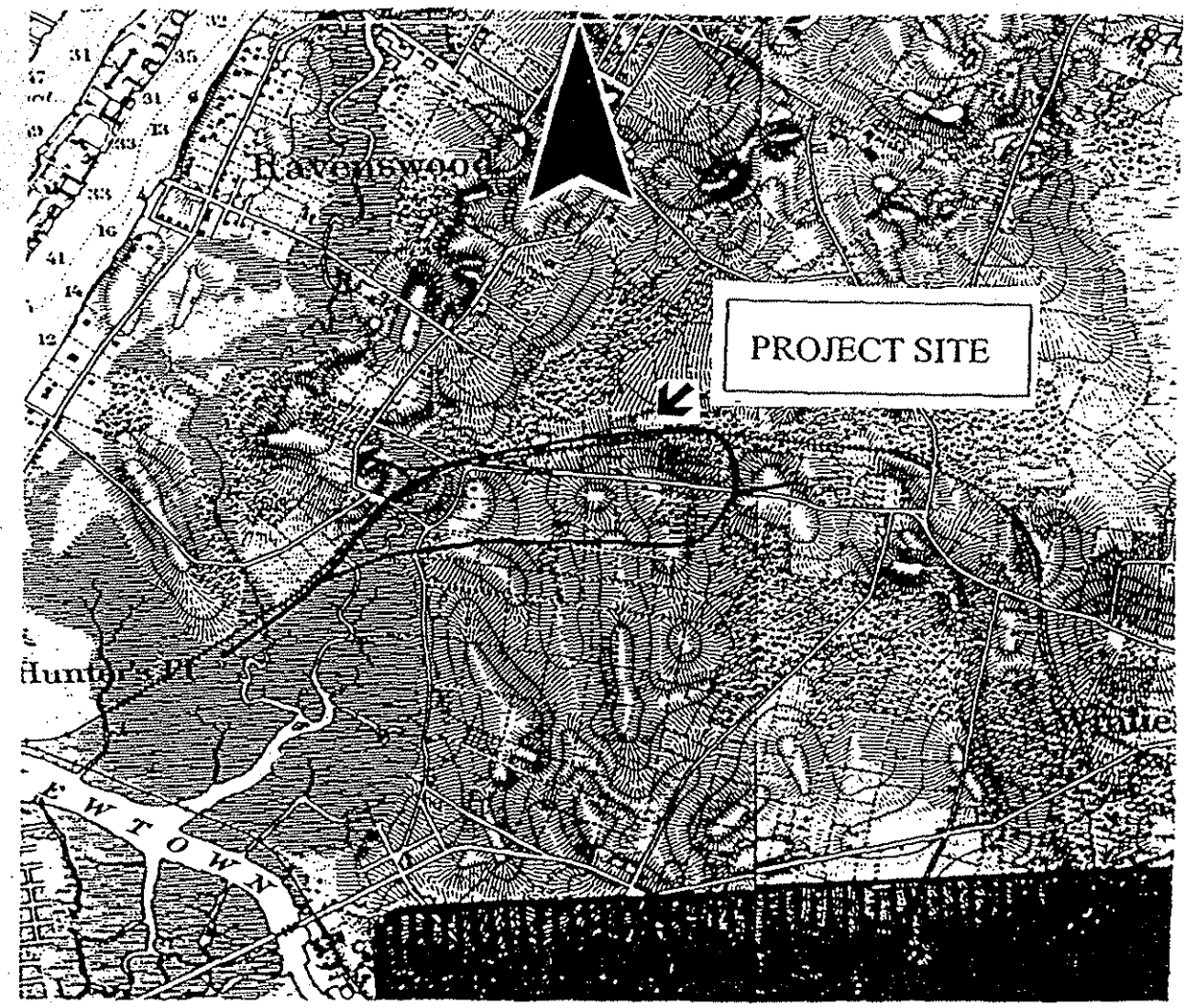


FIGURE 4
Coast Survey, U.S.G.S., 1874
Original scale: 1/40,000

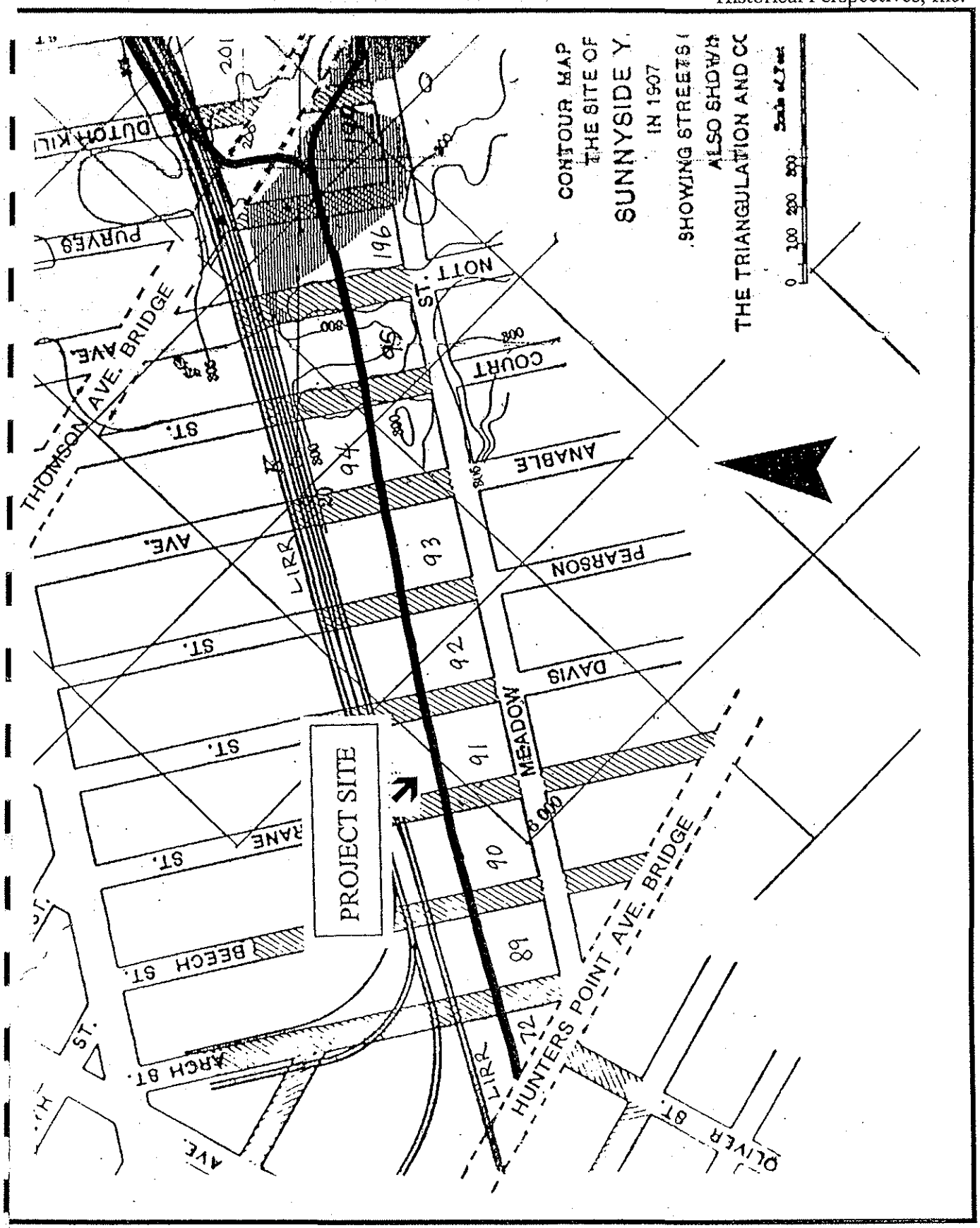


FIGURE 5

Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 107.1 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street

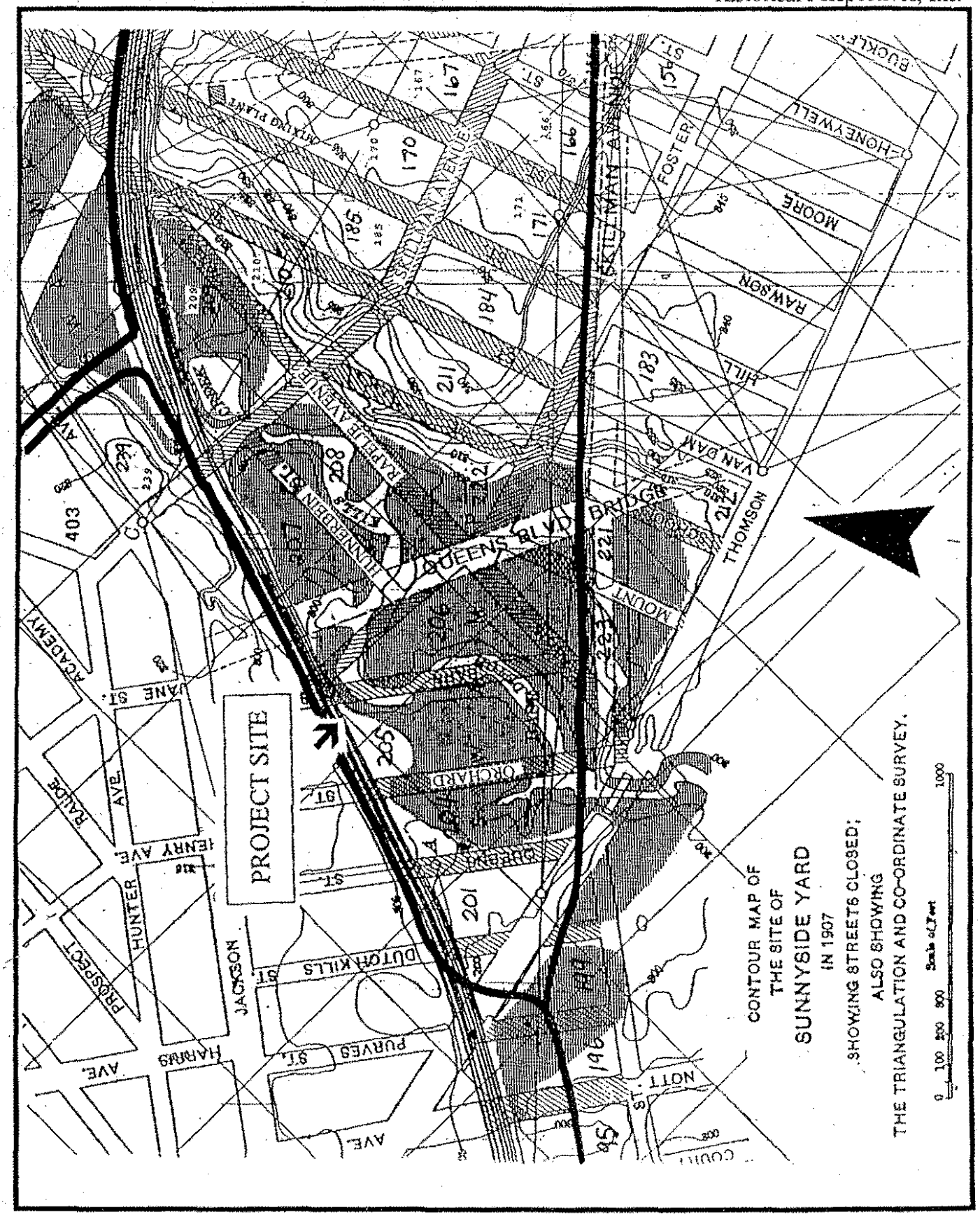


FIGURE 6

Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 166.7 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street

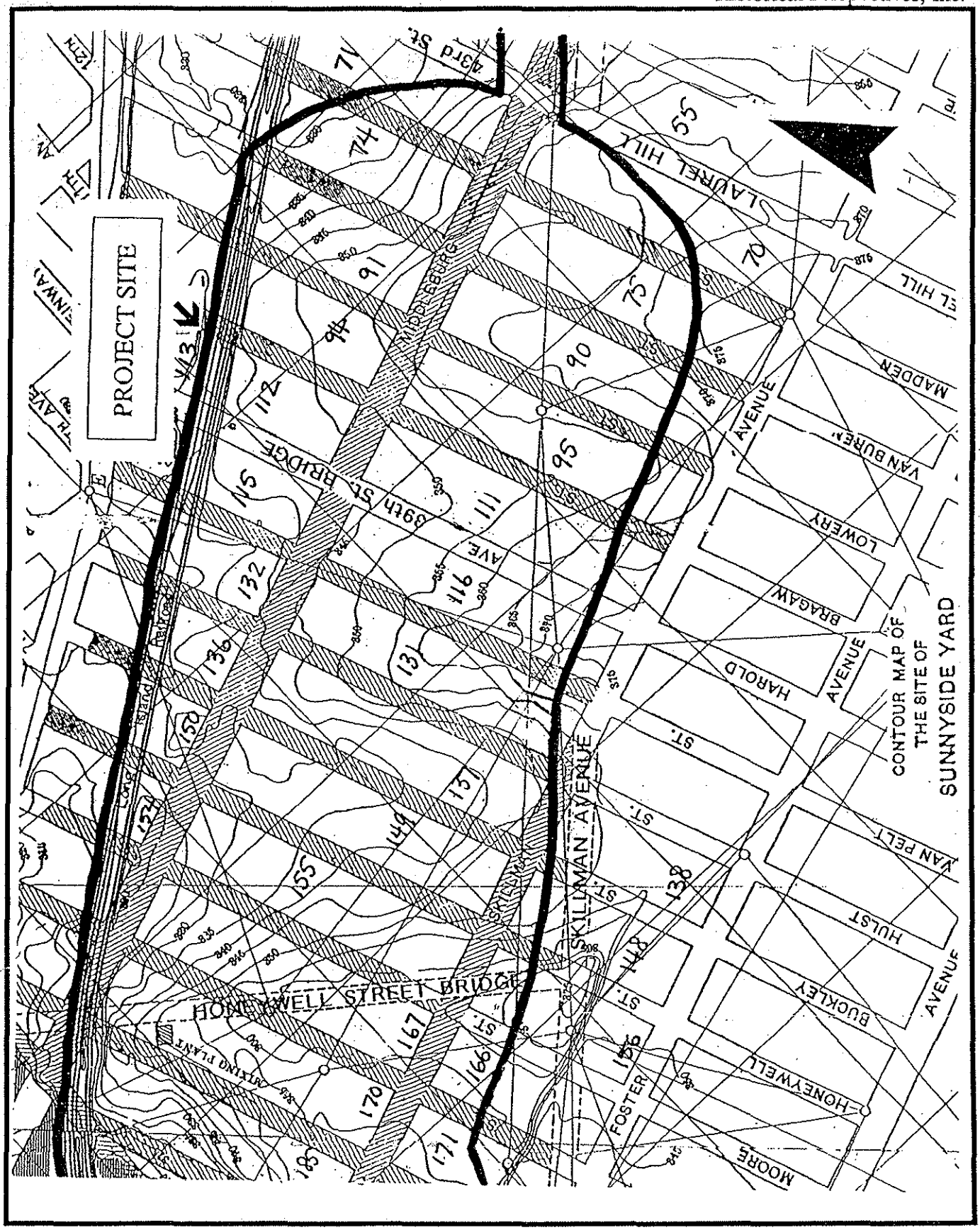


FIGURE 7

Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 166.7 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street

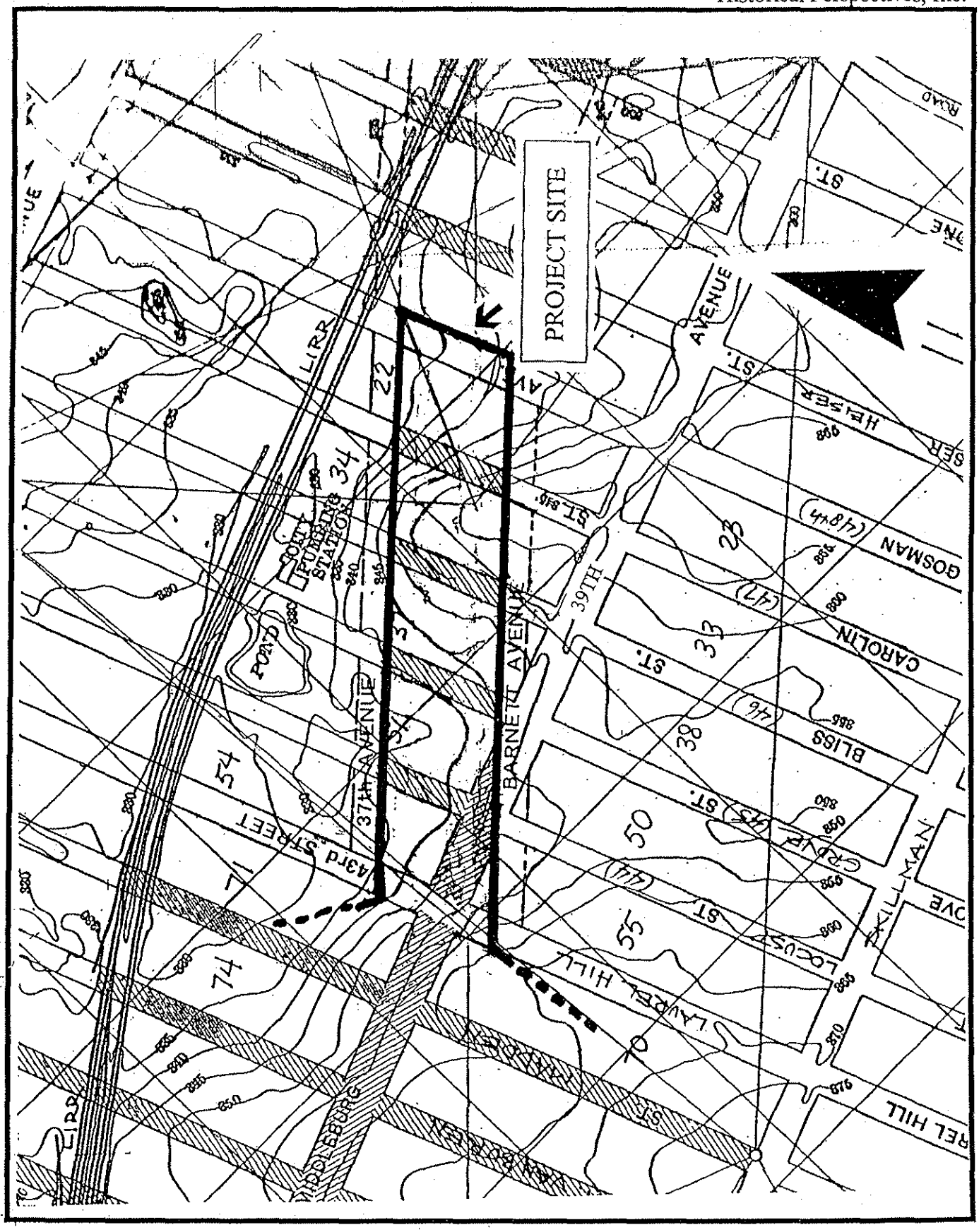


FIGURE 8

Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 136.8 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street

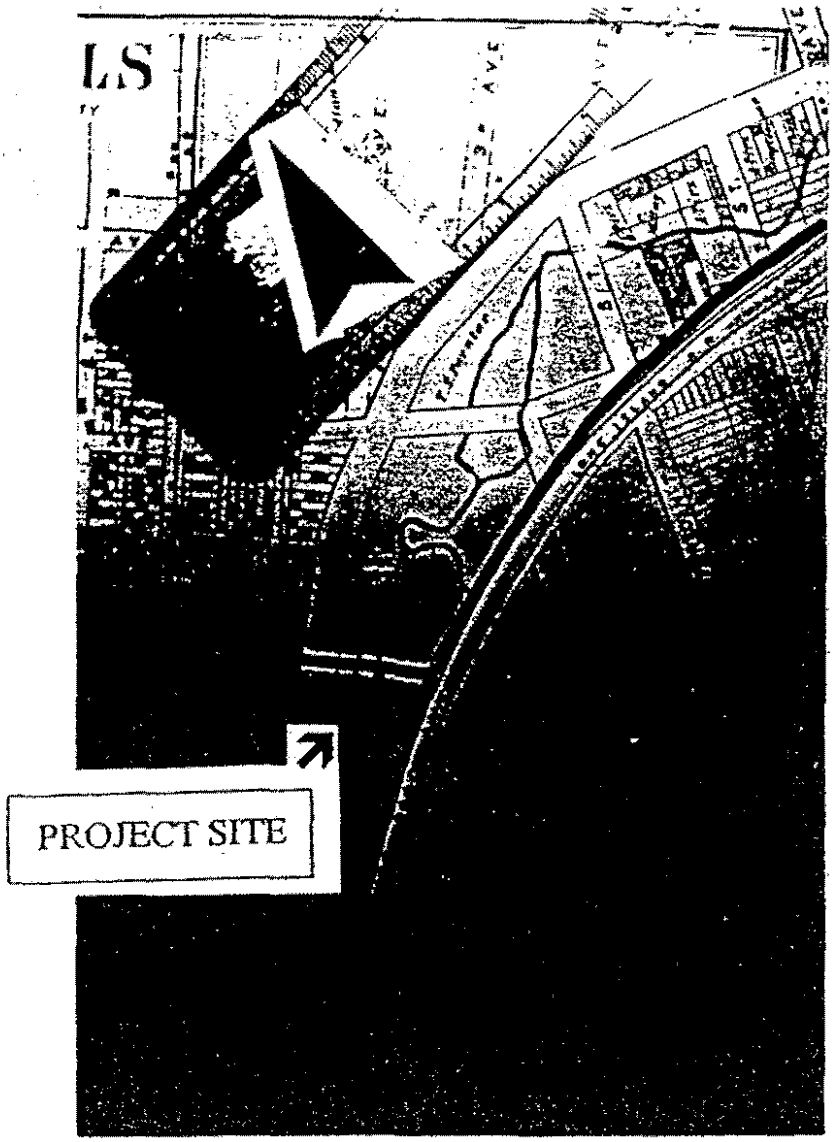


FIGURE 9
Atlas of Long Island, Beers, 1873
No Scale

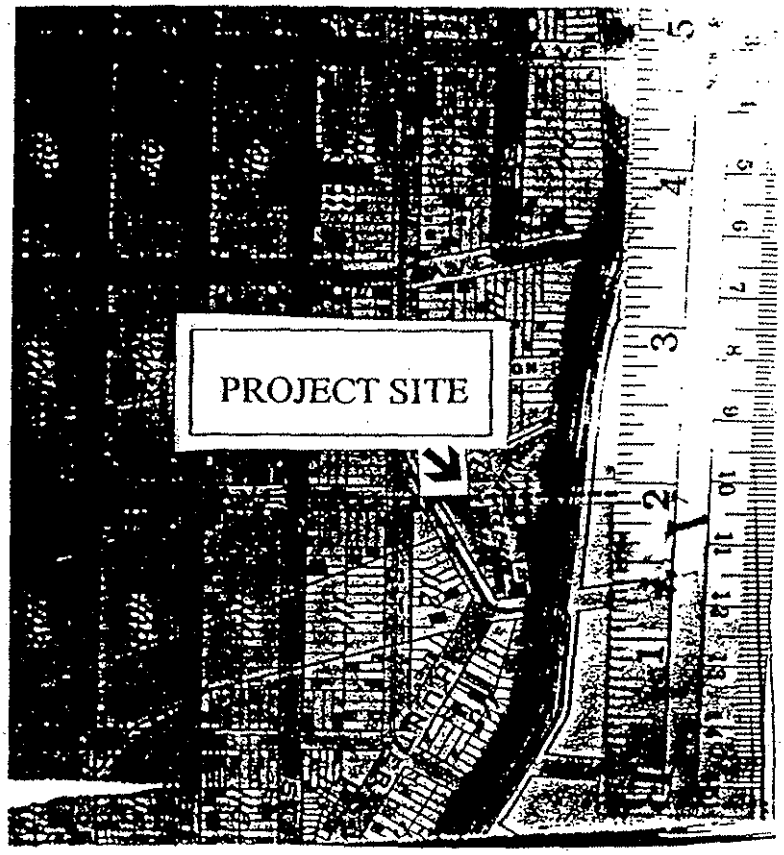


FIGURE 10
Atlas of Queens County, Wolverton, 1891
Scale: 1cm = c. 193 feet

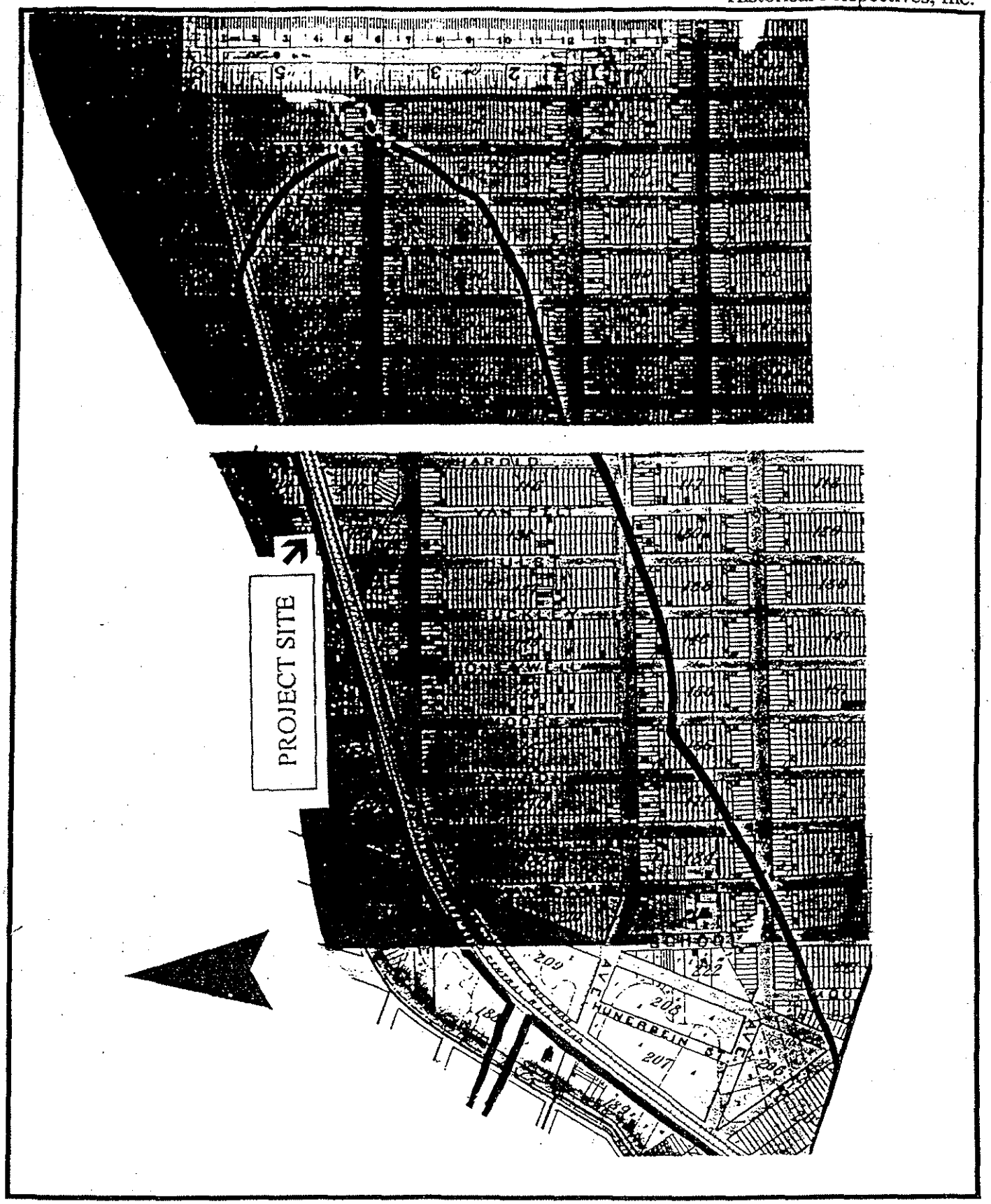


FIGURE 11

Atlas of Queens County, Wolverton, 1891

Scale: 1cm = c. 216 feet

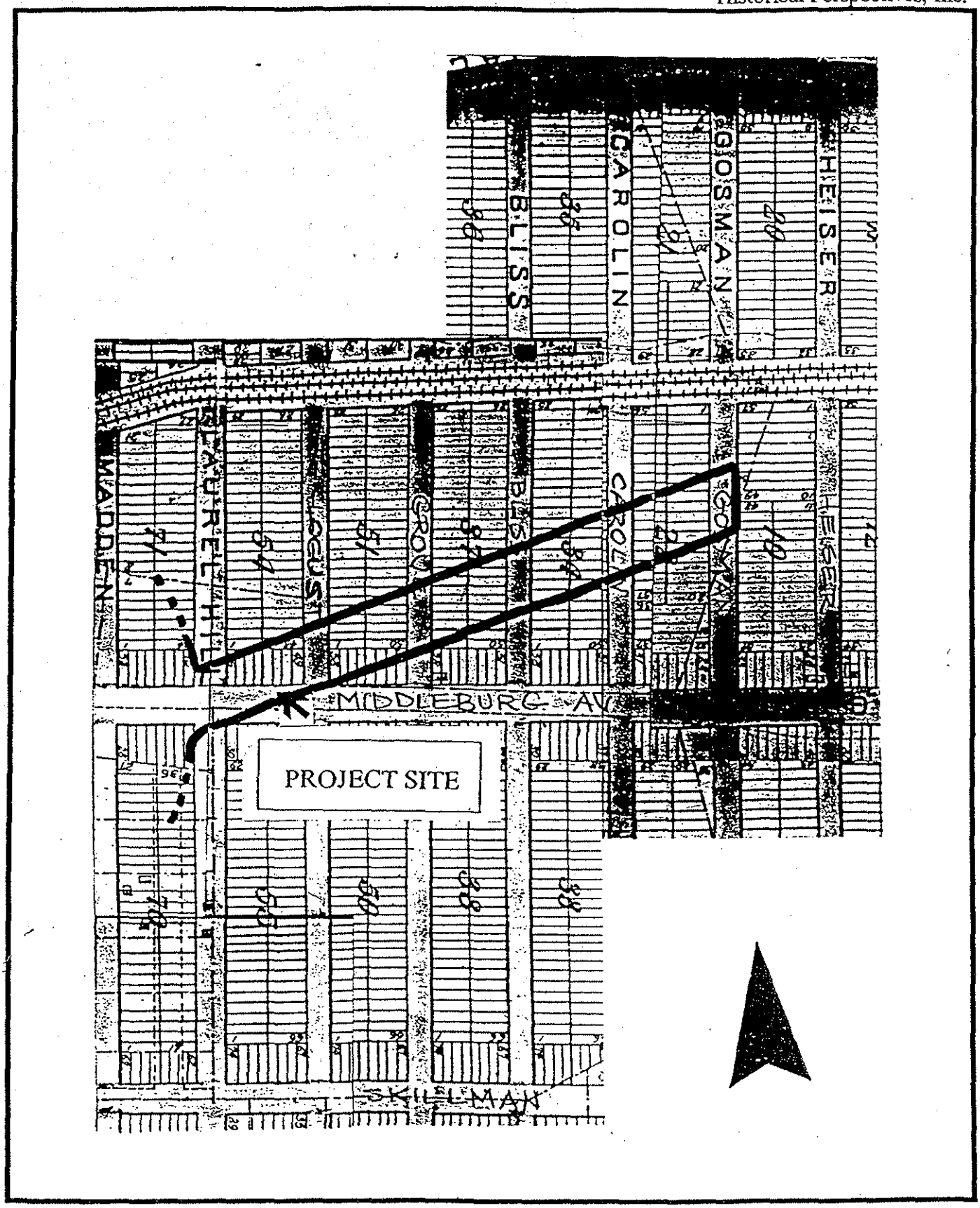


FIGURE 12
Atlas of Queens County, Wolverton, 1891
Scale: 1cm = c. 143 feet

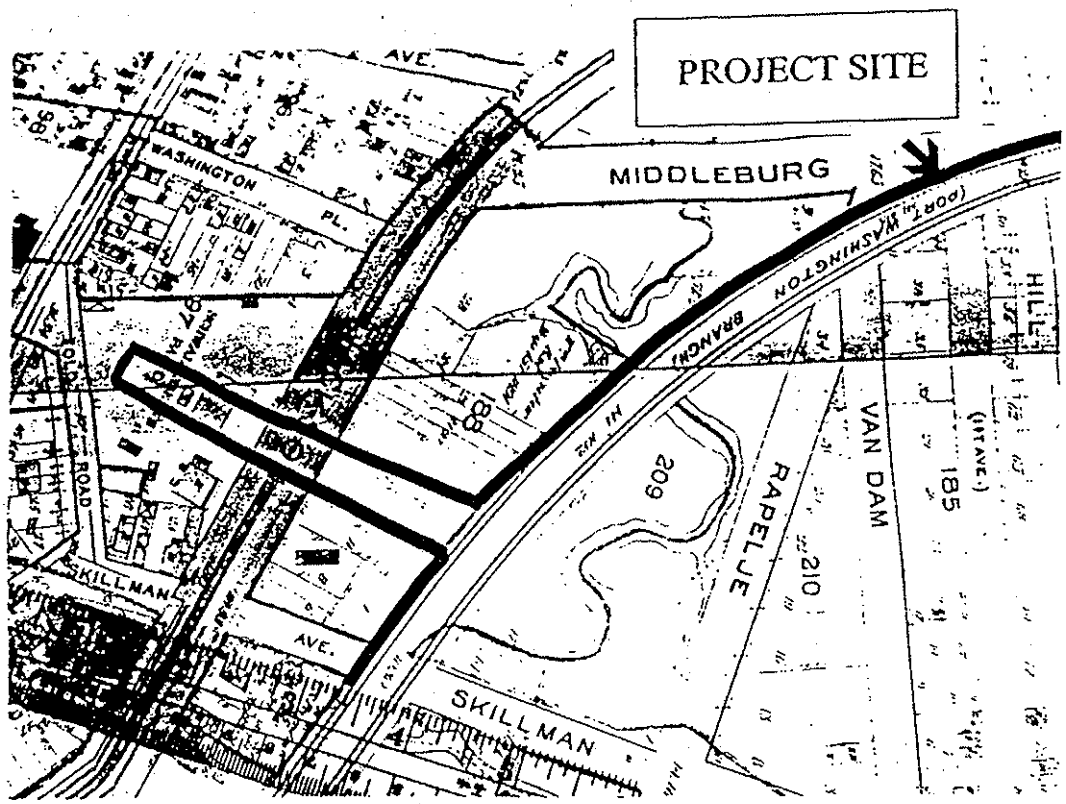


FIGURE 13
Atlas of the Borough of Queens, Hyde, 1903
Scale: 1cm = c. 110.3 feet

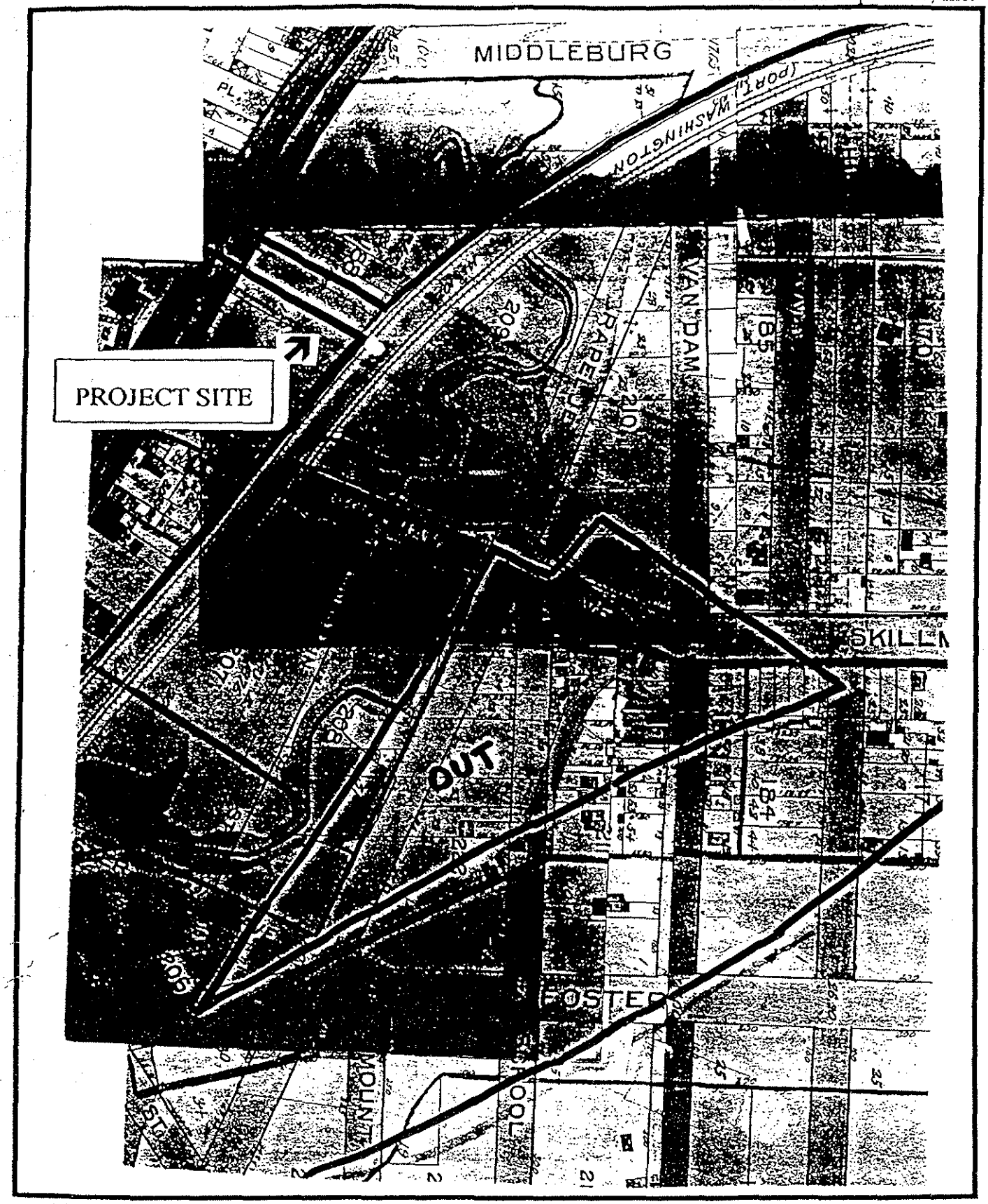


FIGURE 14

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 94 feet

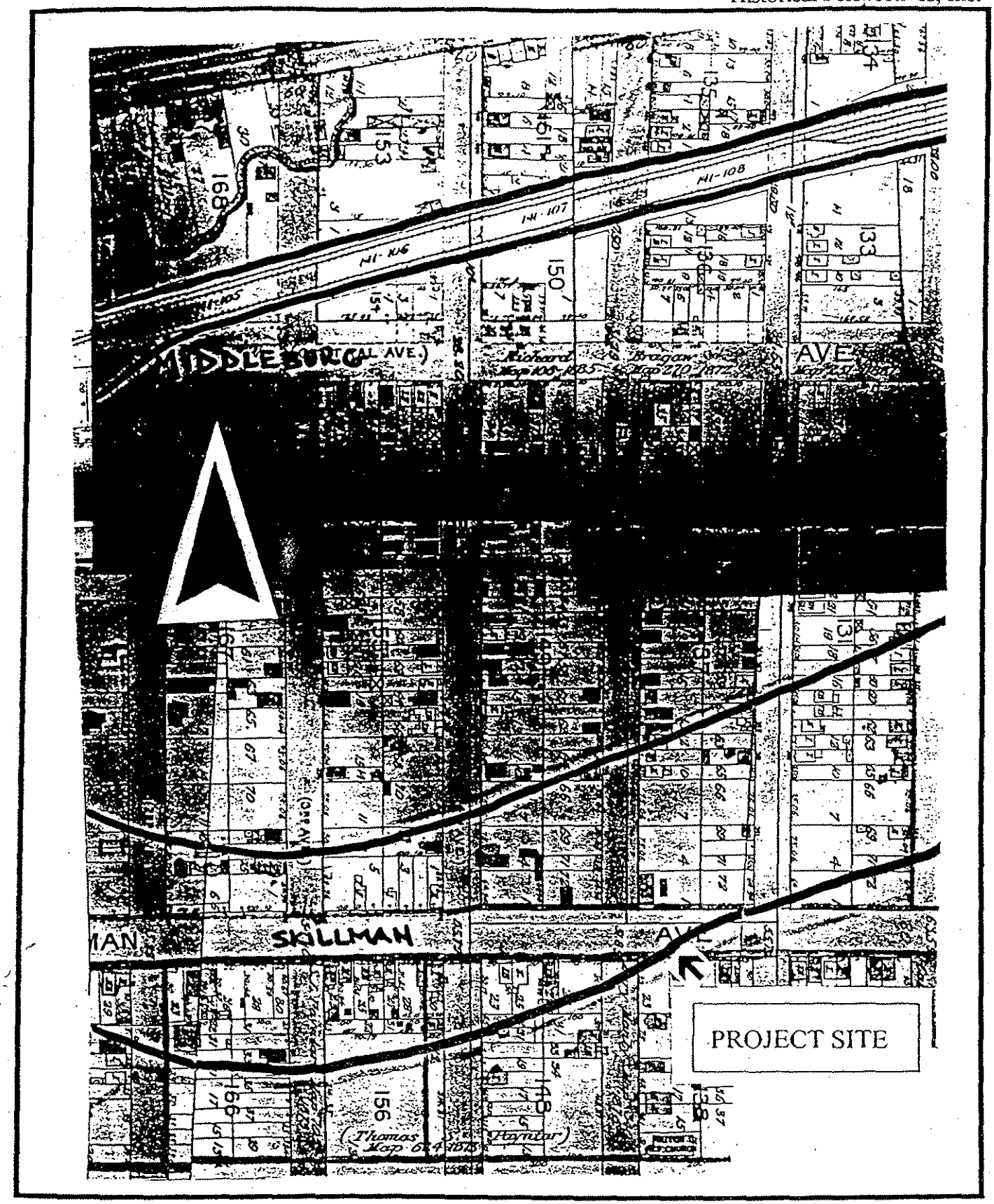


FIGURE 15

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 94 feet

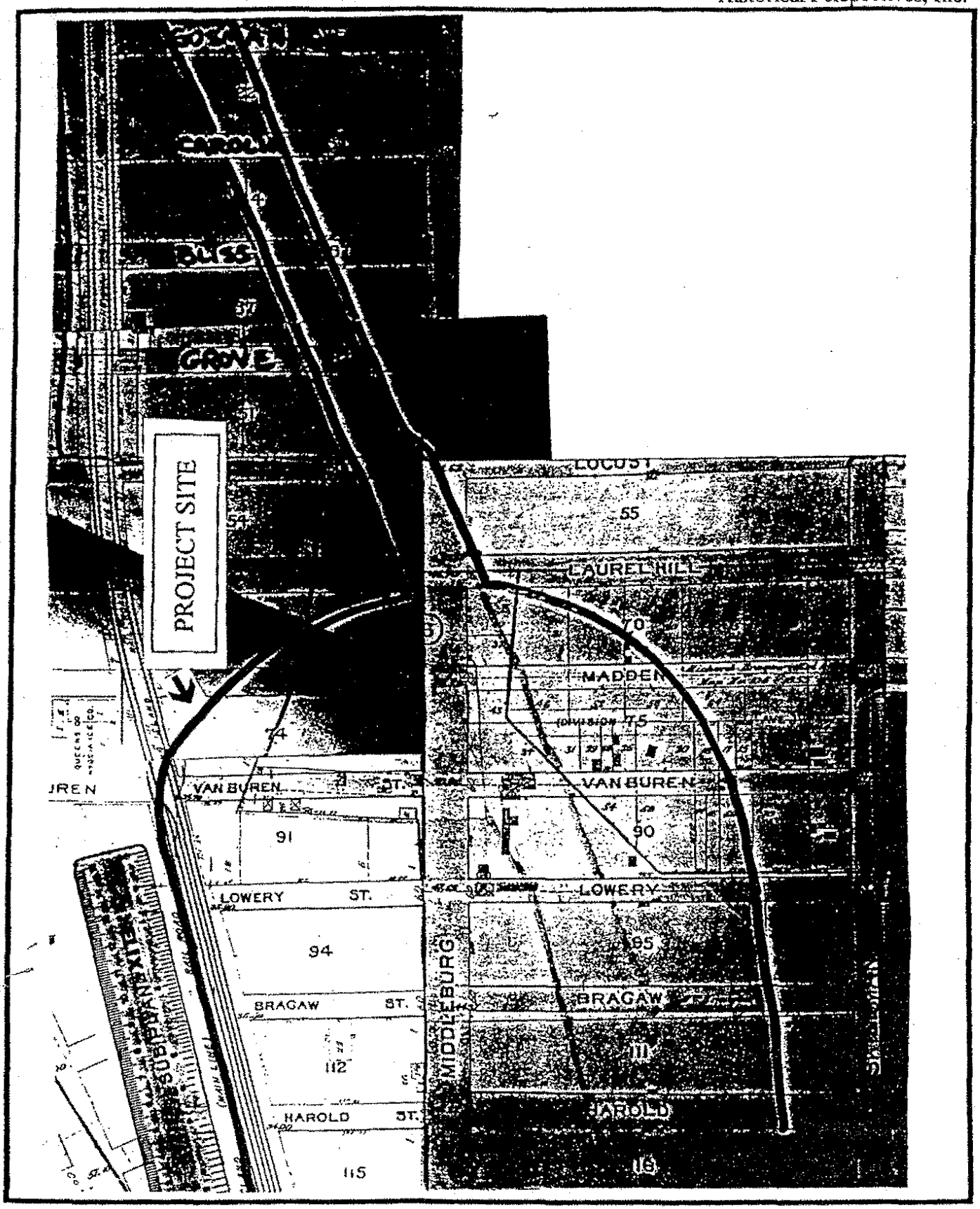


FIGURE 16

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 129 feet

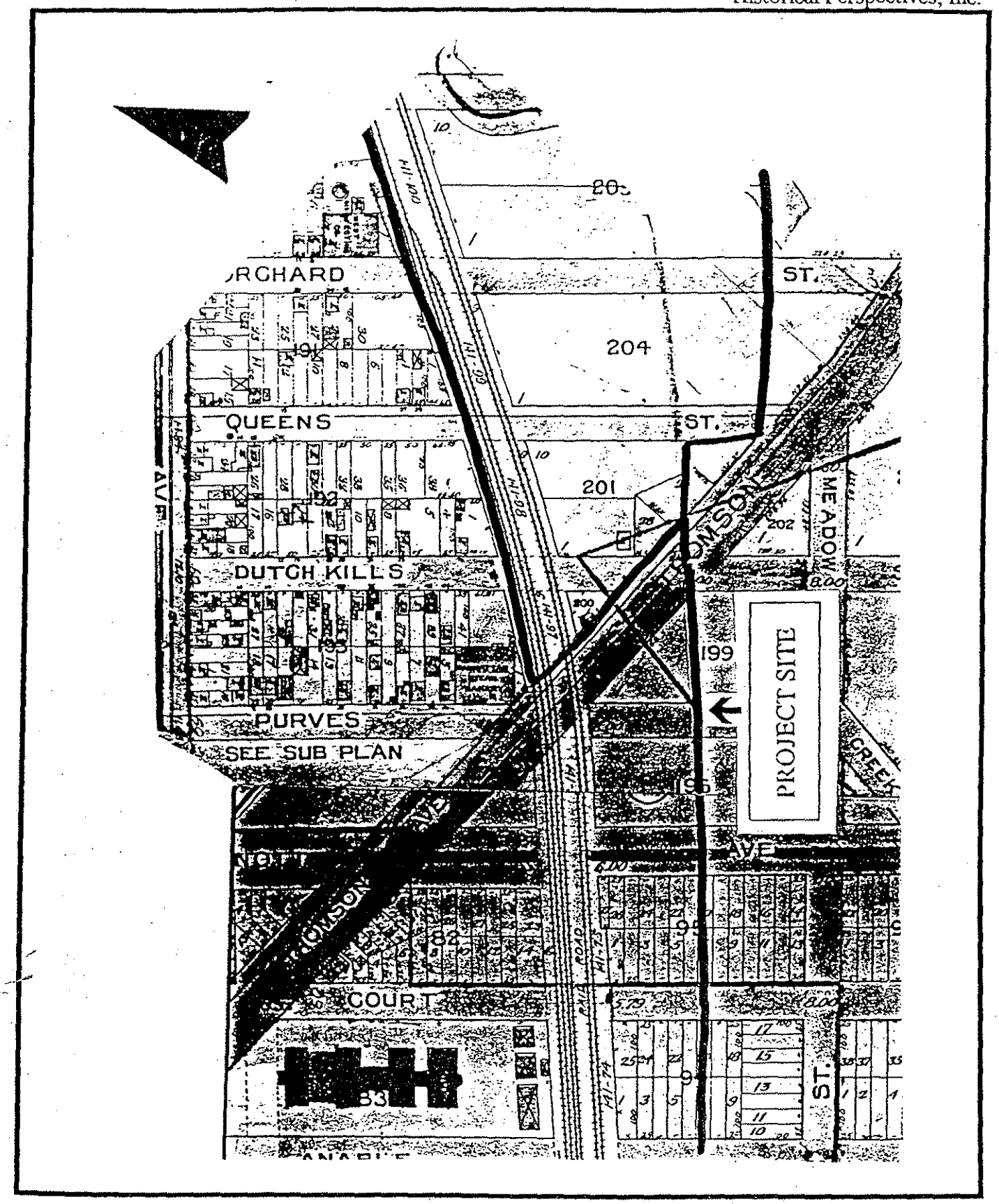


FIGURE 17

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 91.4 feet

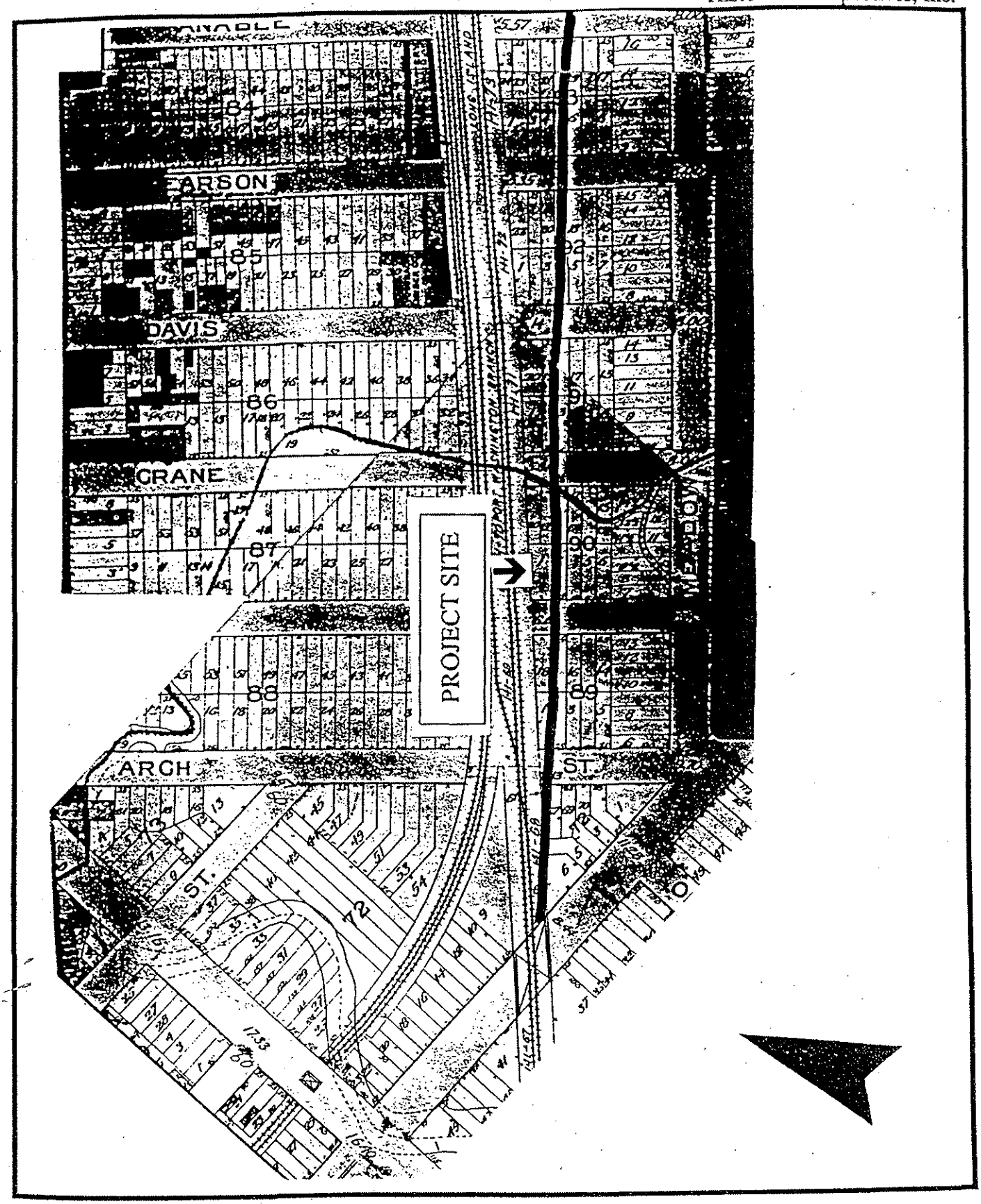


FIGURE 18

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 91.4 feet

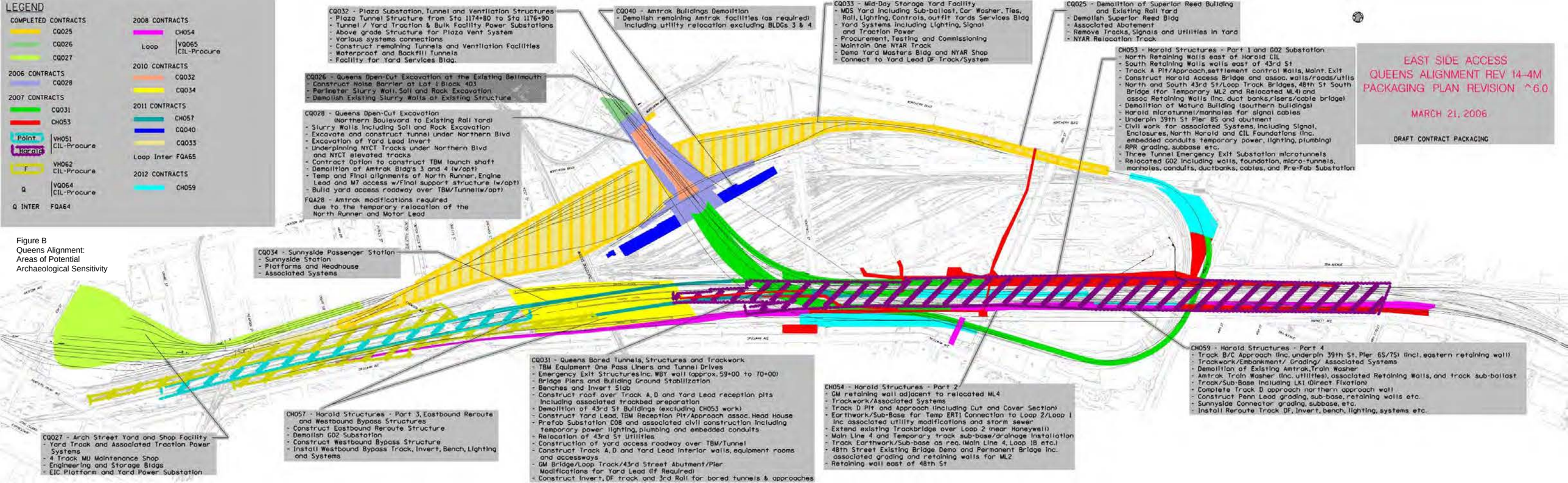


Figure B
Queens Alignment:
Areas of Potential
Archaeological Sensitivity

Addendum 2 — *Proposed Substation G02, Sunnyside Yard,*
Historical Perspectives, Inc., July 2005

July 25, 2005

Addendum

STAGE 1A ARCHAEOLOGICAL ASSESSMENT

MTA/Long Island Rail Road East Side Access Project

Re: Proposed Substation G02, Sunnyside Yard, Northwest corner of Skillman Avenue and the Honeywell Street Bridge.

The MTA/LIRR East Side Access Project proposes to construct a new substation in Sunnyside Yard in Long Island City, Queens, New York. Associated with the new substation is a retaining wall, which would be constructed to brace the slope between Skillman Avenue to the lower yard elevation. Project elements for the Queens Alignment of the MTA/LIRR East Side Access Project have been evaluated in the original Stage 1A archaeological study prepared for the project, *Stage 1A Archaeological Assessment, MTA/LIRR East Side Access Project,* prepared by Historical Perspectives, Inc., December 1999 ("Stage 1A") and in subsequent addenda to that report.

This addendum refers to Chapter 3.0, "Sunnyside Yard and Yard A Archaeological Resource Evaluation" of the original Stage 1A. Specifically, it refers to the following sections: **3.3 Existing Conditions** pages AR3-20 to –35; and *3.7.1 Block Histories,* page AR3-APX7 to –APX21. Figures 1-18 of the Stage 1A have been appended to this addendum and are referenced herein.

The location of Substation G02 has been added to the Area of Potential Effect (APE) between Queens Boulevard and Honeywell Street Bridges. At present, this part of the APE lies between present Skillman Avenue and the Sunnyside Yard Loop Track. It includes sections of former Block 156 and 166, and a section of former Moore Street. (Figures A and B)

3.3 Existing Conditions

- **APE between the Queens Boulevard and Honeywell Street Bridges**

Former Block 166

The former Block 166 section of this APE comprises the central part of the former block, extending between approximately 364 and 446.2 feet south of former Skillman Avenue along the east side of former Rawson Street, and between approximately 264.2 and 346.3 feet south of former Skillman on the west side of former Moore Street. No buildings were erected on this part of the block prior to the construction of the present railroad yard, and no potential historical archaeological sites are documented there (Sanborn 1898). (Figures 11 and 15)

Prior to yard construction, this section of the APE was along the slopes of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge. Pre-yard elevations in this section of former Block 166 were between 42.75 and 67.75 feet, sloping upward from southwest to northeast. (Figure 7)

At present the slope is generally reversed, rising from northwest to southeast. Elevations range from 25 to 27 feet along the Loop Tracks, in the northern section of the APE, and rise to between 44 and 52 feet along present Skillman Avenue. The southernmost 30 feet slope sharply upward, rising between 14 and 22 feet to present Skillman Avenue (MTA/LIRR 1999).

A comparison with current elevations indicates a decline in elevation of greater than 3 feet in all but a small section of former Block 166, adjacent to present Skillman Avenue. Such subsurface disturbance would have been sufficient to destroy all prehistoric archaeological potential.

In a southernmost section of this part of the APE, regrading at the time of yard construction resulted in a decline of between approximately zero, and less than 3 feet in elevation. This area along the north side of current Skillman Avenue begins 45 feet west of the west side of former Moore Street (the line of the west side of current 34th Street) and increases from a width of zero feet at that point to 22 feet wide at the east side of former Rawson Street (the eastern line of current 33rd Street).

Based on the narrowness of this strip; the steep grade created by yard construction, which would have exposed any shallowly- or partially-buried potential prehistoric resources to approximately 100 years of erosion; and the proximity of this part of the APE to present Skillman Avenue, which would have had resulted in subsurface impacts during grading and crowning episodes, it is unlikely that any potential prehistoric remains would have survived in this section of former Block 166.

Former Moore Street

The former Moore Street section of this APE extends between approximately 264.2 and 346.3 feet south of former Skillman Avenue on the east side of former Block 166, and between approximately 235.3 and 319.7 feet south of former Skillman on the west side of former Block 156. No buildings were erected in this part of the APE prior to the construction of the present railroad yard, and no potential historical archaeological sites are documented there (Sanborn 1898). (Figures 11 and 15)

Prior to yard construction, this section of the APE was along the slopes of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge. Pre-yard elevations were between 67.75 and 72.75 feet. (Figure 7)

At present, elevations in this section of the APE are between 25 and 54 feet (MTA/LIRR 1999), indicating that between approximately 13 and 47 feet of the pre-development surface were removed at the time of yard construction. Such regrading would have been sufficient to destroy all prehistoric archaeological potential.

Former Block 156

The former Block 156 section of this APE comprises the central part of the former block, extending between approximately 235.3 and 319.7 feet south of former Skillman Avenue along the east side of former Moore Street, and between approximately 135.4 and 226.4 feet south of

former Skillman on the west side of former Honeywell Street. No buildings were erected on this part of the block prior to the construction of the present railroad yard, and no potential historical archaeological sites are documented there (Sanborn 1898). (Figures 11 and 15)

Prior to yard construction, this section of the APE was adjacent to the top of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge. Pre-yard elevations were between 72.75 and 77.75 feet. (Figure 7)

At present, elevations in this section of the APE are between 25 and 61 feet (MTA/LIRR 1999), indicating that between approximately 11 and 52 feet of the pre-development surface were removed at the time of yard construction. Such regrading would have been sufficient to destroy all prehistoric archaeological potential.

3.3.1 Prehistoric Archaeological Potential AND 3.3.2 Historical Archaeological Potential

Based on the lack of documented historical archaeological sites in the Substation G02 section of the APE, and the depth of subsurface disturbance which would have destroyed all prehistoric archaeological potential, this part of the APE is not considered to have archaeological potential. No additions to the original report are necessary in these sections, and no further study, testing or other investigation is recommended.

3.7.1 Block Histories (Appendix)

Former Block 166

The former Block 166 section of this APE comprises the central part of the former block, extending between approximately 364 and 446.2 feet south of former Skillman Avenue along the east side of former Rawson Street, and between approximately 264.2 and 346.3 feet south of former Skillman on the west side of former Moore Street. No buildings were erected on the block prior to the construction of the present railroad yard, and no potential historical archaeological sites are documented there (Sanborn 1898). (Figures 11 and 15)

Prior to yard construction, this section of the APE was along the slopes of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge, about 175 feet to the east. (Figure 7) It was part of a property owned by the Payntar family, and although lotted by the 1890s, no buildings were erected on this part of the block prior to the construction of the present railroad yard (Sanborn 1898). (Figures 11 and 15)

No potential historical archaeological sites are documented on this part of the APE.

Former Moore Street

The former Moore Street section of this APE extends between approximately 264.2 and 346.3 feet south of former Skillman Avenue on the east side of former Block 166, and between

approximately 235.3 and 319.7 feet south of former Skillman on the west side of former Block 156.

Prior to yard construction, this section of the APE was along the slopes of a small hill whose summit was formerly at what is now the intersection of present Skillman Avenue and the Honeywell Street Bridge, about 115 feet to the east. (Figure 7) It was part of a property owned by the Payntar family. No buildings were erected there prior to the construction of the present railroad yard (Sanborn 1898). (Figures 11 and 15)

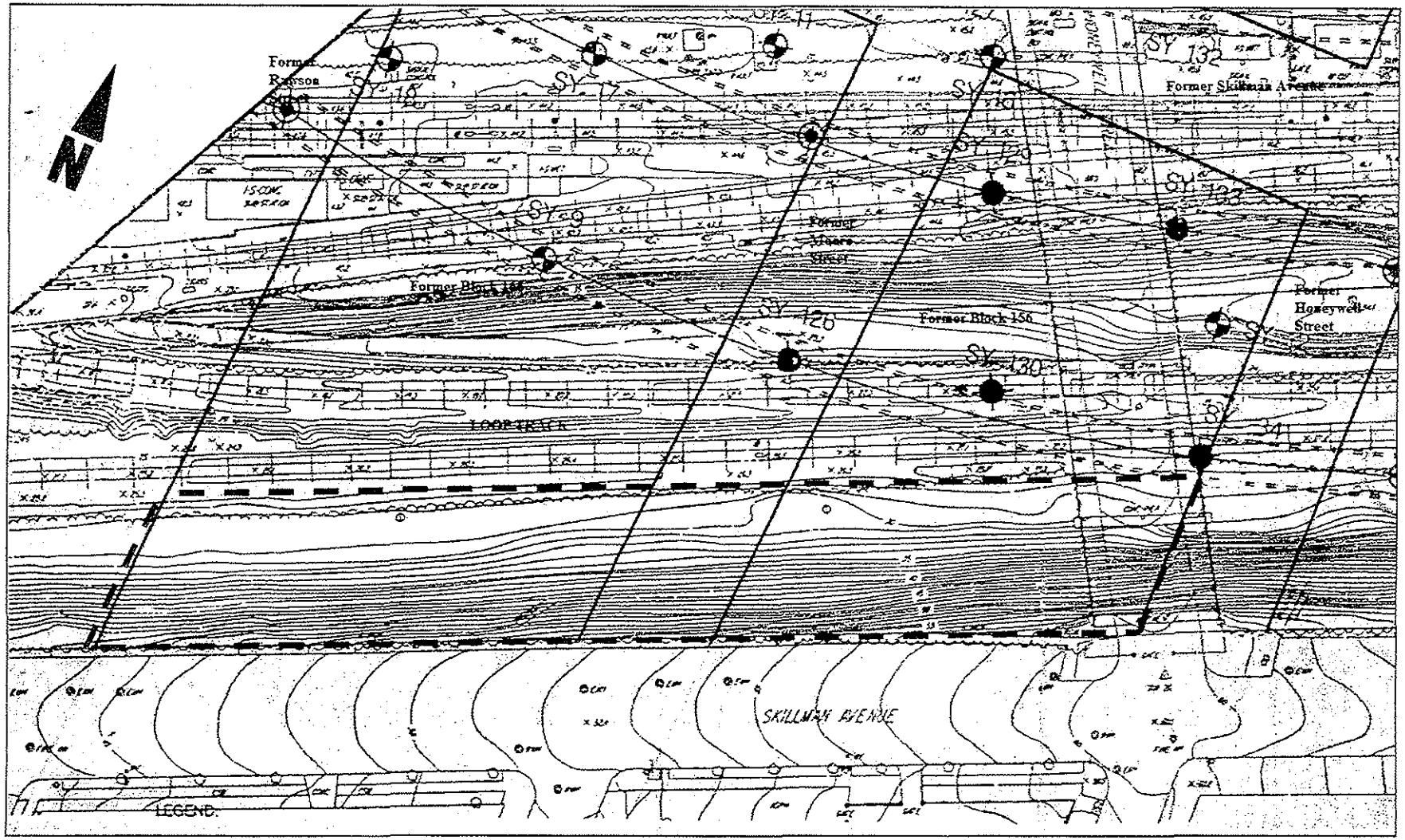
No potential historical archaeological sites are documented on this part of the APE.

Former Block 156

The former Block 156 section of this APE comprises the central part of the former block, extending between approximately 235.3 and 319.7 feet south of former Skillman Avenue along the east side of former Moore Street, and between approximately 135.4 and 226.4 feet south of former Skillman on the west side of former Honeywell Street.

Prior to yard construction, this section of the APE was along the slopes of a small hill whose summit was formerly at the present intersection of Skillman Avenue and the Honeywell Street Bridge. (Figure 7) It was part of a property owned by the Payntar family, and although lotted by the 1890s, no buildings were erected on this part of the block prior to the construction of the present railroad yard (Sanborn 1898). (Figures 11 and 15)

No potential historical archaeological sites are documented on this part of the APE.



Proposed Substation G02 (Base Map-MTA/LIRR East Side Access Project: Queens Tunnel, Proposed Stage-2 Subsurface Investigation Program, Boring Location Plan. Drawing no. B-7-2, Sheet 2 of 8, June 25, 1990).

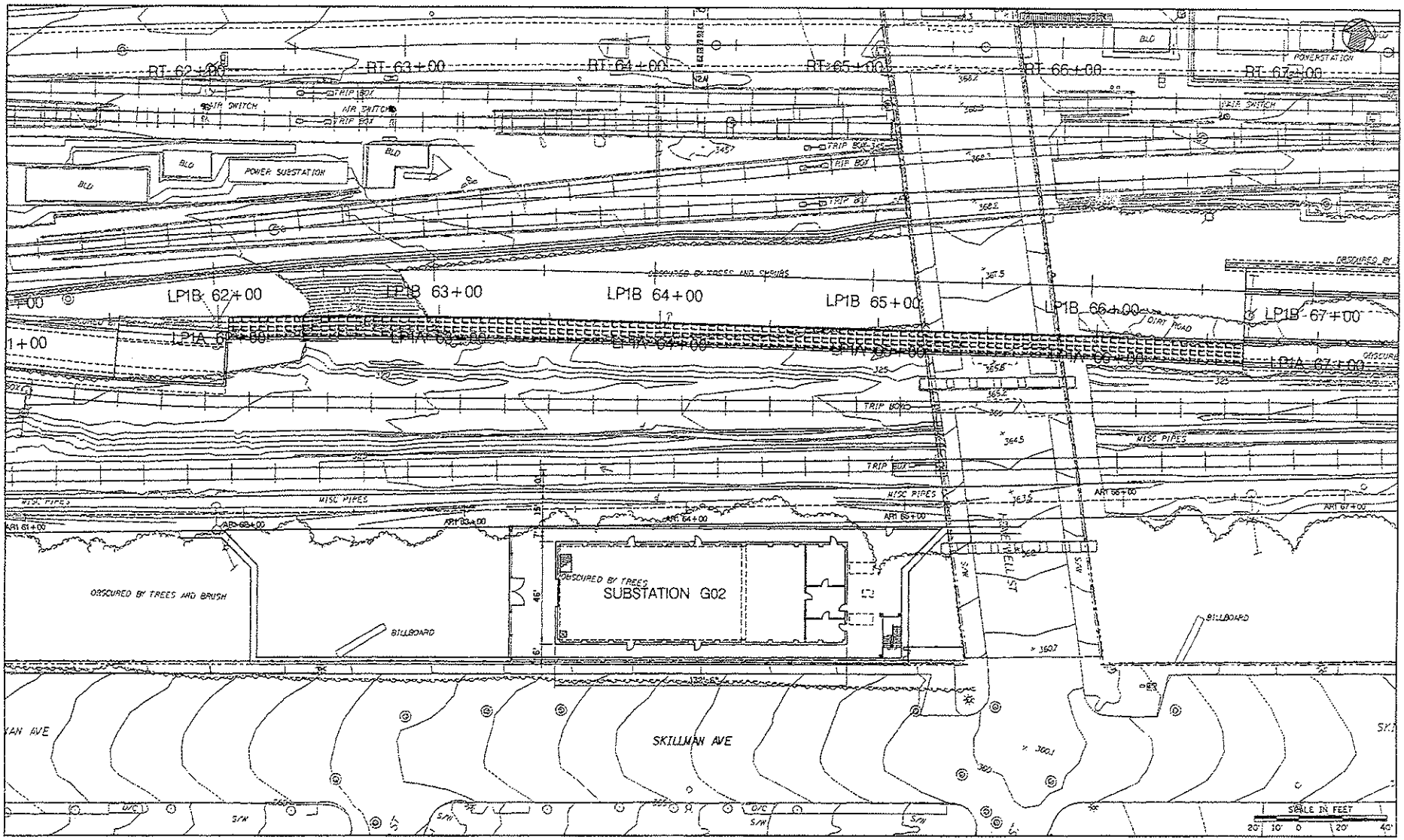
APE Boundaries

EAST SIDE ACCESS
HONEYWELL STATION

Area of Potential Effect - Proposed Substation G02

Addendum Figure A

7.25.05



EAST SIDE ACCESS
HONEYWELL STATION

Location of Proposed GO2 Substation and Retaining Walls

Addendum Figure B

STAGE 1A ARCHAEOLOGICAL ASSESSMENT
MTA/LIRR EAST SIDE ACCESS PROJECT

HISTORICAL PERSPECTIVES, INC.
DECEMBER 1999

3.0 SUNNYSIDE YARD AND YARD A
ARCHAEOLOGICAL RESOURES EVALUATION

FIGURE 1-18

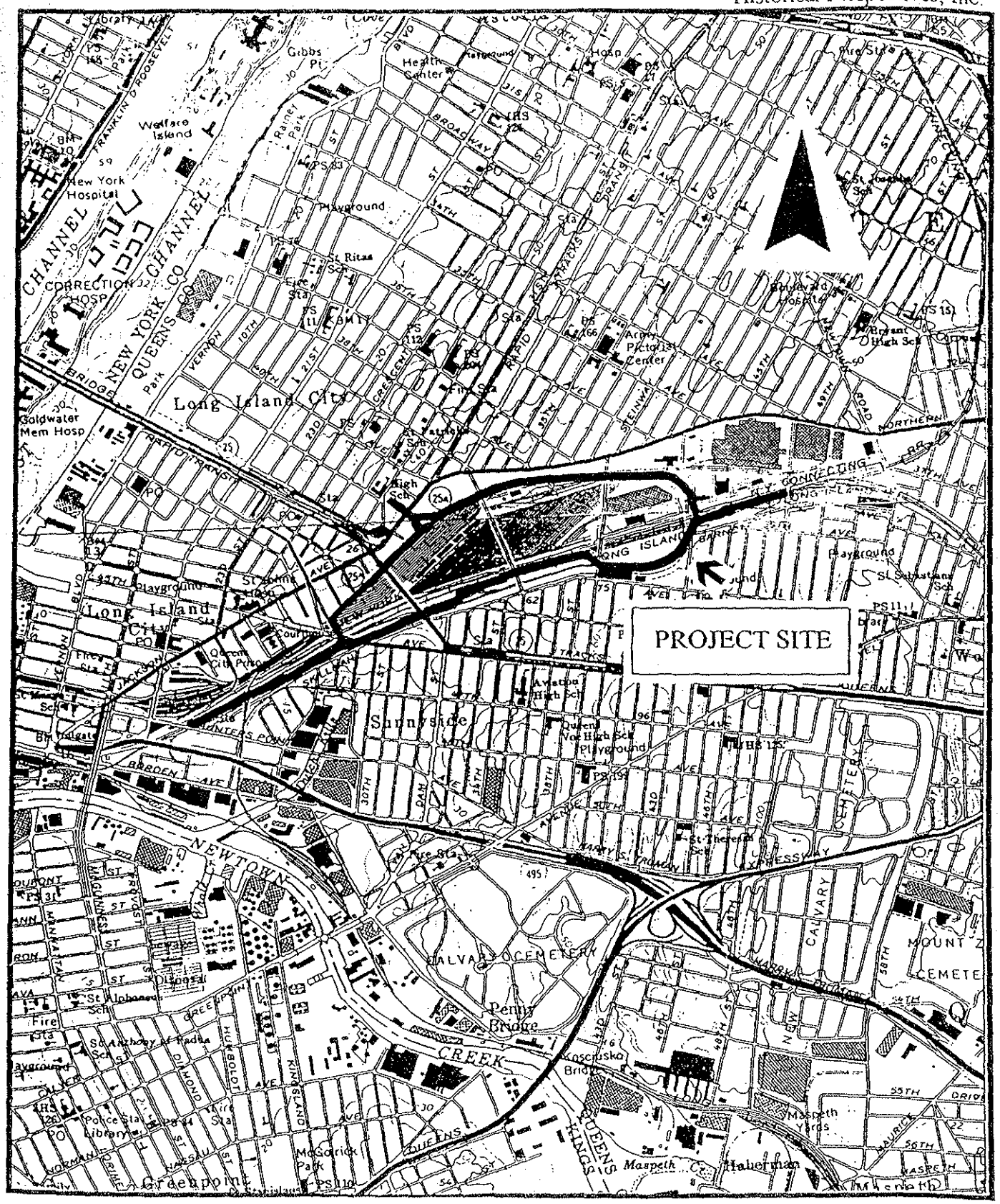


FIGURE 1

Project Site Location: *U.S.G.S., Central Park and Brooklyn Quads*, 1979

Scale 1:24,000

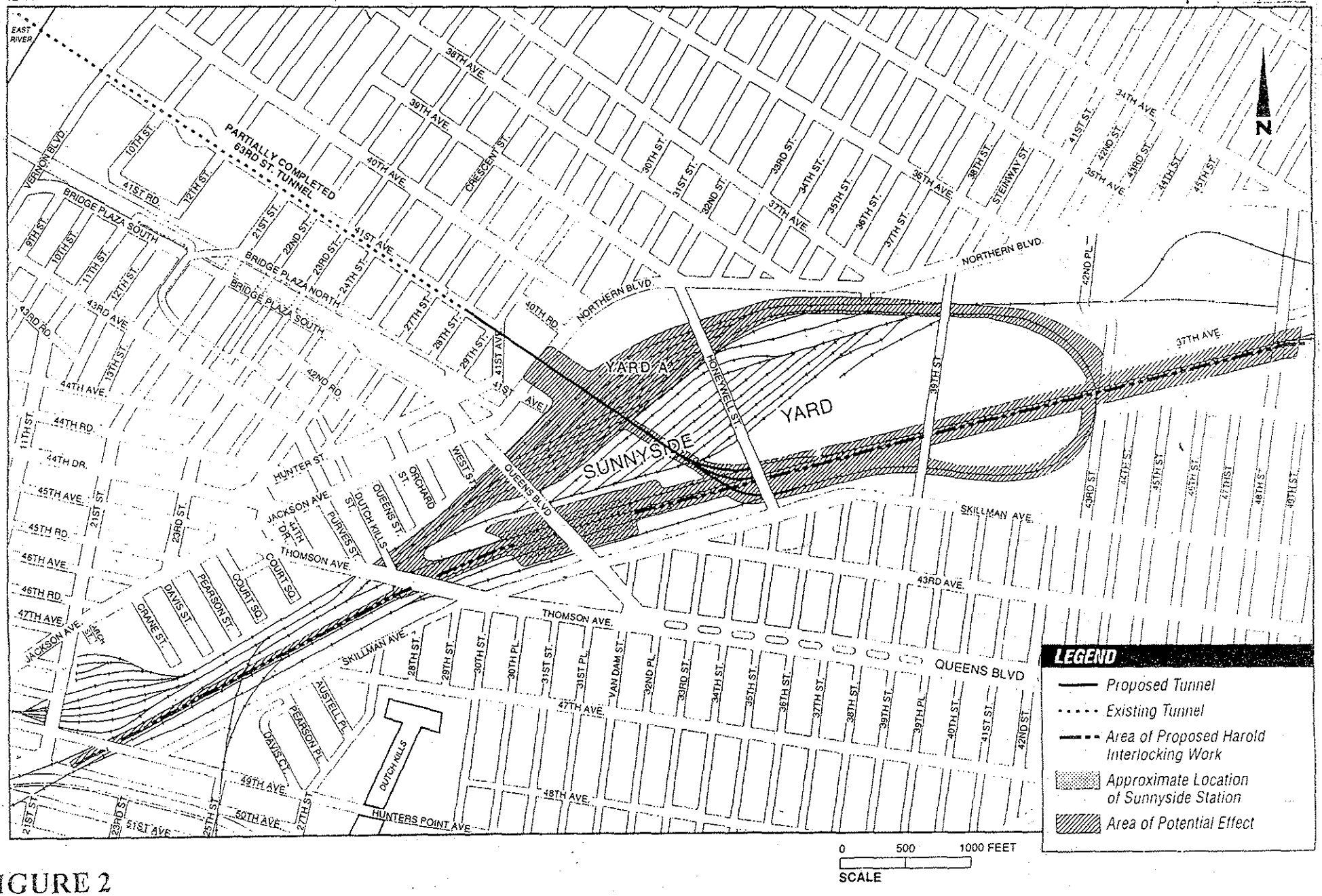


FIGURE 2
Project Site Boundaries.

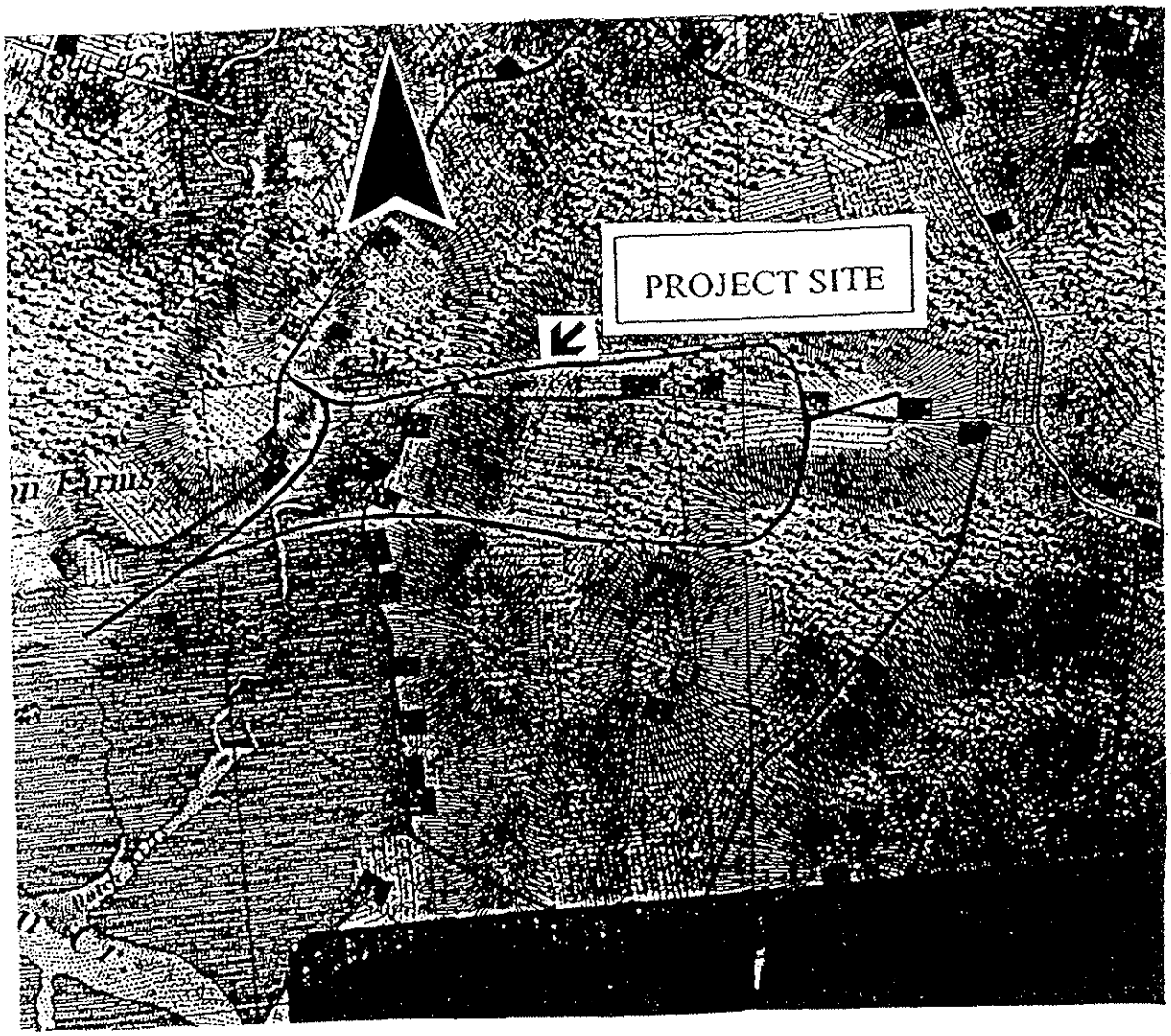


FIGURE 3
Coast Survey, U.S.C.& G.S., 1844-1845
Original scale: 1/30,000

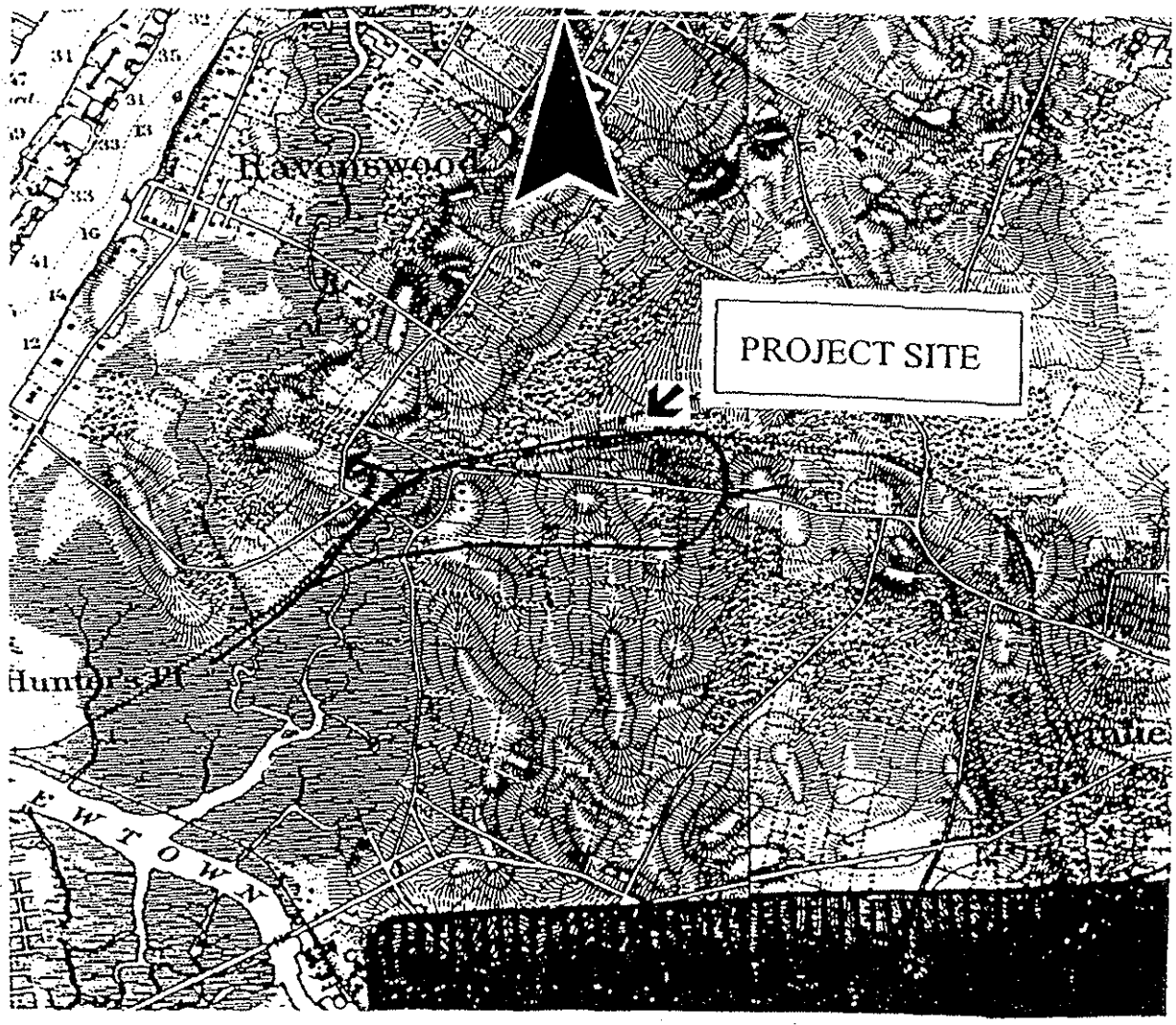
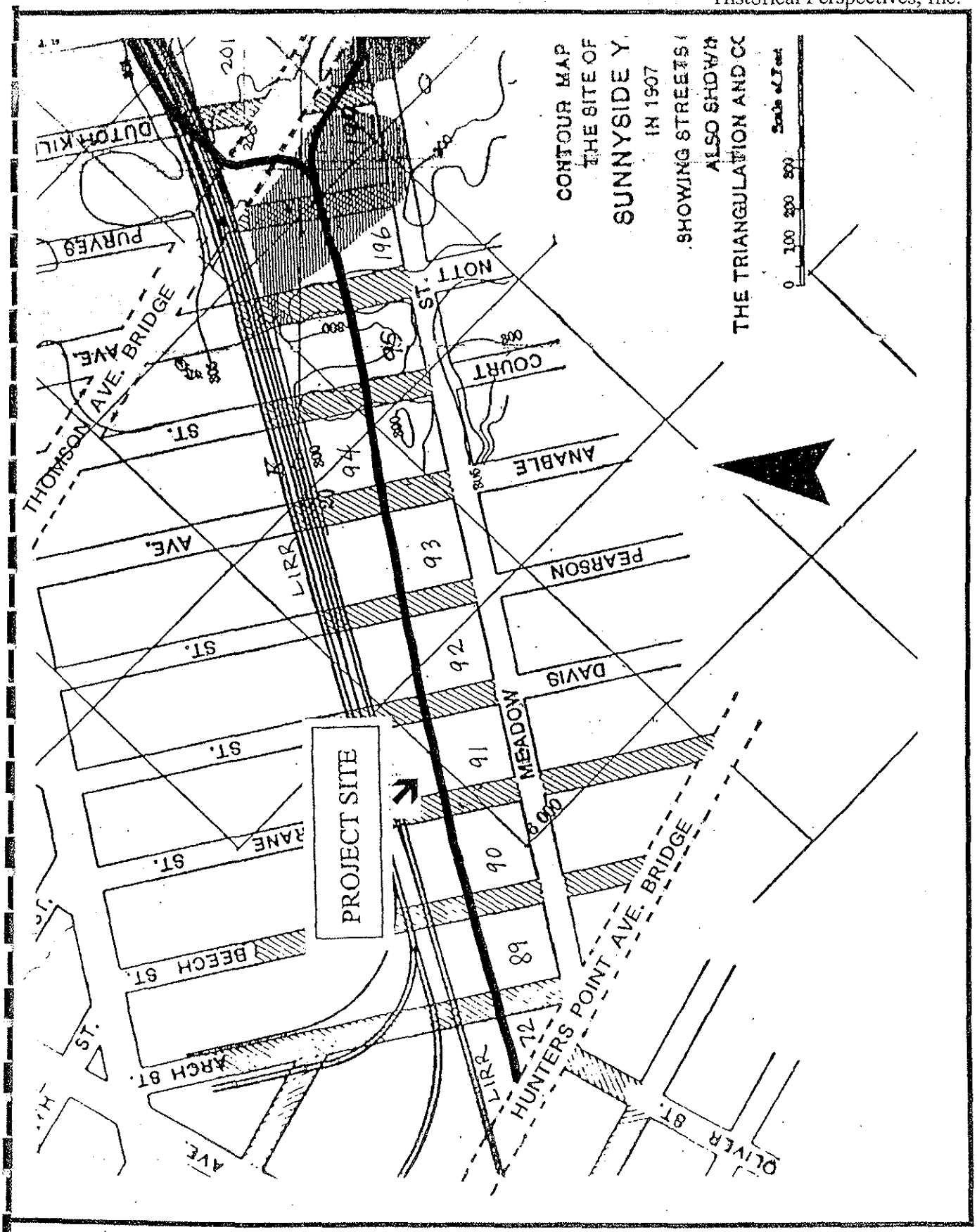


FIGURE 4
Coast Survey, U.S.G.S., 1874
Original scale: 1/40,000



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Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 107.1 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street

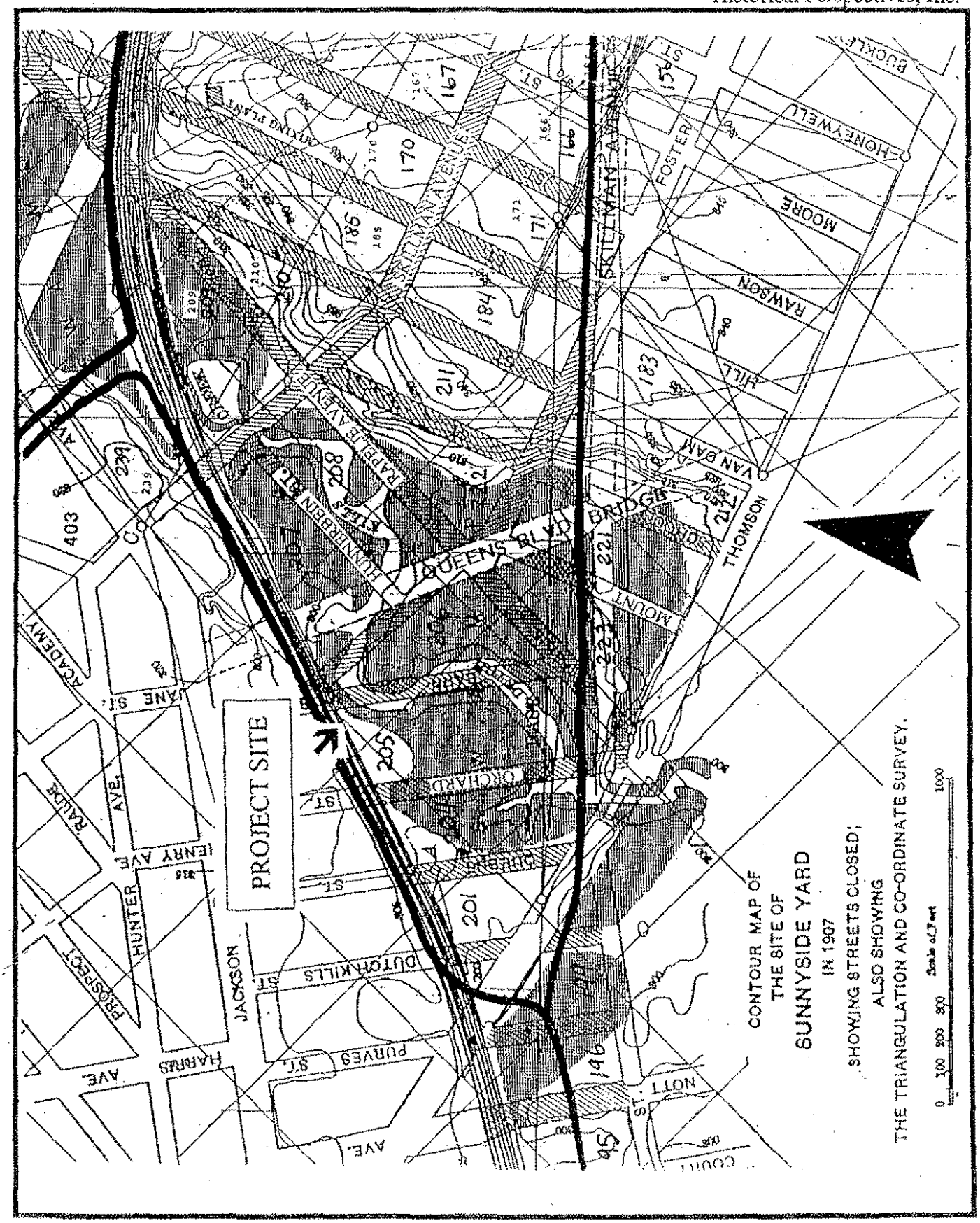
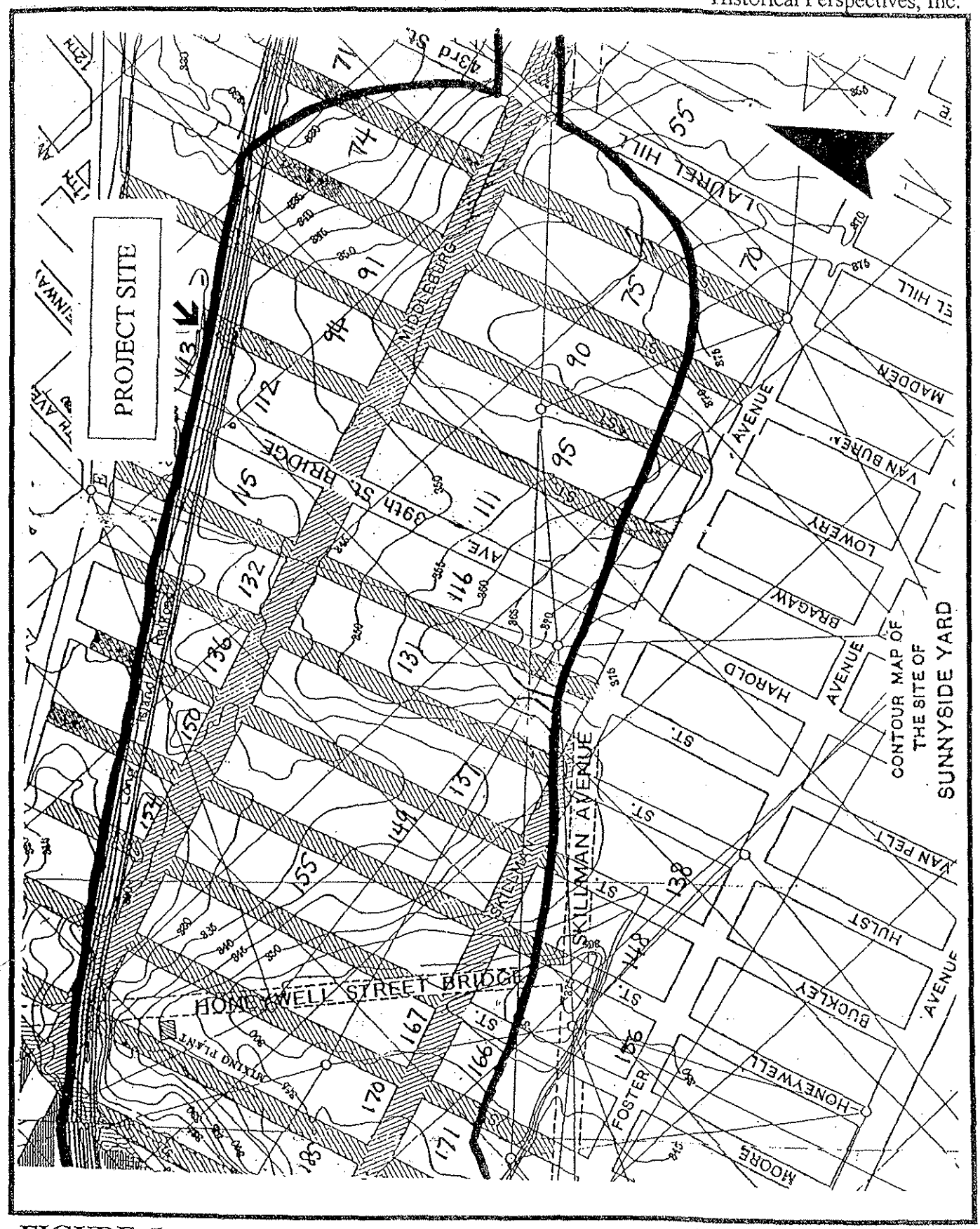


FIGURE 6

Contour Map of Sunnyside Yard, 1907

Scale: 1cm = c. 166.7 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

Current Street



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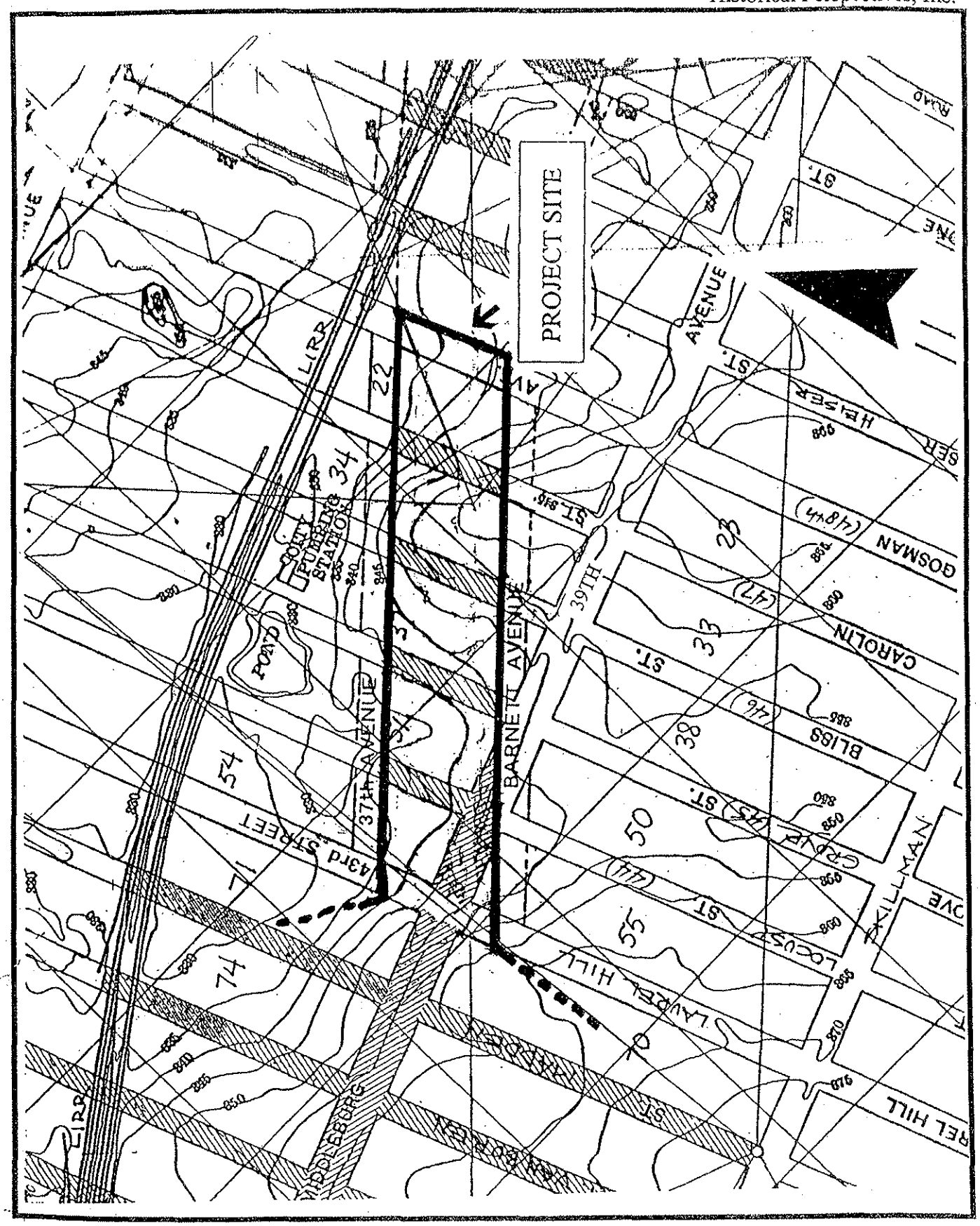
Scale: 1cm = c. 166.7 feet; Penn. RR el. - 300 + 2.75 = USGS el. (in feet)

---- Current Street



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Contour Map of Sunnyside Yard, 1907

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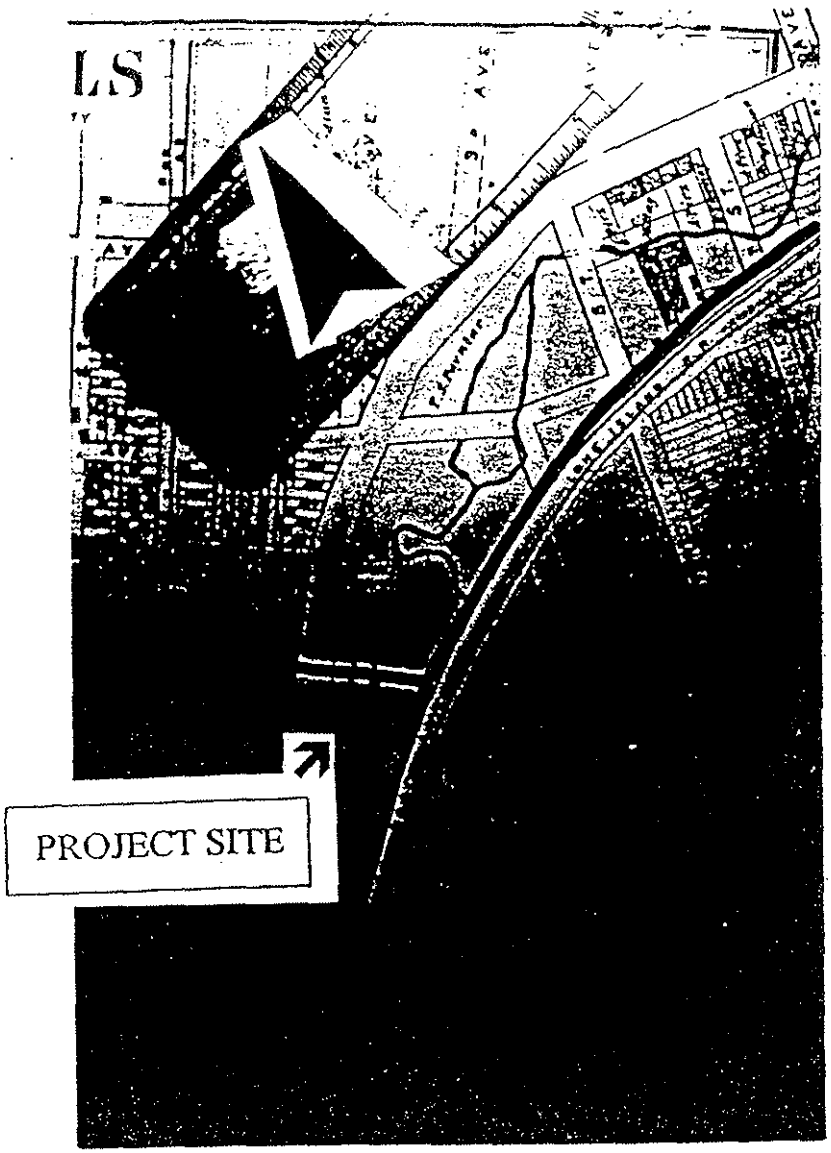

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No Scale

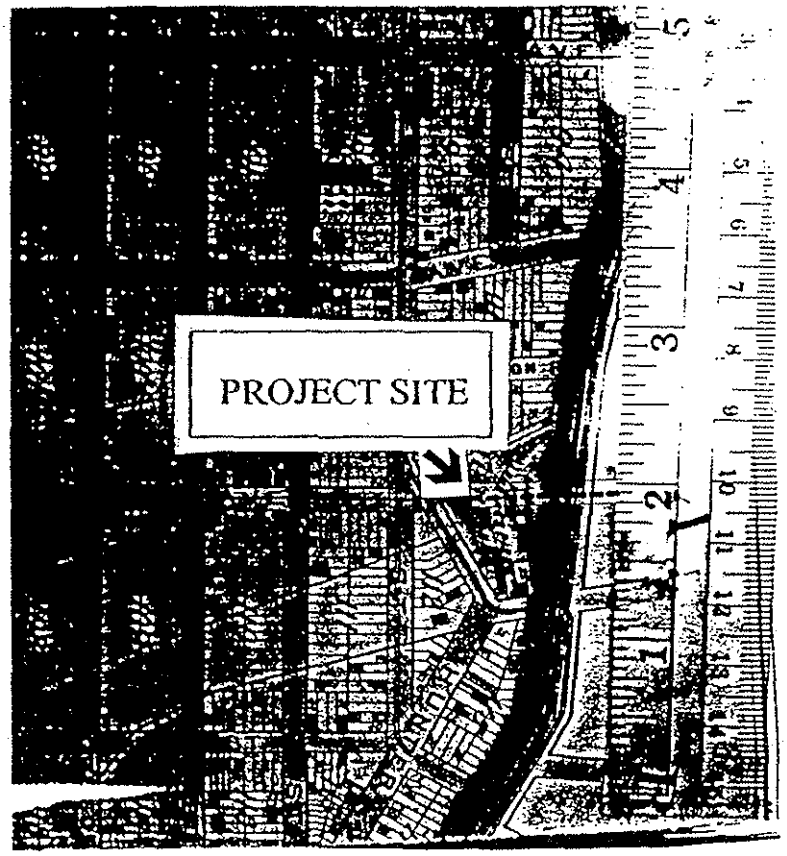


FIGURE 10
Atlas of Queens County, Wolverton, 1891
Scale: 1cm = c. 193 feet

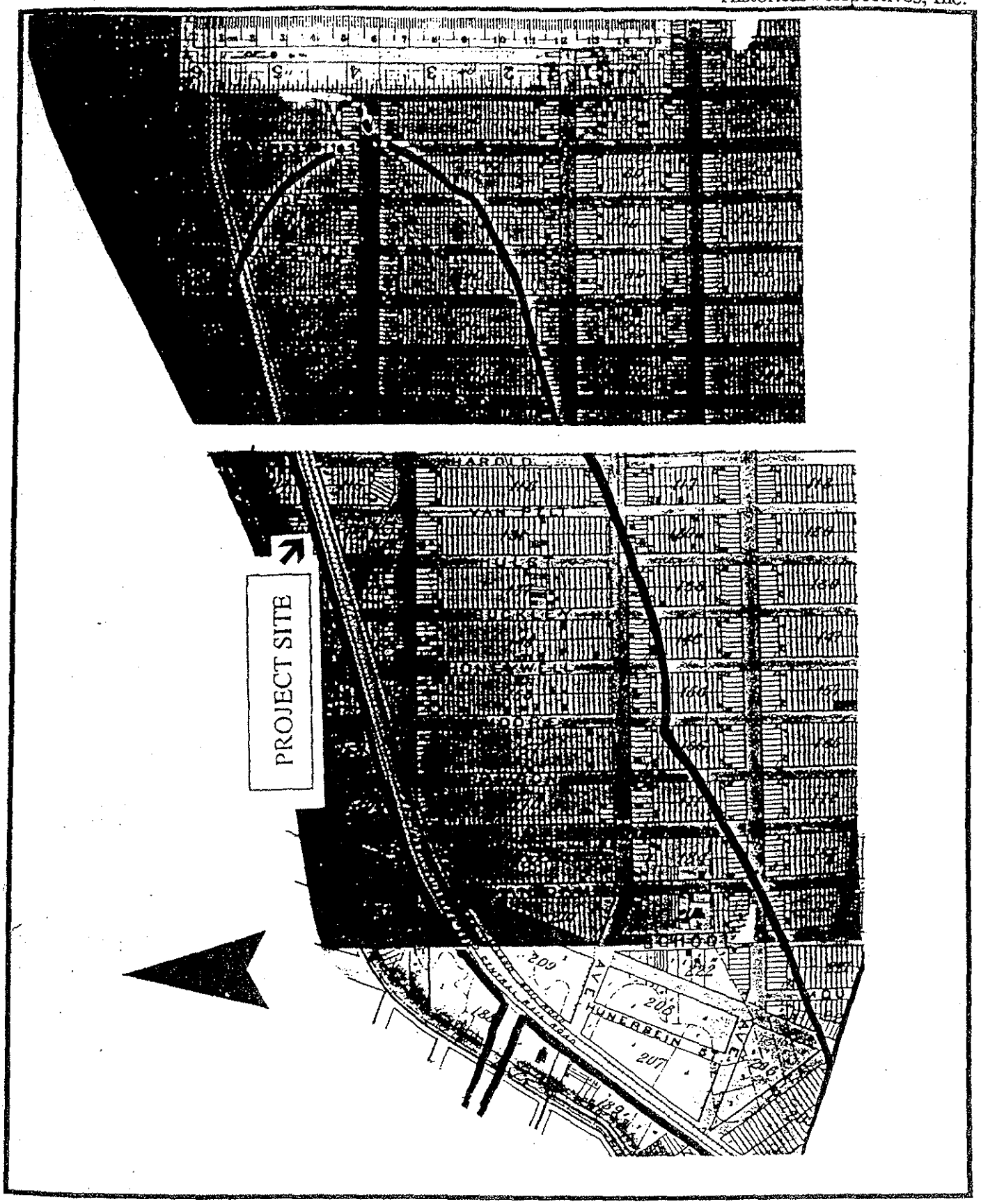
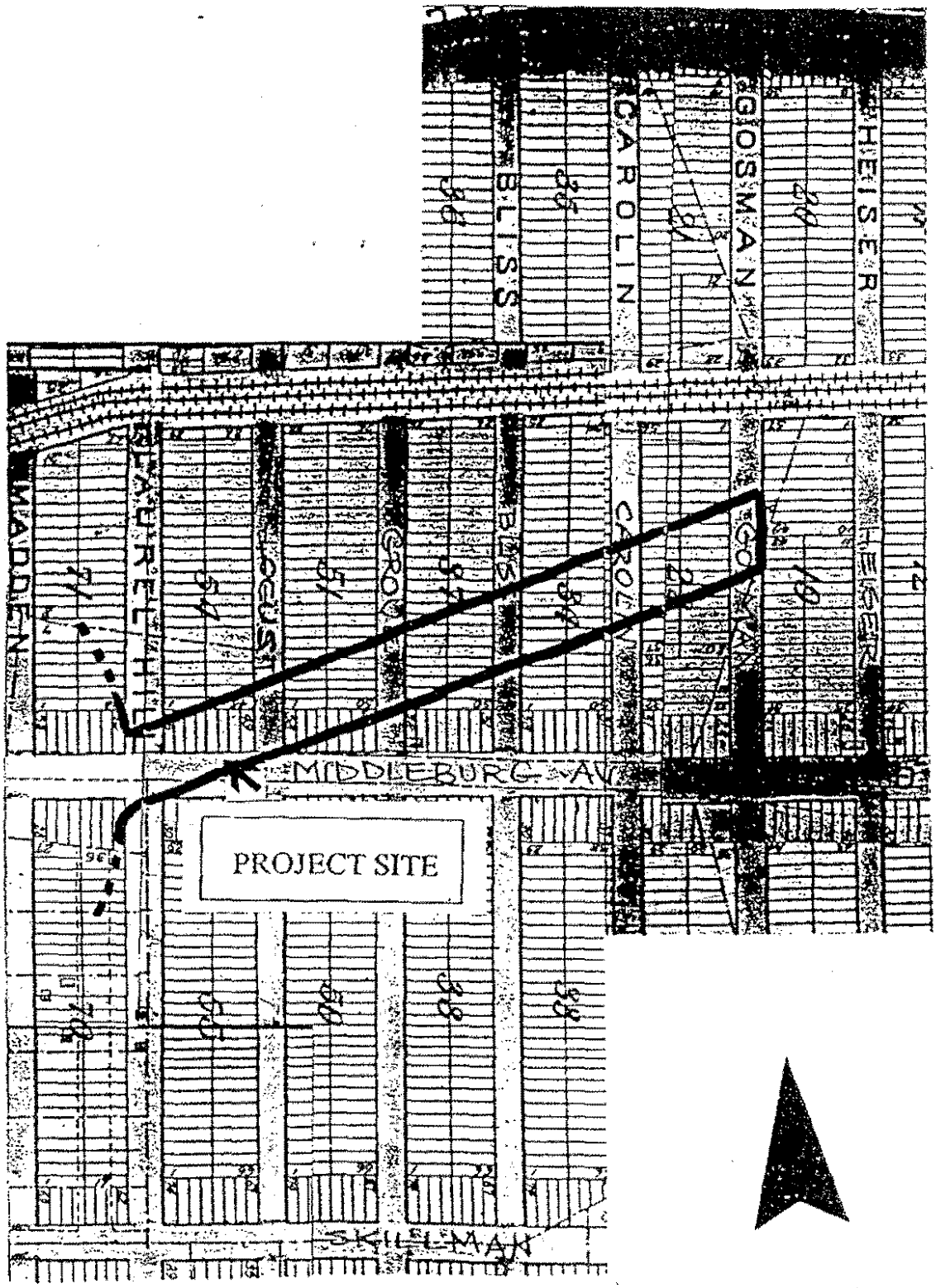


FIGURE 11
Atlas of Queens County, Wolverton, 1891
Scale: 1cm = c. 216 feet



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Atlas of Queens County, Wolverton, 1891
Scale: 1cm = c. 143 feet

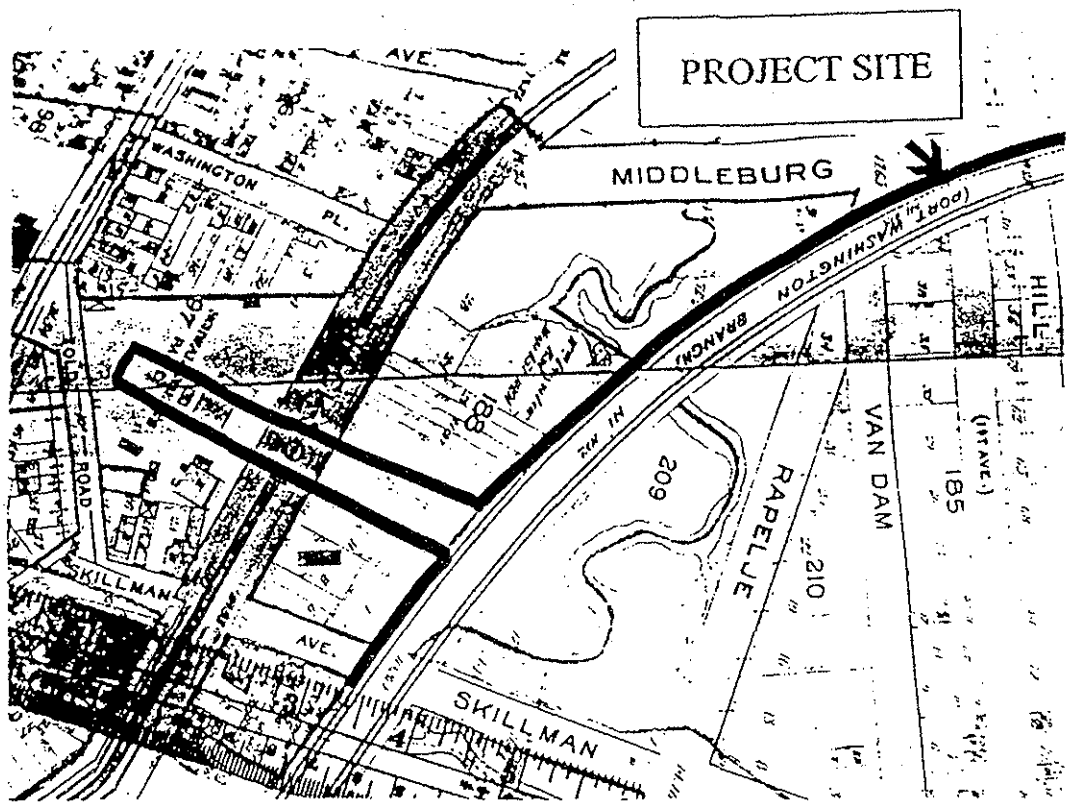
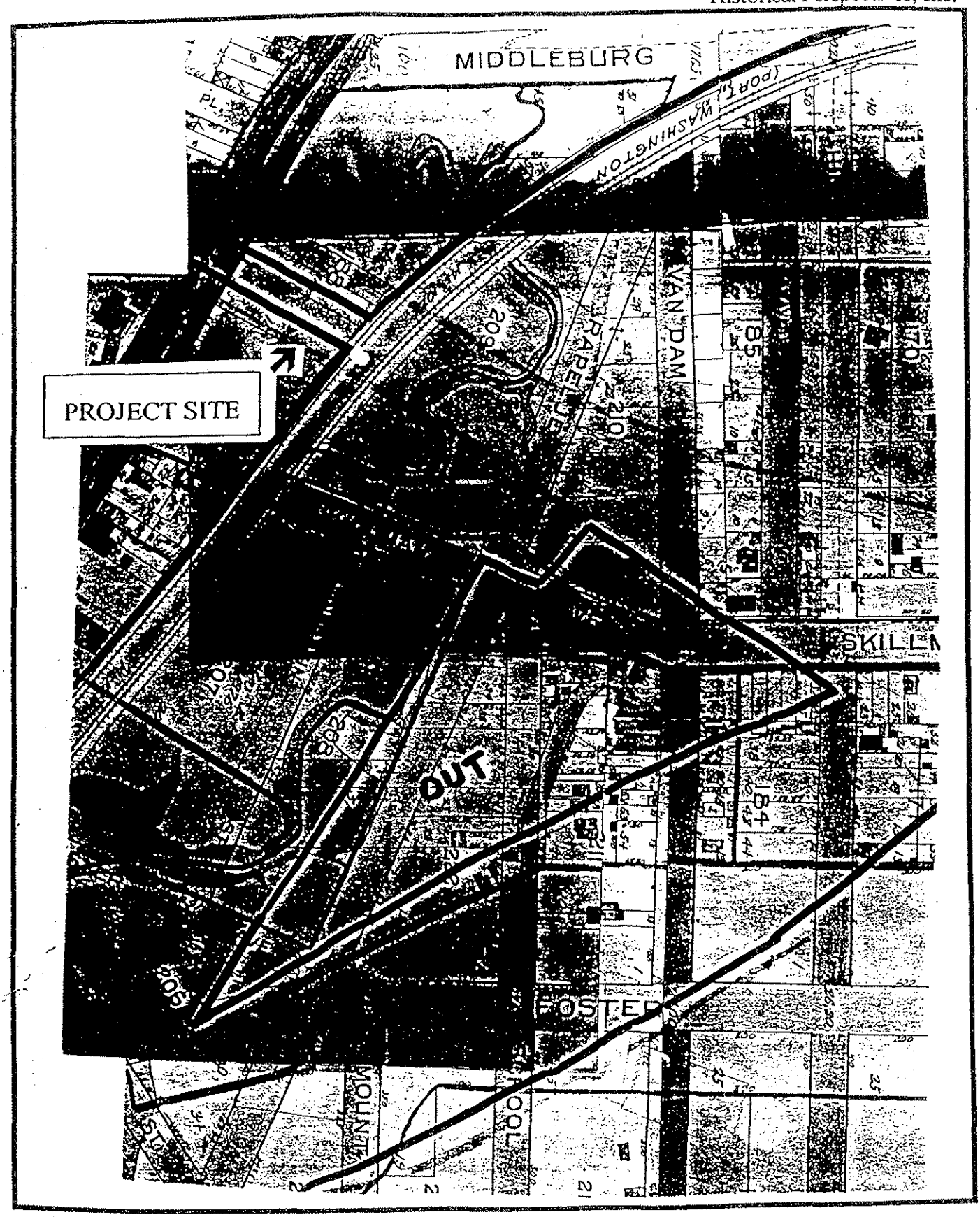


FIGURE 13
Atlas of the Borough of Queens, Hyde, 1903
Scale: 1cm = c. 110.3 feet



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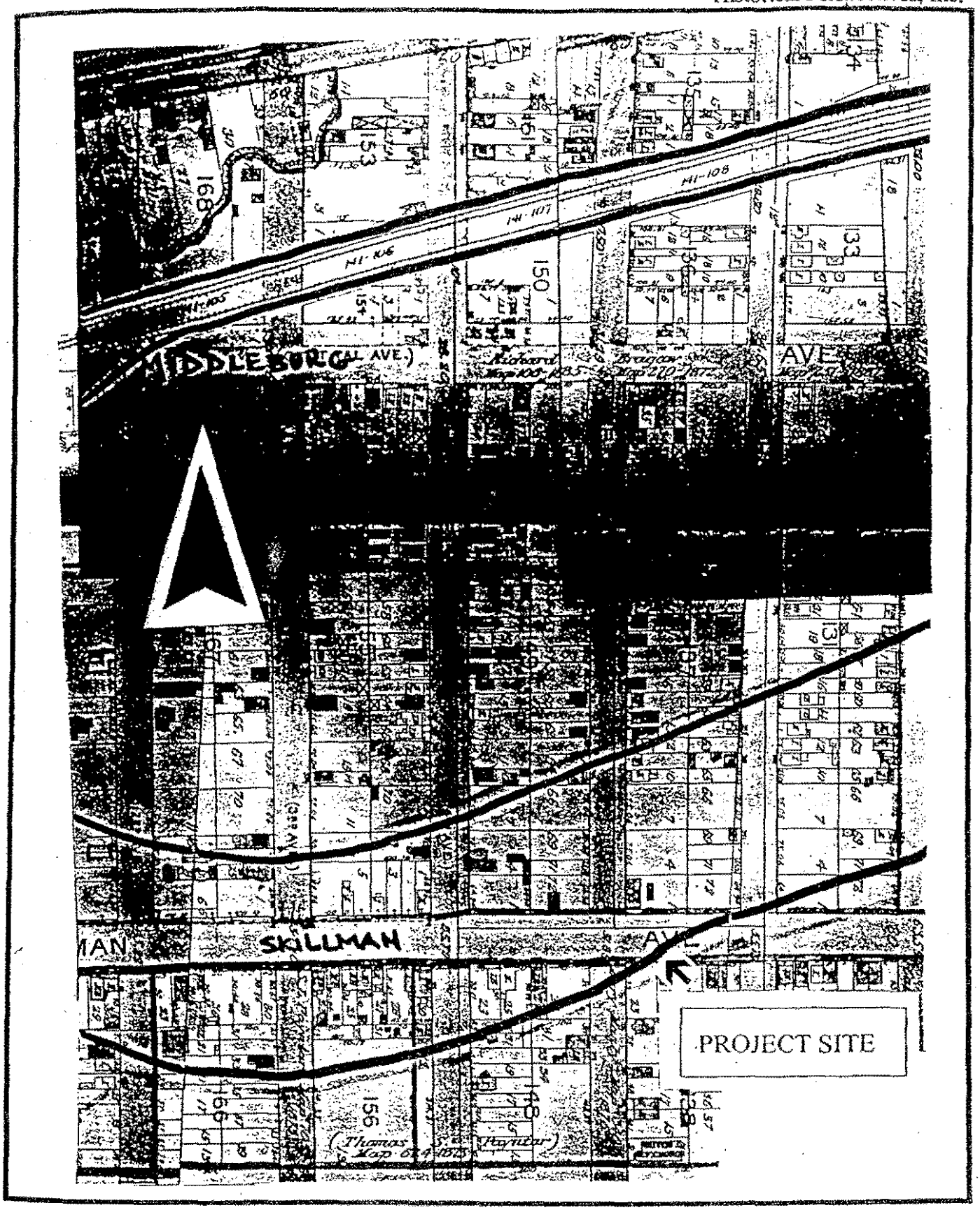
Scale: 1cm = c. 94 feet



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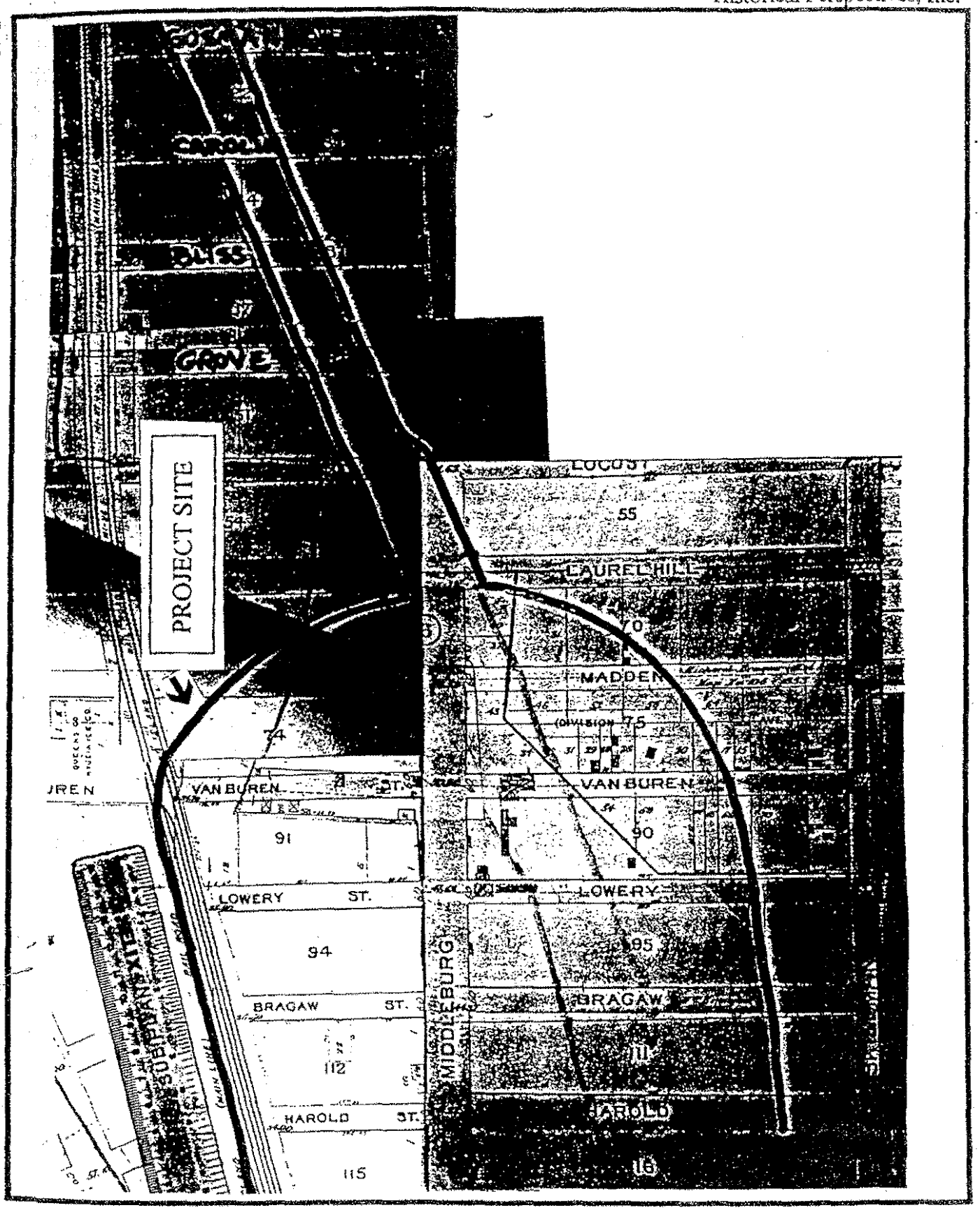
Scale: 1cm = c. 94 feet



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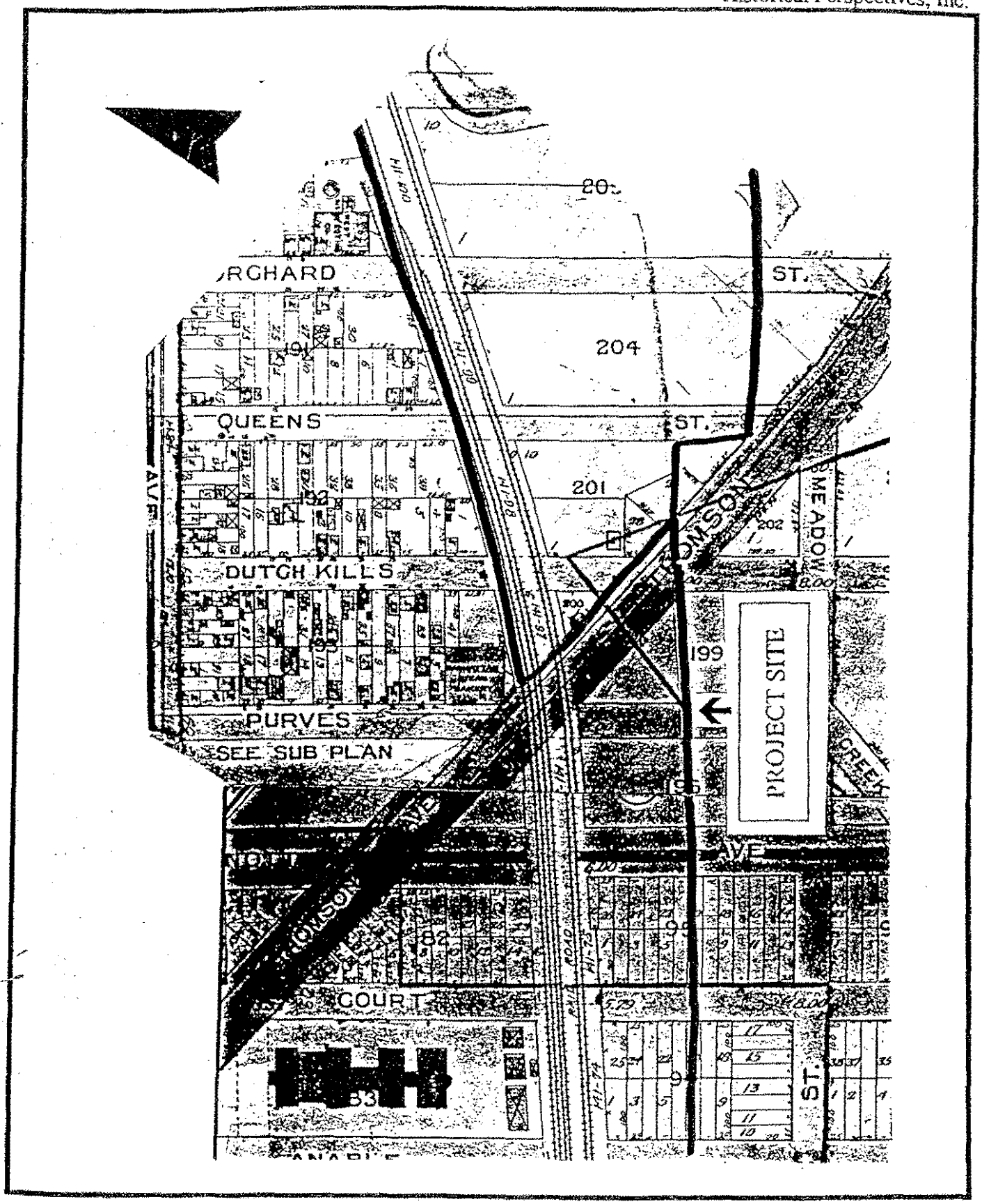
Scale: 1cm = c. 129 feet



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Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 91.4 feet

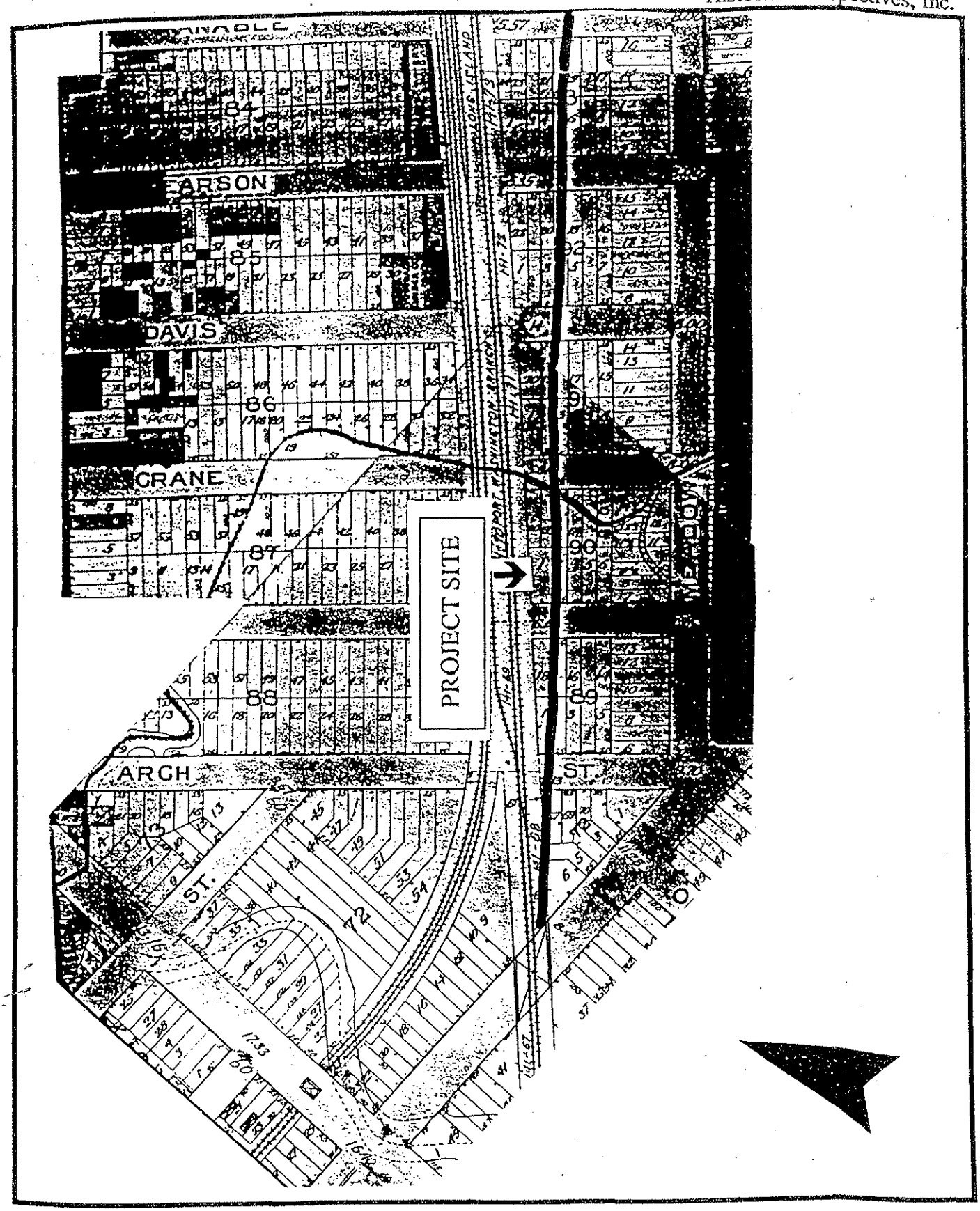

FIGURE 18

Atlas of the Borough of Queens, Hyde, 1903

Scale: 1cm = c. 91.4 feet

Addendum 3 — *Woodside Interlocking,* Historical Perspectives, Inc., July 2005

ADDENDUM
STAGE 1A ARCHAEOLOGICAL ASSESSMENT
MTA/LONG ISLAND RAIL ROAD EAST SIDE ACCESS PROJECT

July, 2005

Re: Woodside Interlocking APE, Addition to Chapter 3.0, Sunnyside Yard and Yard A Archaeological Resource Evaluation

This addendum refers to the following sections: 3.3 EXISTING CONDITIONS (pages AR3-17, AR3-18); ***3.3.1 Prehistoric Archaeological Potential*** page AR3-65 to -67; and *3.7.1 Block Histories* (pages AR3-APX2 to -APX7). These additions are necessary because of the addition of a new APE to the Queens study area.

A new Battery Hut and Central Instrument Location (CIL), a Signal Hut, a series of signal/electrical poles, as well as new retaining walls have been proposed for the Woodside Interlocking APE, in the trackbed and along the right-of-way north of the tracks, east of the present Woodside LIRR station. These two locations are currently designated as parts of Blocks 1294 and 1342. (Figure 1)

3.3 EXISTING CONDITIONS

Block 1294 – Battery Hut and CIL

The APE on Block 1294 is bounded by Trimble Road and part of Block 1232 on the north, the current Woodside station platform and trackbed to the west, and the Woodside Avenue overpass and 64th Street to the east and south. Irregular in shape, it is approximately 340 feet long from the station platform to 64th Street, and varies from approximately 25 feet to 40 feet wide between the trackbed and Trimble Road. (Figure 2)

Prior to the construction of the below-grade track crossings and the Woodside Avenue and 63rd Street overpasses in 1915 (Seyfried and Asadorian 1991:68), this section of the APE was at the summit of a large hill centered on Woodside avenue, sloping gradually downward toward the northwest. The topographic maps of 1891 (Figure 4) and 1903 (Queens 1903), clearly show the hill and this section of the APE with elevations between 80 and 89 feet.

According to the current U.S.G.S. map (Figure 1), elevations range from 80 to below 90 feet (above mean low water) in the southeast corner this part of the APE, adjacent to the Trimble Road/64th Street intersection (according to real estate atlases, this intersection has an elevation of 85.0 feet). They decline to between 60 and 70 feet to the northwest along Trimble Road and

adjacent to the station platform. To the south and west, as the LIRR trackbed is approached, elevations decline precipitously, dropping to between 60 and 70 feet along the tracks.

A comparison of these figures indicates a regrading/soil removal decline from pre-1915 elevations of between zero (near the Trimble Road/64th Street intersection) to as much as 20 feet. The depth of this subsurface disturbance increases to the south and west, i.e. as the LIRR platform and trackbed is approached.

No potential historical archaeological resources were identified for this area of the APE.

Block 1342 – Signal Hut and Signal Poles

The Block 1342 section of the APE begins along the east side of the 65th Street overpass, from approximately 87 to 247 feet south of Woodside Avenue, and extends to the west side of the 65th Place overpass, between approximately 210 and 400 feet south of Woodside Avenue. The APE includes the present trackbed and the section of the right-of-way north of the tracks. (Figure 3)

Prior to the construction of the below-grade track crossings and the 65th Street and 65th Place overpasses in 1915, this section of the APE was along the south slopes of a large hill centered on Woodside Avenue. The topographic maps of 1891 (Figure 4) and 1903 (Queens 1903), show this section of the APE with elevations between 75 and 85 feet, sloping downward toward the south.

According to the current U.S.G.S. map, elevations range from 80 to below 90 feet (above mean low water) along the north side of this section of the APE (adjacent to the Woodside Avenue homelots), and drops precipitously down to between 60 and 70 feet in the LIRR trackbed.

Before the excavation and construction of the LIRR below-grade track segments in this part of the APE in 1915, five homelots with their associated dwellings and outbuildings (Block 1342 former Lots 57/58, 59, 60, 62 and 66), established in the period between 1873 and 1891, were within, or partly within the subject parcel (Wolverton 1891; Beers 1873). (Figure 5)

Based on the disturbance caused by the 1915 excavation and regrading for LIRR below-grade track construction, some of these former lots can be eliminated from further consideration, while others must be considered sensitive for domestic archaeological deposits:

Former Lot 66 was on the southern edge of the present trackbed, and was formerly at and above the 75-foot contour line. This area now has a recorded elevation of between 60 and 70 feet, indicating that from 5 to as much as 15 feet of the pre-LIRR surface has been removed. Because trackbed preparation would have caused several additional feet of subsurface disturbance in these areas, even deeply-buried historical period resources, such as privies, would not have survived.

Former Lot 62 straddled the northern edge of the present trackbed and the base of the embankment, which prior to LIRR construction, had elevations between 75 and 80 feet. This

location now has elevations between 60 and 70 feet, indicating that between 5 and 20 feet of the original pre-LIRR surface has been removed. Because trackbed preparation would have caused several additional feet of subsurface disturbance in these areas, even shaft features, such as privies, would not have survived.

Former Lot 60 was located at what is now the southern edge of the embankment to the north of the tracks. Prior to LIRR construction, this location had elevations between 80 and 85 feet. At present, elevations are between 70 and 80 feet, indicating the removal of between zero and 15 feet of the pre-LIRR surface. Subsurface impact was the greatest, approximately 7 to 15 feet, in the southern 20 feet of the lot, which would have destroyed even deeply-buried historical period resources, such as privies.

The northern 20 feet of former Lot 60, would have only experienced between zero and 7 feet of subsurface disturbance, and it is possible that deeply-buried historical period domestic shaft features may have survived in this section of the APE.

Former Lots 59 and 57/58 were at the top of the embankment along the north side of the LIRR tracks. Before LIRR construction, this location had elevations between 85 and below 90 feet. At present, elevations are between 80 and below 90 feet, indicating the removal of between 0 and 5 feet of the pre-LIRR surface. It is possible that deeply-buried historical resources, such as domestic shaft features, could have survived in this section of the APE.

For recommendations and mitigation measures see Section **3.5 Mitigation Recommendations,** in this memo.

3.3.1 Prehistoric Archaeological Potential

An assessment of the archaeological literature regarding recorded and inventoried prehistoric sites and toponyms results in the addition of only one inventoried site to those discussed in the original report (AR3-7 to AR3-9). This is identified as NYSM #5472, OPRHP #A081-01-0109, "traces of occupation," 1.3 miles north[1] of the Woodside Interlocking APE. It is the closest inventoried site to the APE in the New York State Museum (NYSM) and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) files. From an evaluation of pre-development topography based on the comparison of historical maps (Walling 1859; Conner 1852; USC&GS 1844-45; USGS 1874, et al.), the Woodside Interlocking APE once possessed a few characteristics which would have been valued by prehistoric Americans for their camp, village and processing sites, namely, that it was a dry, elevated location. From our knowledge of prehistoric settlement patterns, however, these assets do not stand alone. Even more important is proximity to a marsh environment, and a source of fresh water. In fact, as noted in the original report, prehistoric archaeological potential declines as the distance to fresh water increases (AR3-66).

Historical maps record two creeks, 2,200 feet to the north (Trains Meadow), and 2,200 feet to the

[1]The site, "traces of occupation," and a potential burial, is in St. Michael's Cemetery, near the Brooklyn-Queens Expressway.

south (USGS 1891), as the closest water sources. (Figure 4) The creeks were associated with marshes as well. Based on the criterion laid out in the original report (for further discussion, see pages AR3-65 to -67), the Woodside Interlocking APE would receive a LOW potential rating for prehistoric sensitivity. Locations with low ratings are not considered to have archaeological potential to be impacted, and no further research or testing for prehistoric archaeological remains is recommended.

3.3.2 Historical Archaeological Potential

The locations of potential historical archaeological sensitivity are mapped on Figures 5 and 6. Three dwellings were constructed on Former Lots 57/58, 59 and 60 prior to 1891 (Wolverton 1891). Because the earliest recorded date for the availability of municipal water and sewer service in this location dates to no earlier than 1903 (Figure 5) the rear yards of these homelots would be characterized by deep shaft features, such as privies.

The following area is an addition to the list of areas determined to possess historical archaeological potential as discussed on page AR3-69 in the original report (for location, see Figure 6):

- Woodside Interlocking APE

Location #15: Block 1342 Former Lots 57/58, 59 and the northern 20 feet of former Lot 60. Rear yards of 3 homelots where dwellings were first constructed between 1873 and 1891.

3.5 Mitigation Recommendations

Because the area potentially sensitive for domestic shaft features in the Block 1342 section of the Woodside Interlocking APE lies approximately 10 feet north of the proposed limits of excavation for the proposed Signal Hut and retaining wall (MTA 2005a; 2005b), it is possible that the potentially sensitive locations can be avoided. (Figure 6) This would mean that no construction involving subsurface excavation or disturbance would occur in this location.

If avoidance is not possible, then it is our recommendation that this area be added to the Stage 1B Archaeological Field Testing Protocol found within Appendix D of the *Long Island Rail Road East Side Access Construction Protection Plan,* prepared for the East Side Access Project and approved by SHPO in April 2004.

3.7 Appendix

3.7.1 Block Histories

Until the late 19th century, Woodside was a collection of scattered farmhouses dotting a rural landscape. In 1867, Benjamin Hitchcock purchased the Kelly family farm, filed a plan for a village he called Woodside, and began selling off lots. A train station was built at the center of the settlement, at 58th Street and 38th Avenue, about 1,600 feet northwest of the APE. Historical maps of the 1890s show the Woodside Interlocking APE lying just beyond the edge of the

developed part of the Village of Woodside (Seyfried and Asadorian 1991:66-69; Beers 1873; Wolverton 1891). (Figure 4)

Block 1294

The APE on Block 1294 is bounded by Trimble Road and part of Block 1232 on the north, the current Woodside station platform and trackbed to the west, and the Woodside Avenue overpass and 64th Street to the east and south. Irregular in shape, it is approximately 340 feet long from the station platform to 64th Street, and varies from approximately 25 feet to 40 feet wide between the trackbed and Trimble Road

Prior to the extension of the streetgrid and the construction of the LIRR Woodside Station in 1915, the Block 1294 section of the APE was along the northern slopes of a large hill centered on Woodside Avenue, with elevations declining to the north and west.

The property was owned by "J. Rice" in 1873 (Beers 1873), and in 1891 by Joel W. Sherwood (Wolverton 1891). No structures are recorded on the block, but a large 2-story dwelling, most likely the Rice/Shields house, then along Trains Meadow Road, was approximately 50 feet northeast of the APE's northeast corner, where 64th Street is today. A number of related outbuildings lie to the north and east, also outside the APE (Sanborn 1902; Hyde 1903). Although the Rice/Shields dwelling was erected at that location sometime between 1844 and the 1860s (USC&GS 1844-45; 1866), it is highly unlikely that any domestic remains, such as shaft features would have been deposited in this section of the APE, which was at the front of the homelot along Woodside Avenue and Trains Meadow Road, whereas shaft features would have been located closer to, and behind the dwelling. These buildings were removed prior to the construction of the 1915 station (Hyde 1915).

Construction on the new Woodside Station and the new below-grade trackbeds created the present steeply-sloping embankment present today. A series of stone retaining walls support the embankment. A single, still-existing hut, constructed prior to 1932 (Sanborn 1932) stands immediately adjacent to the station platform.

Block 1342 Former Lots

The Block 1342 section of the APE begins along the east side of the 65th Street overpass, from approximately 87 to 247 feet south of Woodside Avenue, and extends to the west side of the 65th Place overpass, between approximately 210 and 400 feet south of Woodside Avenue. The APE includes the present trackbed and the section of the right-of-way north of the tracks.

Prior to the construction of the below-grade track crossings and the 65th Street and 65th Place overpasses in 1915, this section of the APE was along the south slopes of a large hill centered on Woodside Avenue. (Figure 4) It was part of a much larger property owned by C. Hyatt, whose residence was along present Queens Boulevard, some 800 feet to the southwest (Beers 1873). Between 1873 and 1891 the present streetgrid was laid out, and Block 1342 was lotted, and the first dwellings were erected in the APE on the western half (100 feet) of the block, along the east

side of 65th Street, the former Bowne Avenue (Wolverton 1891). Their size and locations are more clearly shown in the 1903 atlas, Figure 5.

Former Lot 57/58 was a 40' by 100' lot, between approximately 87' and 127' south of the Woodside Avenue/65th Street intersection, and extending 100 feet east of 65th Street. A 2-story woodframe house was built there prior to 1891, with a stable and a 1½-story outbuilding (labelled as storage in Sanborn 1902) along the rear (eastern) lot line. The structure was demolished for LIRR construction prior to 1915.

Former Lot 59 was a 20' by 100' lot, between approximately 127' and 147' south of the Woodside Avenue/65th Street intersection, and extending 100 feet east of 65th Street. A 2-story woodframe house was built there prior to 1891, with a stable along the rear (eastern) lot line. The structure was demolished for LIRR construction prior to 1915.

Former Lot 60 was a 40' by 100' lot, between approximately 147' and 187' south of the Woodside Avenue/65th Street intersection, and extending 100 feet east of 65th Street. A 2- and 1-story brick house was built there prior to 1891, with a stable along the rear (eastern) lot line. The structure was demolished for LIRR construction prior to 1915.

Former Lot 62 was a 40' by 100' lot, between approximately 187' and 227' south of the Woodside Avenue/65th Street intersection, and extending 100 feet east of 65th Street. A 2- and 1-story woodframe house was built there prior to 1891 (Wolverton 1891). The structure was demolished for LIRR construction prior to 1915.

Former Lot 66 was a 40' by 100' lot, between approximately 277' and 317' south of the Woodside Avenue/65th Street intersection, and extending 100 feet east of 65th Street. A 2½-story woodframe house was built there prior to 1891 (Wolverton 1891). A 1-story outbuilding is shown along the rear (eastern) lot line in 1902 (Sanborn 1902). The structure was demolished for LIRR construction prior to 1915.

Construction of the new below-grade trackbeds, and the 65th Street and Place overpasses created the present steeply-sloping embankment present in the APE today. No structures are presently recorded in this section of the APE.

9.0 Additional Bibliography

Bien, Joseph. R., and C. C. Vermeule
1891 "City and County of New York." in *Atlas of the Metropolitan District and adjacent country comprising the counties of New York, Kings, Richmond, Westchester and part of Queens in the state of New York, the county of Hudson and parts of the counties of Bergen, Passaic, Essex and Union in the state of New Jersey.* Julius Bien & Co. New York.

Hyde, E. B.
1915 *Atlas of the Borough of Queens.* Vol. 2A. E. B. Hyde, Brooklyn, N.Y.

1927 *Atlas of the Borough of Queens.* Vol. 2. E. B. Hyde, New York.
1973

Queens
1903 "Topographical Map Showing a Street System and Grade of that portion of the Second Ward (Town of Newtown), Borough of Queens." City of New York, Office of the President of the Borough of Queens, Topographical Bureau. December 10.

Metropolitan Transportation Authority (MTA)
2005a "Wood Interlocking – LIRR Force Account: Pole Line Plan Sheet 2 of 4." Long Island Rail Road East Side Access. General Engineering Consultant: Parsons Brinckerhoff, STV Inc., Parsons Transportation Group of New York, Inc. Drawing number FQL35-SG-1851, Sheet 128 of 316. April 18.

2005b "Wood Interlocking – LIRR Force Account: Retaining Wall Structural Details Proposed Location A." Long Island Rail Road East Side Access. General Engineering Consultant: Parsons Brinckerhoff, STV Inc., Parsons Transportation Group of New York, Inc. Drawing number FQL35-SG-1803, Sheet 122 of 316. April 18.

Seyfried, Vincent, and William Asadorian
1991 *Old Queens, N.Y. in Early Photographs.* Dover, New York.

United States Coast & Geodetic Survey (USC&GS)
1866 "New York Bay and Harbor, New York." Coast Chart No. 20. Topography completed in 1859. A. D. Bache, Superintendent, Coast Survey.

United States Geodetic Survey (USGS)
1891 "Brooklyn, N. Y." 15 minute series.

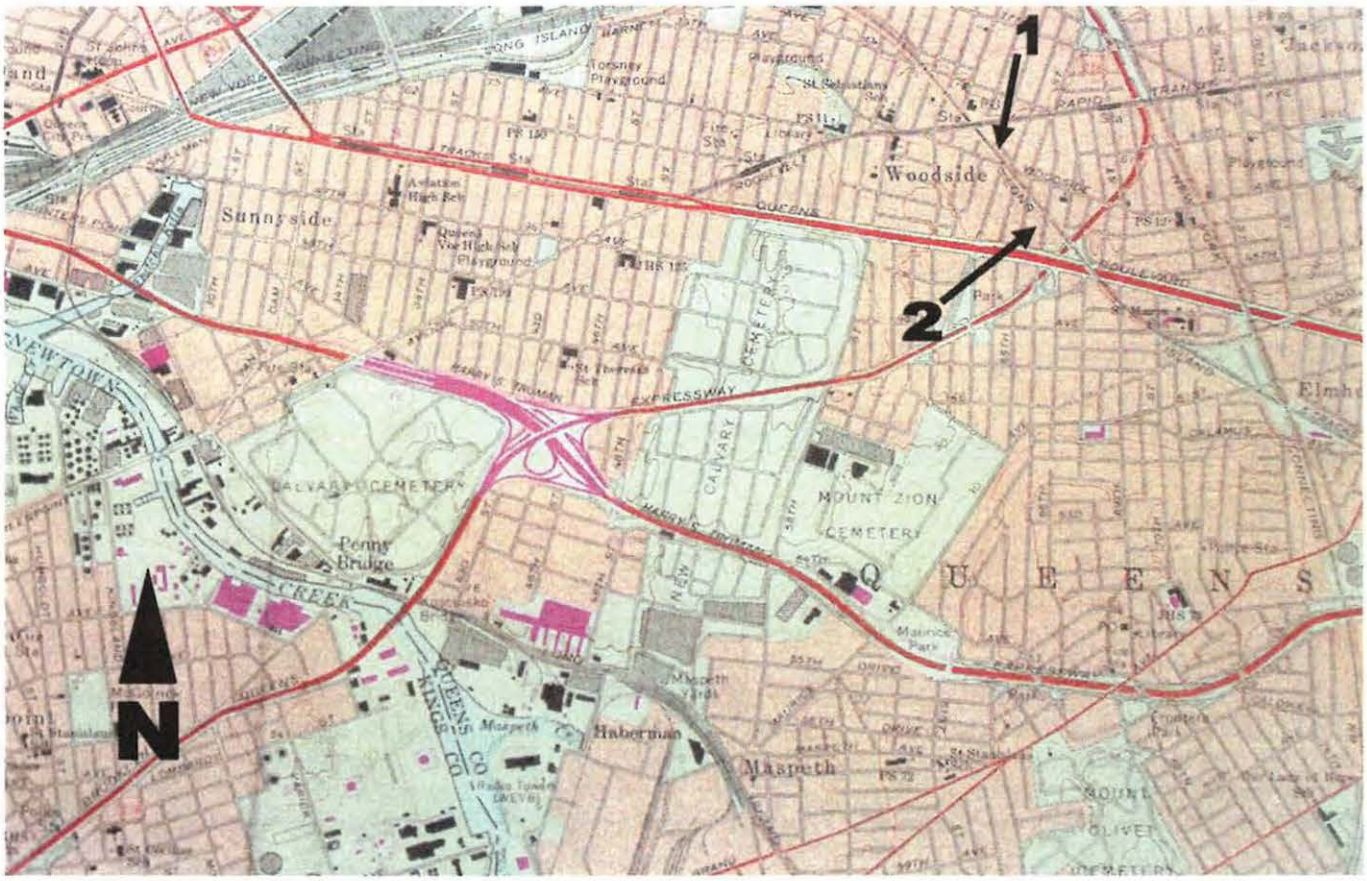

Figure 1. Woodside Interlocking APE Location – Current U.S.G.S. Topographic Map, Brooklyn, N.Y., 1979

Arrows indicate the two sections of the APE:

1. Block 1294
2. Block 1342

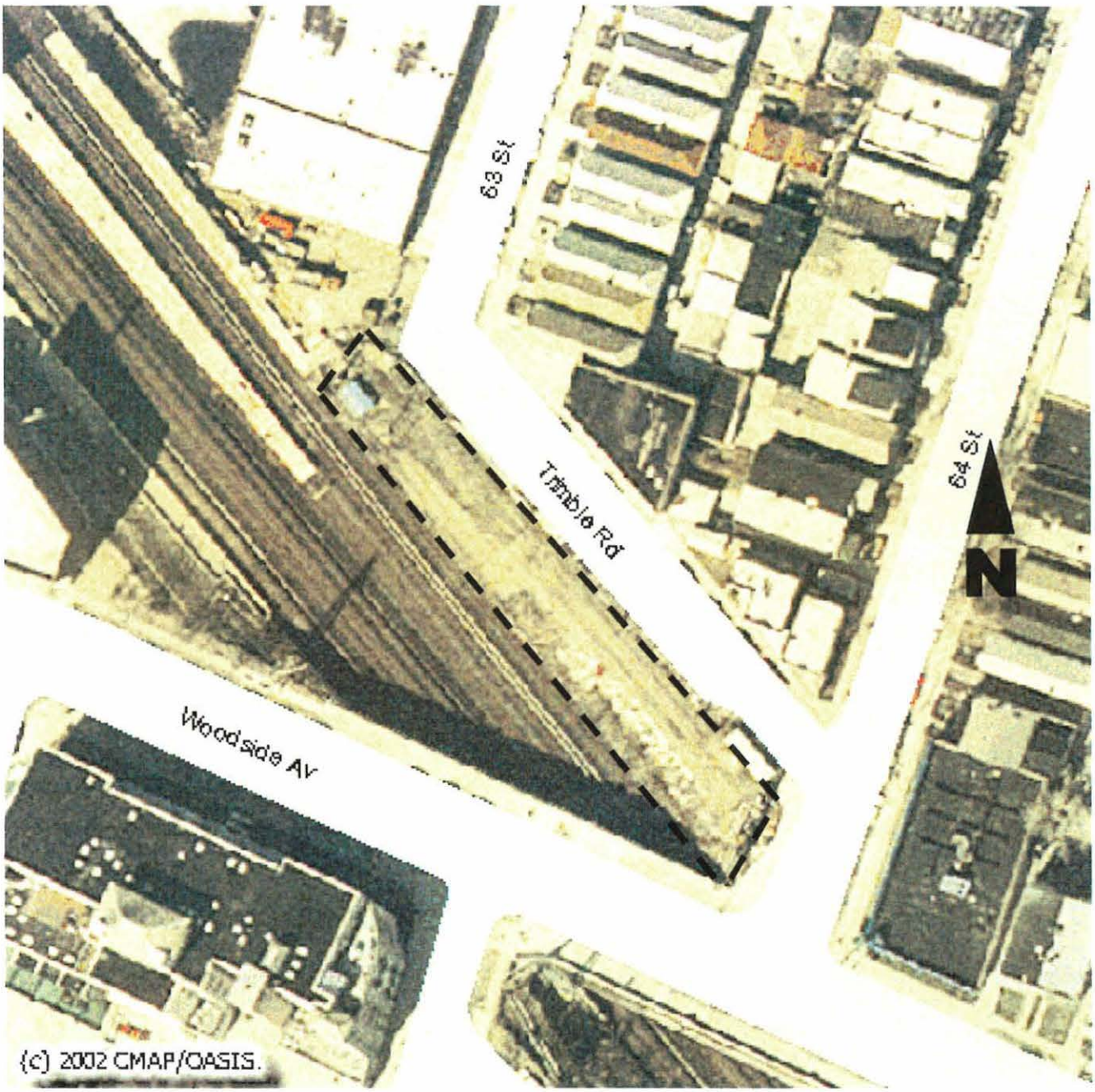

Figure 2. Aerial Photo, 1996 – Woodside Interlocking APE, Block 1294,

— — — APE Boundaries

Figure 3. Aerial Photo, 1996 – Woodside Interlocking APE, Block 1342,

— — — APE Boundaries

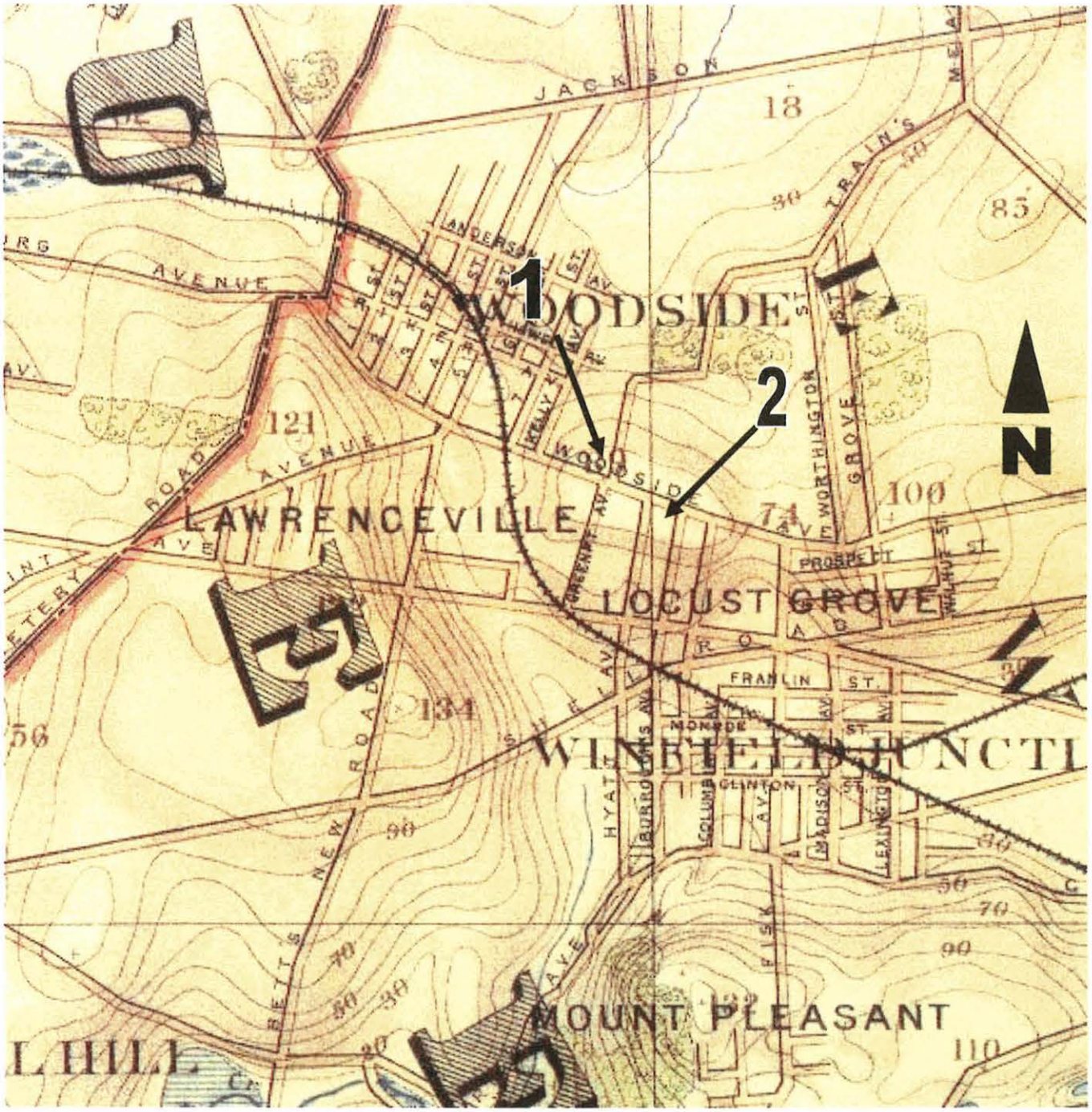

Figure 4. Bien and Vermeule, City and County of New York, in Atlas of the Metropolitan District, 1891

Arrows indicate the sections of the Woodside Interlocking APE

1. Block 1294
2. Block 1342

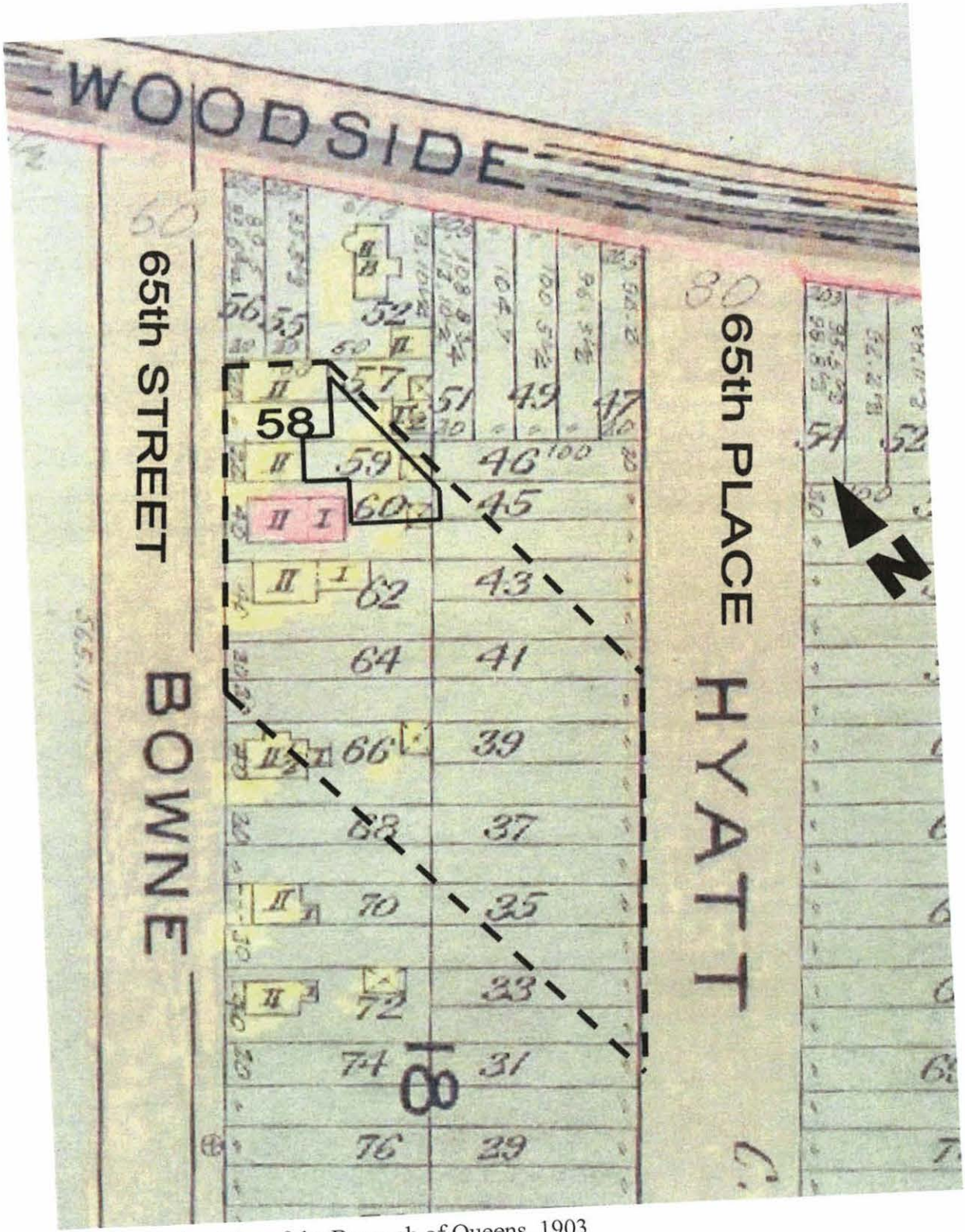

Figure 5. Hyde, Atlas of the Borough of Queens, 1903

APE Boundaries on Block 1342

Area of Potential Historical Archaeological Sensitivity

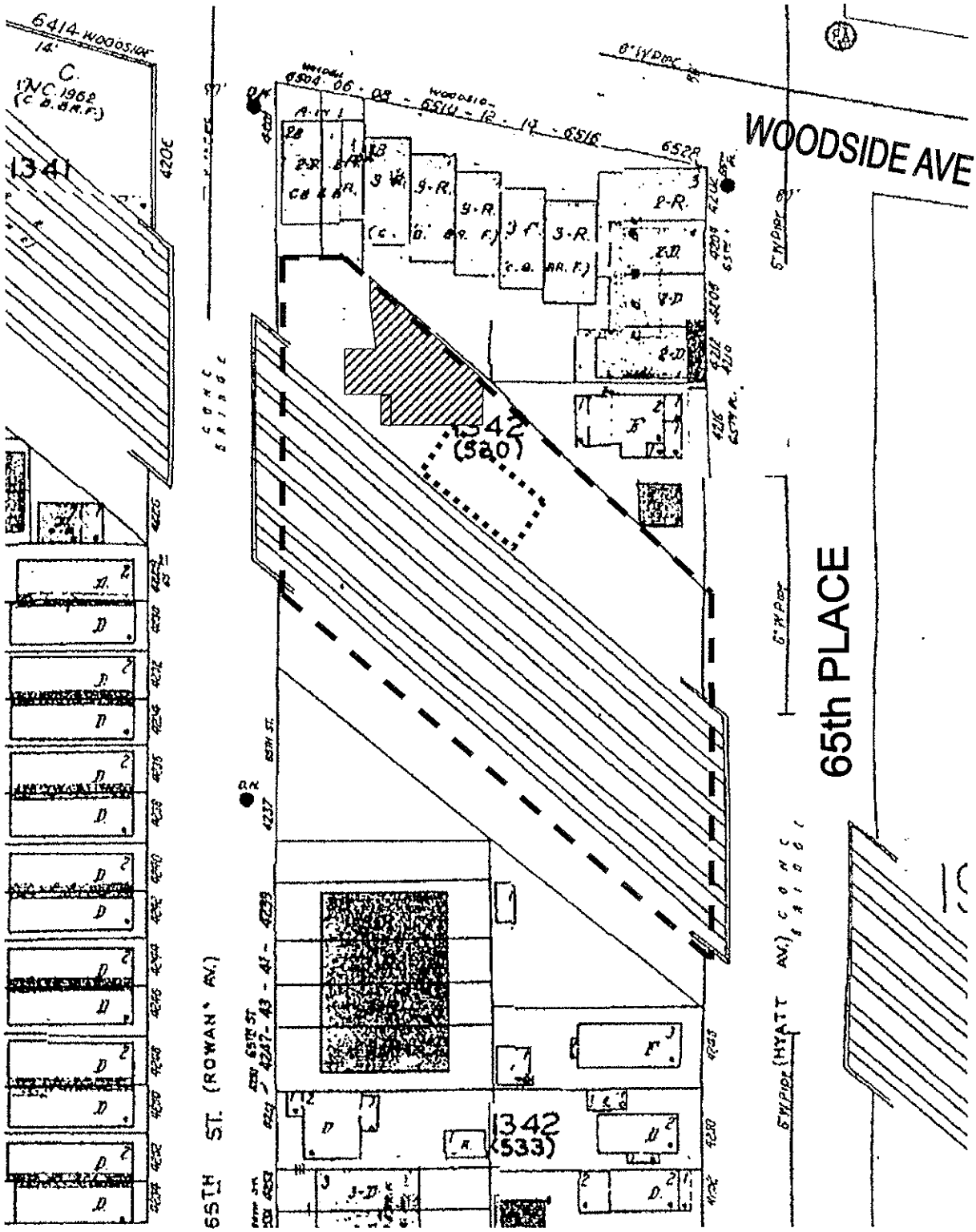

Figure 6. Map of Potential Historical Archaeological Sensitivity
(Base Map – Current Sanborn, Atlas of the Borough of Queens)

APE Boundaries on Block 1342

Limits of Excavation, Proposed Signal Hut

Area of Potential Historical Archaeological Sensitivity

Addendum 4 — *New Revision 14-4M Areas of Potential Effect,* To Come

Appendix B

Project Correspondence from the State Historic Preservation Office (SHPO) and the New York City Landmarks Preservation Commission (LPC)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

Bernadette Castro
Commissioner

March 4, 2005

Claudia Cooney
AKRF
117 East 29th Street
New York, NY 10016

Dear Ms. Cooney,

Re: MTA
LIRR East Side Access
Addendum to Stage I Archaeological Study
Brooklyn, NY
04PR01563/05PR00261

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. OPRHP has reviewed your recent submission regarding added areas of potential impact. OPRHP has found this document to be a bit confusing and difficult to follow. Therefore, please provide a map that clearly identifies each of the new areas for consideration as well as delineating the recommendations for each. This map should help to clarify the new recommendations and allow us to continue our review of the project.

Please contact me at extension 3291, or by e-mail at douglas.mackey@oprhp.state.ny.us, if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

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THE CITY OF NEW YORK LANDMARKS PRESERVATION COMMISSION
1 Centre St, 9N, New York, NY 10007 (212) 669-7700

ENVIRONMENTAL REVIEW

MTA/SEQRA-Y — 01/21/05

PROJECT NUMBER — DATE RECEIVED

PROJECT MTA/LIRR EAST SIDE ACCESS

[ ] No architectural significance

[ ] No archaeological significance

[ ] Designated New York City Landmark or Within Designated Historic District

[ ] Listed on National Register of Historic Places

[ ] Appears to be eligible for National Register Listing and/or New York City Landmark Designation

[X] May be archaeologically significant; requesting additional materials

COMMENTS

The LPC is in receipt of the, "Addendum for the Stage 1A Archaeological Asessment MTA/Long Island Rail Road East Side Access Project Loop Track Portal North of the LIRR Main Line West of 43rd St and Yard Area Between the Thomsen Ave and Hunters Point Ave Bridges and 39th Street Substation and Proposed Sewer Parallel to the 39th Street Bridge," prepared by Historical Perspectives and dated January 2005.

The LPC concurs with the findings. We recommend that Figure B, "Queens Alignment: Areas of Potential Archaeological Sensitivity," be revised so that the relationship between the project areas and archaeological sensitivity assessment is clearer. Please include the LPC in future consultation about archaeological mitigation measures.

cc: OPRHP

01/24/05

SIGNATURE — DATE

U.S. Department
Of Transportation
**Federal Transit
Administration**

Region II
Connecticut (rail)
New York
New Jersey

One Bowling Green
Room 429
New York, NY 10004-1415
212-668-2170
212-668-2136 (Fax)

July 15, 2008

JUL 18 2008

Ms. Sarah B. Rios
Metropolitan Transportation Authority
Director Grant Management
347 Madison Avenue
New York, NY 10017-3739

Re: Technical Memorandum for ESA Tail Tracks Ventilation Plenum and Grate

Dear ~~Ms.~~ Sarah Rios:

The Federal Transit Administration (FTA) has reviewed the "MTA LIRR East Side Access Technical Memorandum Assessing Design Refinement: Tail Tracks Ventilation Plenum and Grate" (Technical Memorandum) dated February 2008 and submitted to our office on April 16, 2008. Based on our review of the Technical Memorandum, the FTA has determined that the design refinement to the East Side Access Project (Project), as described in the Technical Memorandum, will not result in additional significant environmental impacts.

The NEPA requirements as outlined in 23 CFR 771.130 have been met, and no supplemental environmental review is necessary for the proposed refinement.

Please be aware that the Project must be carried out as described in the Technical Memorandum and FTA's Memorandum, dated July 14, 2008. If changes to the Project are proposed, FTA will need to determine if additional environmental studies will be necessary before the changes are can be implemented. Should you have any questions concerning this Project, please contact Nina Chung at 212-668-2180.

Sincerely,

Brigid Hynes-Cherin
Regional Administrator

cc: A. Heffernan

Enclosure: FTA Memorandum, date July 14, 2008

MTA LIRR East Side Access
Technical Memorandum Assessing Design Refinement:
Tail Tracks Ventilation Plenum and Grate

A. INTRODUCTION

This technical memorandum provides an assessment of a design change in the East Side Access Project. Specifically, the memo examines a change proposed since the issuance of the Final Environmental Impact Statement (FEIS) prepared for the project, dated March 2001, and the Record of Decision (ROD) issued by the Federal Transit Administration (FTA) in May 2001. The analysis considers whether additional environmental impacts would result from the new design change that were not previously identified in the FEIS and ROD.

The proposed modification is a refinement to the design of the ventilation system associated with the project's four tail tracks south of Grand Central Terminal (GCT). The tail tracks and associated ventilation system were originally analyzed as a potential design change in a Technical Memorandum dated February 26, 2002. When that analysis was conducted, the specific location for the ventilation plenum, shaft, and sidewalk grate was not identified; the ventilation system was to be located underground, leading to street-level gratings in the sidewalk at a location between East 37th and East 40th Streets near Park Avenue. The current design modification would place the ventilation gratings in the sidewalk along the west side of Park Avenue just south of East 37th Street (i.e., between East 36th and East 37th Streets).

This memorandum describes the FEIS design and the proposed design modifications, and then discusses the impacts of the modified design during construction and operation.

B. PROPOSED DESIGN MODIFICATION

FEIS DESIGN

The FEIS design did not include tail tracks south of GCT or its associated ventilation.

DESIGN MODIFICATION ANALYZED IN 2002 TECHNICAL MEMORANDUM

In the February 2002 Technical Memorandum, a design modification was analyzed that added four tail tracks south of GCT, extending south from the platform tracks of the new East Side Access Terminal at GCT (at approximately 44th Street). The four tail tracks will be approximately 1,700 feet long (including crossovers) and will each be capable of storing a 12-car consist. Each tail track will be in a separate cavern extending south to East 38th Street. During perturbed conditions, such as when disabled trains are occupying platform space in the terminal, the tail tracks will improve operating conditions by providing space to move disabled trains out of the way to allow normal operations at the platforms.

The tail tracks will require ventilation for normal operations as well as emergency conditions. The ventilation fans will operate to exhaust warm air from the tunnels if a train is occupying the tail tracks and the temperature exceeds 105 degrees, or in the unlikely event of a smoke condition in the tunnels. The preliminary ventilation design described in the 2002 Technical Memorandum consisted of a pair of jet fans installed in the annular tunnel space associated with the wye section in each tail track. A 200-square-foot ventilation plenum was to lead to a shaft and street-level gratings in the sidewalk at a location between East 37th and East 40th Streets. The ventilation shaft was to be constructed primarily from below, with limited cut-and-cover work at the surface.

CURRENT DESIGN MODIFICATION

The design of the ventilation system for the tail tracks has been further developed since the 2002 Technical Memorandum was completed. The design for the ventilation system now anticipates a ventilation air tunnel extending from the end of the tail track tunnel (approximately beneath East 38th Street and Park Avenue) to approximately East 37th Street. Jet fans for the ventilation system would be located at the north end of the air tunnel, approximately 140 feet below the surface beneath Park Avenue between East 37th and 38th Streets. At the south end of the air tunnel, three air shafts, each approximately 9 feet in diameter, would connect the air tunnel to an air plenum beneath the sidewalk on the west side of Park Avenue, just south of East 37th Street. The air plenum would be approximately 75 feet long and 12 feet wide and would be covered by a grate in the sidewalk.

The sidewalk grate would also be approximately 7 feet wide and 75 feet long. It would be located in front of the Union League Club building at 48 Park Avenue, ending before its canopied entrance. The grate would be at the eastern edge of the sidewalk (closest to the street). The sidewalk in front of 48 Park Avenue is 21’9” wide and therefore the remaining sidewalk between the building and the new grate would be 14’9” wide. **Figure 1** illustrates the design of the ventilation system in profile and plan; **Figure 2** shows the location of the site on a Sanborn map; and **Figure 3** provides photographs of the project site.

The three ventilation shafts would be constructed using the raise bore technique, an excavation method that involves little activity at the surface and that does not produce significant levels of noise or vibration. This technique uses a raise bore machine to drill the shafts from the already excavated tail track tunnels below. Typically, the first step in the raise bore process is to drill a small “pilot” hole at the center of the shaft from the top of the rock down to the tunnel below. Once the pilot hole is completed, the raise bore machine is used to drill the shaft from the tunnel up to the surface. The machine and workers operate from the bottom of the shaft, and the drilled rock falls to the bottom of the shaft for removal through the tunnels.

Before construction of the shafts and plenum begins, three street trees located in the area where the shaft would be constructed would be removed and utilities located beneath the street in this area would be relocated. Intermittent closures of the curb lane would be required in order to relocate utilities before drilling for the shafts begins. The canopy of the adjacent building (the Union League Club) would be temporarily removed for construction work and the Park Avenue entrance to the building may be inaccessible for short durations. Any such closures of this entrance would be coordinated with the building manager. During these times, the building would continue to be accessible from its main entrance on East 37th Street. The three trees that would be removed would be replaced. The total construction period for the shaft, plenum, and sidewalk gratings, and the restoration of the street and sidewalk is anticipated to be approximately eight months.

C. ASSESSMENT OF PROJECT EFFECTS

LAND USE AND SOCIAL CONDITIONS

The new ventilation shaft, plenum, and grate would be located within and beneath the sidewalk along the west side of Park Avenue between East 36th and East 37th Streets, in front of the 10-story Union League Club (see the photographs provided in **Figure 3**). The Union League Club is at the corner of East 37th Street and Park Avenue, with its main entrance on East 37th Street and a second entrance on Park Avenue. The Union League Club is a private club with dining facilities, a fitness center, meeting rooms, and overnight accommodations available to members.

The area around the site is predominantly residential, with institutional uses, hotels, and limited commercial uses interspersed between residential buildings. Park Avenue is a major six-lane thoroughfare that runs north-south through the area, with two moving lanes and a parking/drop-off/bus stop lane in each direction. Landscaped medians separate northbound and southbound lanes on Park Avenue. Buildings fronting on Park Avenue within 400 feet of the project site are generally mid-rise apartment buildings and hotels, ranging from 14 to 20 stories. Most of these buildings have ground-floor doctors' offices. Several smaller townhouses also front on Park Avenue in this area. Small four- and five-story townhouses predominantly occupy the cross streets in the study area. The buildings fronting on Madison Avenue include a mix of institutional uses such as the Pierpont Morgan Library at the northeast corner of Madison Avenue and East 36th Street, and taller residential buildings and hotels such as the 17-story Madison Towers Hotel at the southeast corner of Madison Avenue and East 38th Street. Many of the institutional buildings in the study area are occupied by missions to the United Nations and Consul General offices, including the General Consulates of Poland, Guatemala, and Armenia. The southeast corner of Park Avenue and East 38th Street is occupied by a church. **Figure 4** shows the land uses within 400 feet of the project site.

The area also includes a notable transportation feature: a tunnel for vehicle traffic beneath the center of Park Avenue between East 34th and East 40th Street. In addition, the Lexington Avenue subway line runs beneath Park Avenue in the study area.

As described above, construction activities would be conducted to minimize disturbance at street level and would last approximately eight months. During this time, excavation would occur for the relocation of utilities, and limited drilling and excavation would occur to create the new sidewalk grating and vent shafts. Construction activities may be disruptive to nearby land uses, but this disruption would be of the same magnitude as typical utility repair construction work and would not affect the ability of nearby land uses to continue their normal activities. During construction, the canopy of the Union League Club's entrance on Park Avenue would be removed and this entrance may be inaccessible for short durations. Any required closures of this entrance would be coordinated with the building manager. The main entrance on East 37th Street would not be affected by the construction activities.

Once completed, the new ventilation system would not be disruptive to surrounding land uses. The only visible evidence of the system would be the sidewalk grate, which is a typical feature in many sidewalks in Manhattan. Warm air would at times be exhausted through the sidewalk grates, similar to exhaust from other sidewalk grates elsewhere in Manhattan. In the unlikely event of a smoke condition in the tail tracks, smoke may be exhausted through the grates to clear the tunnels below. These operations would not adversely affect land uses in the surrounding area.

ECONOMIC CONDITIONS

The new ventilation system would be located within the public right-of-way and does not require the acquisition of private property. As described above, neither construction nor operation of the new ventilation system would result in substantial disruption to nearby land uses. Therefore, no adverse effect to economic conditions would occur.

HISTORIC RESOURCES

The East Side Access Project's Construction Protection and Advance Field Testing Plan, Revision 2, includes provisions for construction of the tail tracks ventilation plenum and grate at Park Avenue and East 37th Street.

As set forth in the East Side Access Project's Construction Protection and Advance Field Testing Plan, Revision 2, the Area of Potential Effect (APE) for historic structures that could be affected by the construction of the new ventilation shaft, plenum, and grate for the tail tracks is the area within a 100-foot radius of the site. This APE includes one historic structure, the Union League Club at 38 East 37th Street/48 Park Avenue, which has been determined eligible for listing on the State and National Registers of Historic Places.[1] In addition, the APE abuts but does not include a portion of the State- and National-Register-listed Murray Hill Historic District. The portion of that district that abuts the APE is the building directly across Park Avenue from the project site, at 45 Park Avenue.

The East Side Access Project's Construction Protection and Advance Field Testing Plan sets forth procedures to protect historic structures from accidental damage during construction. This plan was developed in accordance with the project's Programmatic Agreement, as amended, among the Federal Transit Administration, the New York State Historic Preservation Officer (SHPO), and the Metropolitan Transportation Authority (MTA), with the New York City Landmarks Preservation Commission (LPC) as a consulting party. The Programmatic Agreement also sets forth procedures for review of design elements that have the potential to result in contextual effects to nearby historic structures. The Construction Protection and Advance Field Testing Plan was reviewed and approved by SHPO and LPC.[2] The procedures set forth in the Construction Protection Plan would be followed to protect the Union League Club from accidental damage during construction of the nearby underground ventilation structure.

Once completed, the underground ventilation system would not adversely affect the nearby historic structure. The sidewalk grate would be similar to the many other sidewalk grates at locations throughout New York City and would not alter the context of the building. On certain days, warm ambient air may be emitted through the sidewalk grate from the tunnels below, and this would not adversely affect the historic structure. Therefore, no adverse effect would occur to the historic Union League Club building from construction or operation of the new ventilation system.

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[1] S/NR-eligibility determination made by the New York State Historic Preservation Officer in a letter dated September 5, 2007. In addition, the New York City Landmarks Preservation Commission indicated that the building is eligible for designation as a NYCL in a letter dated September 18, 2007.

[2] Approval from SHPO was in a letter dated November 9, 2007; approval from LPC was in a letter dated October 5, 2007.

ARCHAEOLOGICAL RESOURCES

Following the procedures set forth in the project's Programmatic Agreement for new design elements, the new location for the ventilation shaft, plenum, and grate was evaluated in a Stage 1A archaeological assessment to identify whether the site has the potential to contain buried archaeological resources.[1] The Stage 1A assessment was reviewed and approved by SHPO in a letter dated November 9, 2007 and by LPC in a letter dated October 5, 2007. The archaeological assessment concluded that the Area of Potential Effect for archaeological resources at the ventilation site, which is the area where excavation would occur, has moderate potential to contain archaeological resources related to the area's former use as the Murray farm. Therefore, archaeological monitoring would be performed, in accordance with the project's Construction Protection and Advance Field Testing Plan, Revision 2, to determine the absence or presence of potential intact cultural deposits. The plan also sets forth procedures to be followed should any intact archaeological resources be encountered. With these measures in place, no adverse effect to archaeological resources would occur.

VISUAL AND AESTHETIC CONSIDERATIONS

As shown in the photographs provided in **Figure 3**, the project site is part of a wide sidewalk in a densely developed area of Midtown Manhattan. During construction, some disruption to this setting would occur, as construction barriers are erected around the project site. As noted earlier, the construction period would be approximately eight months, so this disruption would be temporary and short-term.

Sidewalk grates are common throughout New York City. The addition of a new grate in this sidewalk would therefore introduce a design element that is typical in Manhattan and that would not alter the appearance of the project area. The new underground ventilation system would not obstruct any unique view corridors or views to any visual resources. Therefore, no significant adverse impact to visual or aesthetic resources would occur.

TRANSPORTATION

The site of the new ventilation facility is part of a wide sidewalk and is adjacent to a bus stop on Park Avenue for the southbound M1 bus. The first step in construction of the shafts and sidewalk grate would be relocation of utilities; when this work is under way, the curb lane (bus stop) would be temporarily closed. During this phase of construction, the bus stop would be temporarily relocated. Temporary bus stop relocation is typical in New York City during water main construction, utility work, roadway repairs, and other construction efforts. Relocation of the bus stop would be coordinated with MTA New York City Transit.

After relocation of the utilities, construction work on the ventilation shafts would occur. As described earlier, most of this work would be conducted from the tail track tunnels below. Nonetheless, the construction site would be fenced off from the rest of the sidewalk to protect pedestrians from the construction activities. The sidewalk in this area is more than 21 feet wide, so ample room would remain for pedestrian passage beside the construction area.

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[1] *Stage 1A Archaeological Assessment for the 37th Street Ventilation Facility, East Side Access*, September 2007, prepared by URS Corporation.

Construction of the ventilation shafts would be coordinated with MTA New York City Transit so that operations on the southbound Lexington Avenue line would not be disrupted.

Once the shaft, plenum, and grates are complete, the sidewalk would be restored and reopened.

AIR QUALITY

The addition of a new below-grade ventilation system with shafts, a plenum, and a sidewalk grate beneath Park Avenue at East 37th Street would not adversely affect air quality. The only exhaust from the ventilation facility would be warm air emitted when trains are in the tunnels below and the ambient air temperature in the tunnels exceeds 105 degrees. In the unlikely event of a smoke condition in the tunnels, smoke may also be emitted from the tunnel through the sidewalk grate. This would not be a long-term condition and would not constitute a long-term source of air pollution.

NOISE AND VIBRATION

Construction activity at the project site would result in some noise. As described above, the three ventilation shafts would be constructed using the raise bore technique, an excavation method that involves little activity at the surface and that does not produce significant levels of noise or vibration. In addition, construction activities at the site would be short-term, estimated at approximately eight months. Therefore, no significant adverse impacts related to noise or vibration during construction are expected.

Once completed, the ventilation system would not increase noise or vibration levels nearby. The fans associated with the system would be located in the tail tracks tunnel, 130 feet deep beneath Park Avenue (and below the Lexington Avenue subway line and Park Avenue vehicular tunnel) between East 37th and 38th Streets.

ENERGY

The project modifications would not affect the amount of energy consumed during the construction of the ventilation system or during operation of the East Side Access Project once complete.

UTILITIES AND SUBSURFACE INFRASTRUCTURE

The area to be affected for the new shaft, plenum, and sidewalk grate contains some buried utilities. These would be relocated prior to other construction activities.

CONTAMINATED MATERIALS

A Phase I Environmental Site Assessment was prepared to identify potential concerns related to hazardous materials at the site. As for all construction areas for the East Side Access Project, the precautions set forth in the East Side Access Project's Environmental Health and Safety Plan (HASP) would be followed during construction. In addition, contract specifications require the contractor to submit a site-specific HASP that includes health and safety requirements related to specific environmental conditions present at the site.

NATURAL RESOURCES

The project site consists predominantly of a portion of a wide sidewalk and a below-grade area beneath the sidewalk. Three street trees would be removed during construction of the ventilation

shaft, plenum, and sidewalk grate. Once the construction is complete, the street trees would be replaced.

SAFETY AND SECURITY

The new ventilation system beneath the Park Avenue sidewalk is not anticipated to raise significant issues related to safety and security.

ENVIRONMENTAL JUSTICE

Construction and operation of the ventilation system does not have the potential to result in disproportionate impacts to low-income or minority populations, which are protected by Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The population in the study area is not low-income or minority in character, and therefore no environmental justice concerns are raised by the new ventilation facility. The closest Census Tracts to the project site are Tracts 80 and 82, together extending from East 35th to East 42nd Street Park to Third Avenue (Tract 80) and from Park to Fifth Avenue (Tract 82). Tract 80 has a minority population of 17 percent and, with a total of 9 percent of its population living below the federal poverty level; Tract 82 has a minority population of 16 percent and a total of 10 percent of its population living below the federal poverty level. In comparison, Manhattan as a whole has a total minority population of 54 percent, with 20 percent of the population living below the poverty level.

D. PUBLIC OUTREACH

MTA has been conducting ongoing public outreach related to the East Side Access project, including specific outreach meetings with representatives of the neighborhood surrounding the project site for the ventilation shaft, plenum, and grates at East 37th Street and Park Avenue. The following meetings have been held to specifically discuss the ventilation features for the tail tracks:

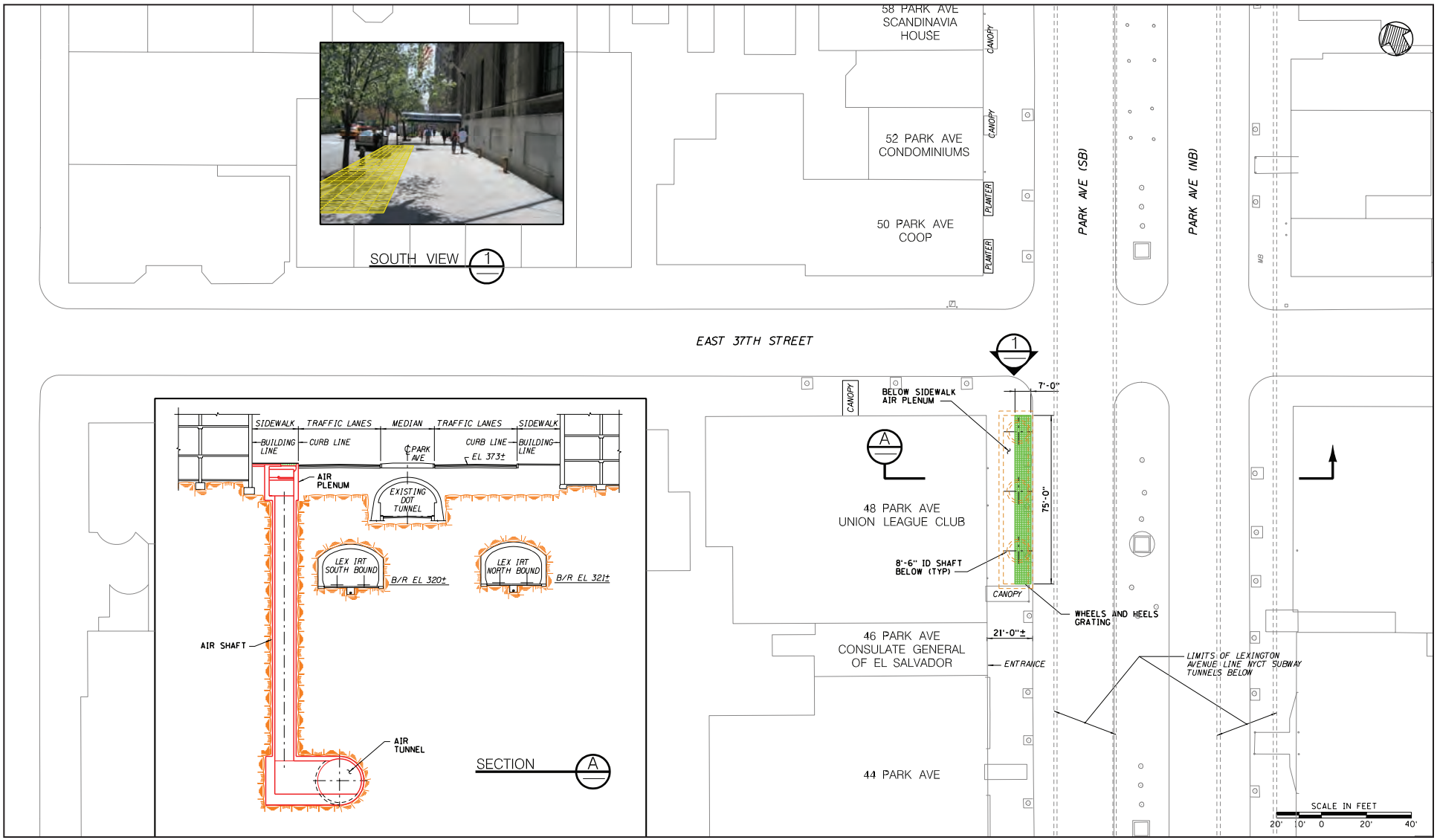
- Meeting with Community Board 6, Transportation Committee: September 7, 2006.
- Meeting with Murray Hill Neighborhood Association Board of Trustees, October 10, 2006.
- Meeting with Union League Club, August 15, 2007.
- Meeting with Community Board 6, Transportation Committee, Murray Hill Neighborhood Association Board of Trustees, and neighboring property owners (including Hotel Kitano and America-Scandinavia House): October 1, 2007.

During those meetings, neighborhood representatives indicated that they preferred the proposed location at Park Avenue and 37th Street to other potential locations that had been discussed and that they were satisfied with the proposed location for the ventilation plenum and sidewalk grate.

E. CONCLUSION

Overall, the new ventilation shafts and sidewalk grate at Park Avenue and East 37th Street would not result in significant adverse impacts. It would involve limited disruption during construction, of less intensity and less duration than construction activities anticipated for other Manhattan sites in the East Side Access FEIS. The construction activities are anticipated to last approximately eight months. Once operational, the ventilation system would be similar in nature to the numerous other below-grade ventilation systems with sidewalk grates located throughout Manhattan and the rest of the city. ✷

1.29.08

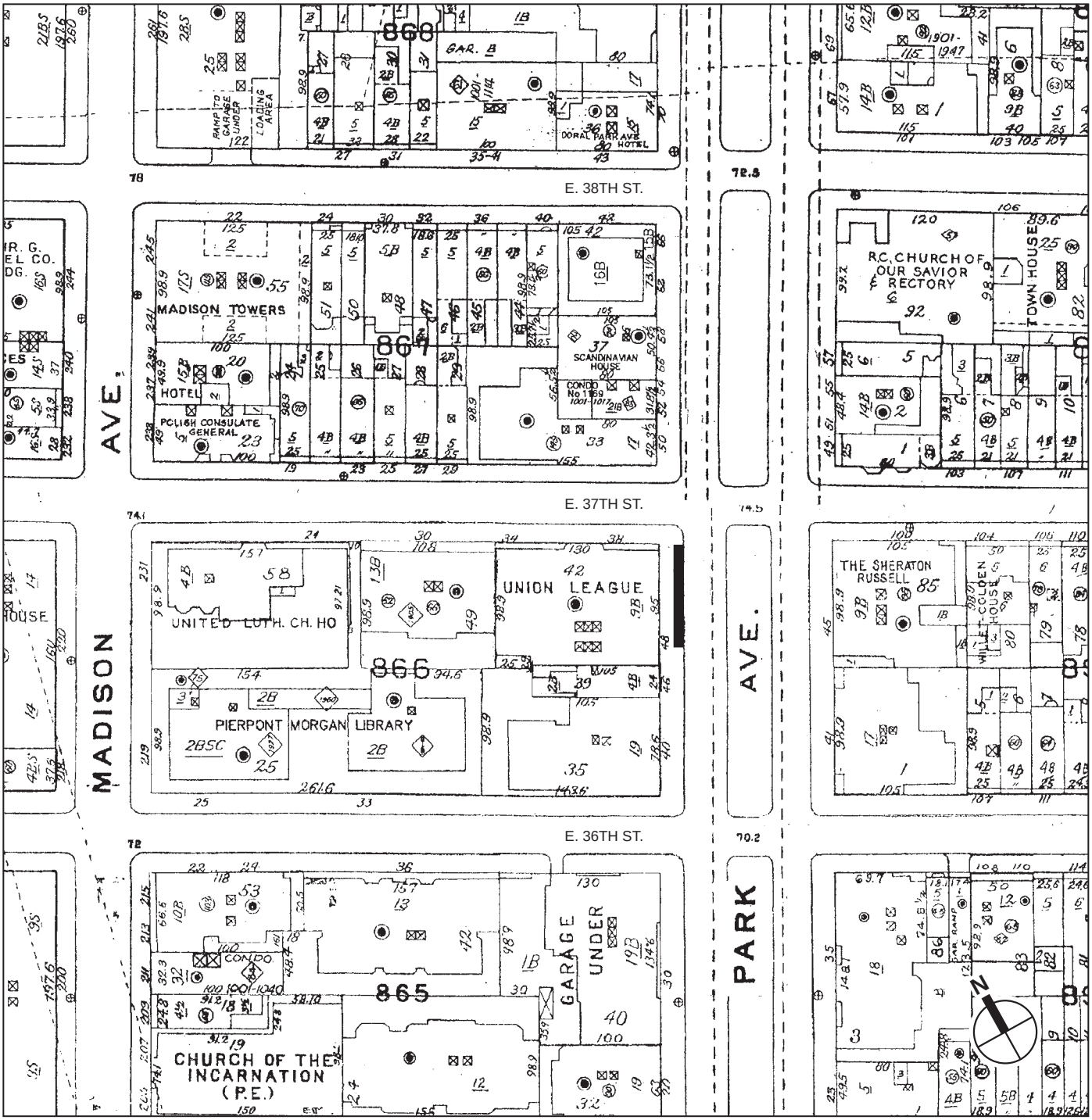


EAST SIDE ACCESS

TAIL TRACKS VENTILATION PLENUM AND GRATE

Proposed Ventilation Plenum and Grate: Plan and Profile

Figure 1



Project Site

0 200 FEET
SCALE

Location of Proposed Ventilation Plenum and Grate

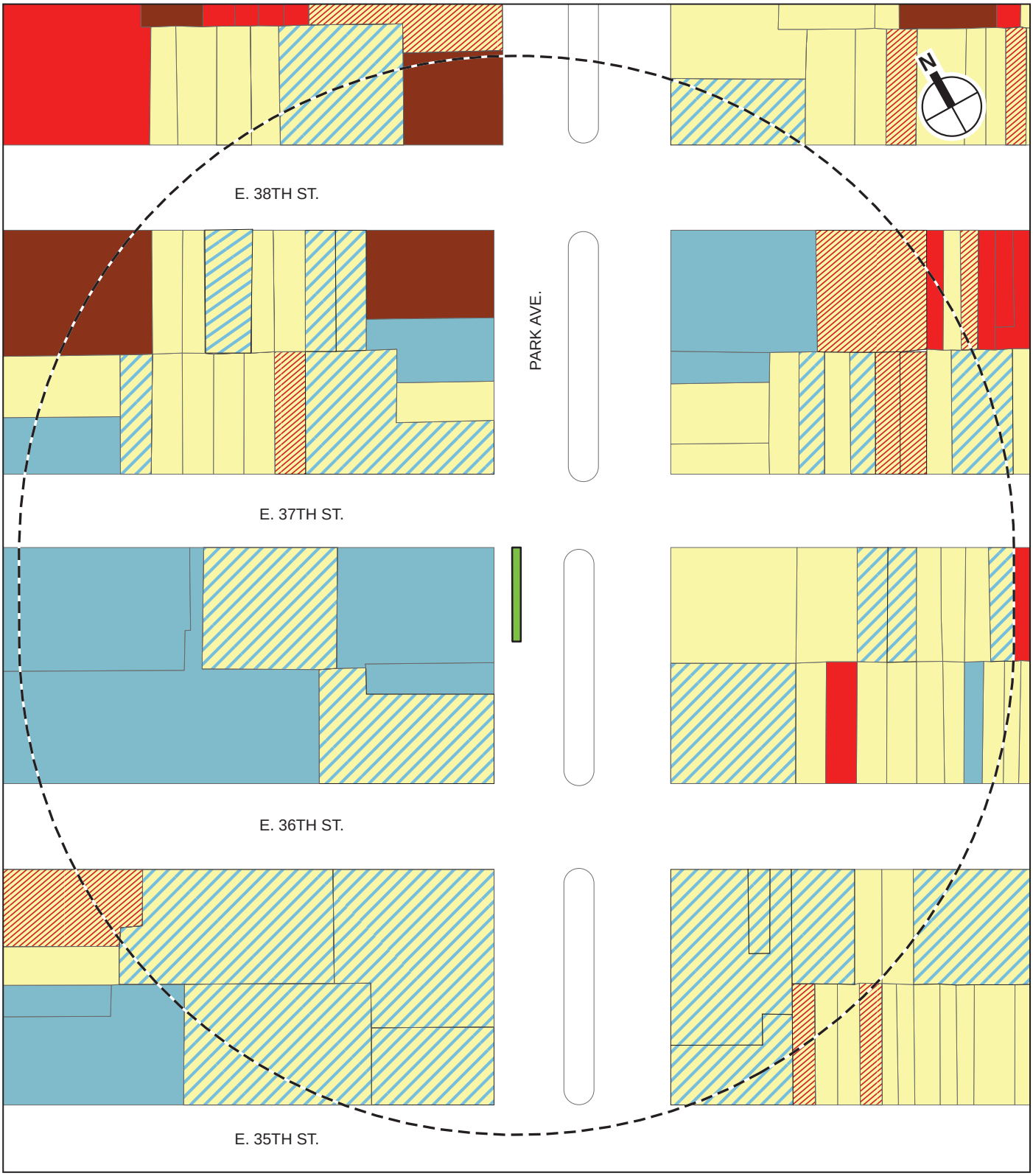
Figure 2

View south from East 38th Street **1**

View southwest from Park Avenue **2**

Views of Project Site
Figure 3

1.18.08



Project Site

Study Area Boundary (400-Foot Perimeter)

Residential

Commercial and Office Buildings

Residential with Medical Below

Public Facilities and Institutions

Hotel

Residential with Commercial Below

0 200 FEET

SCALE

EAST SIDE ACCESS

TAIL TRACKS VENTILATION PLENUM AND GRATE

Land Use

Figure 4

U.S. Department
Of Transportation
Federal Transit
Administration

Region II
Connecticut (rail operations)
New York
New Jersey

One Bowling Green
Room 429
New York, NY 10004-1415
212-668-2170
212-668-2136 (Fax)

March 3, 2010

Christopher Boylan
Deputy Executive Director, Corporate and Community Affairs
Metropolitan Transportation Authority
347 Madison Avenue
New York, NY 10017-3739

Chris

Dear ~~Mr.~~ Boylan:

FTA has reviewed the Metropolitan Transportation Authority's (MTA) "MTA LIRR East Side Access Technical Memorandum Assessing Design Changes: LIRR Concourse and Street Entrances" (referred to as Technical Memorandum No. 4), dated July 30, 2009. MTA also submitted the following documents as part of the environmental record in order to support FTA's review and decision on Technical Memorandum No. 4:

- August 28, 2009, October 22, 2009, and February 19, 2010 emails from MTA to FTA.
- December 2009 Categorical Exclusion Documentation for "Grand Central Terminal Recycling and Waste Management Facility".
- November 2009 "Pedestrian Simulation of East Side Access and Grand Central Terminal".
- January 11, 2010 "Addendum to Technical Memorandum No. 4 – 37th Street Ventilation Plant Construction Activities".

This documentation was submitted to FTA pursuant to CFR 450.771.130(c) to determine if any new significant environmental impacts would result from the proposed design changes since the East Side Access (ESA) Final Environmental Impact Statement (FEIS) and Record of Decision (ROD).

Based on FTA's analysis of Technical Memorandum No. 4 and supporting documentation, FTA finds that the refinements, as described in the above documentation, would not result in any significant environmental impacts that were not evaluated in the FEIS or ROD.

In addition, the MTA LIRR, NYSHPO, and the FTA are executing an Amendment to the 2006 East Side Access Amended Programmatic Agreement in order to ensure that if any resource is discovered when Areas of Potential Effects are modified, an amendment to the Amended PA will not be necessary. Attached for your file is one, original executed copy of the Amendment to the ESA Amended Programmatic Agreement.

If you have any question regarding this, please call me at 212-668-2170.

Sincerely,

Brigid

Brigid Hynes-Cherin
Regional Administrator

Cc: A. Heffernan, MTACC
S. Rios, MTA

I. INTRODUCTION

This technical memorandum analyzes proposed design modifications for East Side Access to determine whether additional environmental impacts would result that were not identified in the Final Environmental Impact Statement (FEIS) prepared for the project, dated March 2001, and the Record of Decision (ROD) issued by the Federal Transit Administration (FTA) on May 21, 2001. The proposed modifications are changes to the design of the non-public (back-of-house) spaces within the LIRR Concourse and the number and location of proposed entrances to the new LIRR Concourse.

This memorandum describes the FEIS design, subsequent NEPA reviews, and the proposed design modifications, and then discusses the impacts of the modified design during construction and operation, in comparison to the impacts that were previously disclosed. As discussed in this memorandum, the proposed change would not introduce any new significant adverse impacts or require any change to mitigation commitments.

Since the ROD was issued in May 2001, several Project design changes were proposed and evaluated for their potential environmental impacts. The assessments, described below, examined the proposed modifications with respect to the analyses presented in the FEIS to determine if any additional significant adverse impacts, which were not previously disclosed, would result from the changes.

- In February 2002, FTA concurred with an assessment that found no new adverse environmental impacts would result from tail tracks that will extend to 38th Street.

- In April 2006, FTA concurred with an environmental analysis of Design Changes in Queens Revision 14-4M that stated no new significant adverse environmental impacts would result when compared to what was presented in the 2001 FEIS and that no further environmental review was needed.

- In July 2006, FTA issued a Finding of No Significant Impact (FONSI) based on a Revised Supplemental Environmental Assessment to the FEIS (the EA) that was prepared to address community concerns regarding the new design for the 50th Street ventilation facility, which also included a loading dock and cooling towers.

- In July 2008, FTA concurred with an assessment of the 37th Street sidewalk grates and ventilation plenum that stated no significant adverse impacts would result from its construction or operation.

The current design modifications do not affect the Queens alignment, the tail tracks, or the 37th Street ventilation plenum/sidewalk grates. As a result, only the FEIS and the 50th Street Facility EA are discussed in this technical memorandum.

The last section of this Technical Memorandum includes proposed language for the Amended Programmatic Agreement between FTA, MTA and the State Historic Preservation Office (SHPO) dated July 2006. Under the new language, the stipulations of the Programmatic Agreement would apply to any new historic property or archaeologically sensitive area that is identified within a revised Area of Potential Effect (APE) that results from a future design change. Currently, the historic properties and archaeologically sensitive areas are specifically identified in the Programmatic Agreement. The proposed language allows for ongoing Section 106 consultation with SHPO, while limiting the number of amendments to the Programmatic Agreement that could be required during final design and construction.

Sections II and III below address the proposed changes to the LIRR Concourse and entrance scheme, respectively. Section IV addresses a GCT operating policy decision and Section V, the proposed language for the Programmatic Agreement amendment.

II. PROPOSED CHANGES TO LIRR CONCOURSE

Two proposed changes affect the concourse level of the new LIRR terminal. A description of the changes, their need, and the potential beneficial and adverse effects that could result from their implementation are described below.

Description of Proposed Change

One-Track Push Back

A minor modification to the 350,000-square-foot LIRR Concourse, which does not affect the planned public circulation or retail space, is proposed. In order to provide Metro-North Railroad (MNR) with additional train storage space on the lower level of GCT, the proposed modification (known as the One-Track Push Back) would reduce the footprint of the LIRR Concourse along Track 161. This One-Track Push Back would occupy about 4,900 square feet of space in the northeastern section of the LIRR Concourse. The non-public space in the service corridor and along the northeastern perimeter of the Concourse would be reconfigured and redesigned to accommodate the rooms that would be displaced by the Push-Back.

The FEIS design left almost 30,000 square feet of unassigned space in the Concourse. In conjunction with re-allocations of space for LIRR operations, MTA police, retail etc., the current design includes an additional 20,000 square feet of public circulation space and 8,000 square feet of retail space compared to the FEIS design. Under the current design, only 625 square feet of unassigned space remains. It was anticipated that as design progressed, the level of unassigned space would be reduced.

The table below shows how the space allocation in the proposed LIRR Concourse has changed over time.

Space Allocation in LIRR Concourse

PROGRAM CATEGORY		2005 (Design SF)	2009 (Design SF)
LIRR Terminal Management	LIRR Passenger Services LIRR System Safety LIRR Information Technology LIRR Controllers	22,638	18623 433 1267 283
LIRR Transportation	LIRR Transportation	9,121	7,941
LIRR Engineering	LIRR Engineering	12,055	20,232
	Third Party Communication Vendors		899
MTA Police	MTA Police	5,396	11,075
Building Infrastructure	Building Infrastructure	92,913	92,946
Retail	Retail	18,463	26,515
Public Spaces (Circulating, waiting, queuing)	Public Spaces (Circulating, waiting, queuing)	79,636	89,694
Vertical Circulation	Vertical Circulation	11,360	11,014
Service	Service	58,989	59,530
MNR Access Corridor	MNR Access Corridor	825	573
Commissary	Commissary	8,705	8,705
Unassigned	Unassigned	29,233	625
CONCOURSE (TOTAL SQUARE FEET)		**349,334**	**350,355**

Staging Area for the Unified Trash and Recycling Facility

A Unified Trash and Recycling Facility is proposed jointly by MNR and LIRR, to be funded separately from East Side Access. The facility will have independent utility from ESA and would occupy tracks 186, 187, and 188 to the north of the proposed LIRR service corridor in the approach tunnels to GCT.

Neither the design nor function of the 50th Street Facility would change as a result of the Recycling Facility. The 50th Street Facility would still include a loading dock for deliveries of materials and equipment for the LIRR Terminal, and as a fall back facility for trash and recyclables in the event that normal operations of the Unified Trash and Recycling Facility are interrupted. Approximately 2,000 square feet of space would be allocated within the LIRR service corridor (back-of-house space) for use as a staging area for this facility.

FEIS Design

The concept design for the proposed LIRR Concourse under the Preferred Alternative that was presented in the FEIS was a schematic (see Figure 2-8). The concept design did not provide the level of detail needed to describe the proposed changes associated with either the One-Track Push Back or the staging area for the Unified Trash and Recycling Facility.

The description presented in the FEIS for the LIRR Concourse is as follows:

> *The Preferred Alternative would bring trains to a new level beneath the existing lower level at GCT, and would create a new passenger concourse on the west side of the existing lower level of GCT. The new passenger concourse would occupy the westernmost track area of GCT's lower level (the area that would be used for LIRR's new tracks and platforms under Option 1). That area is currently occupied by four tracks used for MNR service (tracks 114-117) and the tracks of MNR's Madison Yard. The new finished concourse space would be separated from MNR's track area to the east, and would be well lit and climate controlled. It would include passenger amenities, such as ticketing booths, information booths, waiting room seating, retail elements (newsstands, etc.), and required LIRR administrative and operational support services. (see page S-12)*

50th Street Facility EA

The EA prepared for the 50th Street Facility did not provide any details on the service corridor leading to the Facility.

Assessment of Effects of Proposed Concourse Changes

Neither the One-Track Push Back nor the staging area for the Unified Trash and Recycling Facility would result in significant adverse impacts in any of the NEPA impact areas or change the conclusions presented in either the FEIS or the 50th Street EA. The One-Track Push Back would benefit public transportation by providing an additional revenue track for MNR's service. Allowing for a staging area within the LIRR service corridor would facilitate the operations of the new Recycling Facility, which will have many benefits, including a reduction of a few truck trips per day at the 50th Street Facility.

III. PROPOSED CHANGES TO ESA ENTRANCE SCHEME

The proposed changes affecting entrances to the new LIRR Terminal include deferring one street entrance (at 45th Street) until plans for the host building are finalized and eliminating one street entrance (at 44th Street) due to constructability issues. Figure 1 shows the street entrance scheme presented in the FEIS and indicates the current plans for entrances.

FEIS Design Description

New entrance locations were chosen from an initial list of 27 sites (developed during the Major Investment phase of the project) based on a set of objective siting criteria. While a review of structural and architectural drawings for affected buildings was part of the screening process, for some buildings these drawings were not up-to-date or even available. The FEIS (pg. 2-14) states that "as info becomes available through surveys performed during P.E., the locations chosen will continue to be reviewed and assessed... any change in the location of an entrance to GCT is likely to a minor one, with potential

shifts within the same building or block, or to a nearby street, which would not significantly affect the environmental analyses presented in this document." The sites listed for the Preferred Alternative include:

- 44th Street (the Bank of America building at 335 Madison Avenue);
- 45th Street (the MTA Building at 347 Madison Avenue);
- 47th Street (the American Brands Building at 245 Park Avenue on the south side of the street between Park and Lexington avenues);
- 48th Street (outside of the Chase building at 270 Park Avenue on the southwest corner);
- 48th or 49th Street (the Bankers Trust building at 280 Park Avenue between Madison and Park avenues).

It is important to note that the number of entrances selected was based on criteria related to customer convenience and was not a result of projected demand. It is also important to note that the five street entrances were initially selected for Option 1 of the Manhattan Alignment. Option 1 would require the use of the lower level of GCT for a new LIRR terminal instead of constructing the platforms and mezzanine beneath the lower level (and using only Madison Yard in the lower level for a new Concourse), as in the Preferred Alternative (Option 2). Option 1 would rely on the Biltmore Room, new space created adjacent to the Dining Concourse, and three cross passageways for passenger circulation, whereas Option 2 provides for a large 350,000 square foot concourse that offers direct exit to streets and significantly better passenger circulation for both LIRR and MNR customers.

The Preferred Alternative would also use three of the access points constructed as part of the Grand Central North Project (including the 383 Madison Avenue building) by constructing an escalator bank between MNR Tracks 34/35 and 36/37 from the 47th Street cross passage to the LIRR Concourse, and two stairwells at the far west end of the 47th Street Crosspassage.

The FEIS states that the Biltmore Room would be "considered" for the Preferred Alternative; however, it was included in the design for Option 1. *In Option 1, pedestrians entering GCT would use one of two vertical circulation elements that carry people up directly into the Biltmore Room under 43rd Street. Pedestrians would also be able to enter GCT's Dining Concourse near and just west of track 116 walking through a small waiting area at the south end of LIRR tracks. In Option 2, all pedestrians would first enter the Dining Concourse near track 116 to make their way upward using a number of vertical circulation elements available such as the Oyster Bar ramps and the new escalator bank bringing people up near the New York Transit Museum store.* (see page 9C-61 and Figure 9C-2, attached)

Based on 2020 demand and beyond (analyses assumed that the LIRR system would operate at full capacity i.e., 24 twelve-car trains per hour, 95 percent full); a significant amount of excess capacity would be provided under the Preferred Alternative.

Description and Justification for the Change

The 45th Street Entrance (MTA building at 347 Madison) would be deferred until a later date and the 44th Street Entrance (the Bank of America building at 335 Madison Avenue) would be eliminated. The current design includes an ADA elevator within the new ventilation structure on 44th Street, and while the 44th Street Entrance would not be built as part of East Side Access, the concourse design would not preclude its construction at some later date, should future passenger flow demand justify such expenditure.

The entrances at 47th Street (245 Park Avenue) and 48th Street (280 Park Avenue) are common to both the EIS and the proposed design.

The 44th and 45th street entrances, in general, were shown to process small pedestrian flows when examining the ridership model's zonal end destinations, likely, in part, because land uses served by those entrances are almost fully built out today and destinations to the southwest are also served by Penn Station for LIRR customers. These entrances would each process about five to six percent of all egressing flows; by comparison, other individual entrances would process ten or more percent of egressing flows.

Two modest-sized (similar to the recently constructed MNR North End Access entrances) 48th Street entrances were identified in the FEIS – one at 280 Park Avenue and the other, across the street on the same block, at 270 Park Avenue. This entrance at 270 Park Avenue was planned with one stairway and one escalator daylighting in the large open plaza area at 270 Park Avenue (west side of Park Avenue). The entrance was mandated under Option 1 (shallow tunnel option in the FEIS) to correct a dead-end condition in a proposed 48th Street cross passage. Since there is no 48th Street cross passage under the Preferred Alternative, the need for this entrance is not critical. The current design includes a large entrance at 280 Park Avenue (four escalators and a staircase on 48th Street), eliminating the redundancy of the two FEIS entrances while providing ample capacity for those destined to 48th Street and north.

Constructability constraints related to the 45th and 44th Street entrances are described below.

45th Street (MTA building at 347 Madison Avenue)

The 45th Street entrance would be located between Vanderbilt and Madison avenues beneath 45th Street coming up into the MTA building at 347 Madison Avenue. Three escalators and a stairway would be constructed. MTA's building at 347 Madison Avenue is a relatively antiquated building, making construction of the entrance difficult. The construction would require relocation of the ground-floor tenants, and removal and relocation of the building's mechanical systems including: steam rigs and the steam line from the street; compressed-air service; ground-floor duct work and air handling units; storm and sanitary lines; and water heaters.

In addition, several existing building columns would require underpinning, increasing construction risk and costs. Construction would also require penetration of the exterior

UA wall of GCT and relocation of an Empire City Duct Line containing 35 occupied conduits (constituting two years of work).

A proposal to demolish 347 Madison Avenue to permit as-of-right high-rise development at the site is under consideration by MTA. Given the difficulties associated with the entrance construction, and the possibility of site redevelopment, MTA proposes to defer the design of this entrance until plans for the building are finalized. Redevelopment of the site would facilitate the integration of a street entrance on 45th Street and eliminate the problems associated with maintaining the entrance during construction.

In order to meet New York State Building Code requirements, an emergency fire exit consisting of a stairway would be constructed leading to 347 Madison Avenue in the interim. The Code requires that travel distance to an exit from any public space within the Concourse cannot exceed 250 feet, and as a result, this stairway would be required to meet code.

44th Street Entrance (Bank of America Building at 335 Madison Avenue)

The entrance on 44th was planned to be constructed within the Bank of America building. At the Concourse level beneath 44th Street, a large opening would be created in the UA wall, entering a vestibule for two escalators and a stair that would convey passengers southerly to a landing constructed within the parking level of the MTA garage. From that landing, two escalators and stair would lead to an entry lobby at Madison Avenue. In addition, for the parking level landing, a wide staircase would be built leading to the passageway adjacent to the Biltmore Room. This would require relocation of a retail tenant at the street, lower lobby and basement levels, and permanent taking of those spaces, within the Bank of America building. It would significantly reduce the quantity of MTA garage parking, and would reduce basement tenant space currently occupied by a health club, requiring permanent taking of that area. In addition, it would require relocation of existing building services, an existing emergency egress stair, and a building exhaust air shaft. Two existing perimeter building columns would be removed, requiring reframing of the basement and sub-basement floors.

FEIS Analyses Related to the Proposed Changes

Pedestrian Conditions Within GCT

The FEIS analyzed conditions within GCT with and without the introduction of new LIRR service. During the four-hour AM peak period, about 65,000 new LIRR riders would pass through GCT in 2020, with about 44 percent of this new ridership concentrated in the 8-9 AM peak hour (29,000).

Most of the LIRR riders would be destined to points north of the terminal (areas that are difficult to access through Penn Station subway connections) and would not enter GCT at all. About 65 percent or about 42,200 would be destined to 45th through 49th Streets or above during the 6-10 AM peak period. Some 15,300 people (23.5 percent) would be destined to 45th Street or south. The remaining 11.5 percent or 7,450 would be leaving

GCT via the subway (see Figure 9C-7, attached). Pedestrians destined to areas south of 42nd Street would walk through GCT as a link in their travel.

To assign LIRR riders to their final Midtown destination, exiting LIRR patrons were assumed to use one or more of the nearest exits closest to their end location. Once on the street, people were assumed to follow as direct a path as possible into their Manhattan destination zone.

The pedestrian analysis examined the five new entrances proposed under the Preferred Alternative, and the existing GCT entrances including the three recently constructed (two within Grand Central North, and one within the 383 Madison building) entrances to the 47th Street cross passageway (pgs 9C-43 and 9C-60).

Vertical Circulation Elements (VCEs)

The FEIS identified significant adverse impacts at several locations within GCT, using methodology found in the New York City Office of Environmental's Coordination's *CEQR Technical Manual* (the guidebook in the conduct of all traffic and environmental studies in the City). The methodology for determining a significant impact on an escalator (which is not included in the CEQR Technical Manual), was developed as follows:

- If capacity is exceeded when comparing future No Action with Preferred Alternative demand; and
- If the v/c ratio is already greater than 1.00 in the No Action, if it increases by 5 percent with the addition of incremental pedestrian flows. This is roughly equivalent to a one-inch widening (associated with stairway LOS F) based on the similar processing rates of a standard 24-inch-wide stair exit lane or a single 20-inch lane of a dual-lane, 40-inch wide escalator.

The most significant pedestrian flow impacts in GCT that were identified in the FEIS, are the IRT subway stairs and escalators, which would be unaffected by the proposed design changes, and so are not discussed in this technical memorandum. The number of people going to the subway would be unaffected by the change to the street entrance scheme.

Of 28 pedestrian circulation elements analyzed in the FEIS (see Table 9C-29, attached), not including the IRT subway stairs and escalators, the following elements were found to be adversely affected for the 15-minute AM or PM peak periods:

- Escalators facing the NY Transit Museum – predicted to operated under capacity in the No Build, would operate over capacity in the Build Condition. Operating both escalators in the same direction during peak hours would mitigate this impact.
- West Stairs (north set) from Dining Concourse – predicted to operate at LOS B in the No Build, would operate at LOS D in the Build condition. The south set of the West Stairs would be underutilized (since the model assigns customers to the nearest VCE).

All other locations would operate at acceptable levels of service under the FEIS design, primarily LOS A or B, with three locations operating at LOS C.

In addition to impacts in the 15-minute peak period, one location would be adversely affected during the five-minute peak period. The 43rd Street Stairs from the Biltmore Room would deteriorate from LOS B to LOS D during the AM 5-minute peak.

Please note that these FEIS impacts were overstated for the Preferred Alternative (Option 2). At the time of the pedestrian flow analysis, the design of Option 2 had not advanced far enough to identify where the escalators from the LIRR concourse would daylight in the Dining Concourse. The pedestrian flow analysis assumed that the LIRR escalators would be located near Track 116 (where customers would enter the Dining Concourse under Option 1), which is between the West Stairs (north set) and the NY Transit Museum escalators. Since the pedestrian flow model assigns pedestrians to the nearest VCE, LIRR customers were assigned to the Museum escalators and the north set of the West Stairs. The LIRR escalators would, in fact, daylight in the Dining Concourse in front of the West Stairs, in between the north and south sets. So customers would use both the north and south set of the West Stairs, which has ample capacity under Build conditions. The museum escalators, behind the West Stairs, would operate under capacity since most customers would choose the stairs.

47th Street Crosspassage

Time-space analyses (which examine useful spaces occupied by people for selected critical time durations) under the FEIS design indicate that no significant adverse impacts would occur in the corridor with the addition of LIRR customers, assuming reasonable worst-case pedestrian flows and normal operating conditions. In addition, the VCEs to the 47th Street cross passage from the street were found to operate with ample capacity for future projected volumes of both MNR and LIRR customers.

Sidewalks

Finally, the FEIS identified significant impacts on sidewalks and at crosswalks due to the increase in pedestrian activity in the GCT area. Mitigation measures included the widening of crosswalks in some locations and aimed at clearing the sidewalks of a variety of street impediments (private vendors and/or street furniture such as newspaper kiosks and flower boxes) to create more sidewalk capacity. These measures would be implemented if the NYC Department of Transportation deems them warranted upon project completion (pg 9C-64).

Assessment of Effects of Proposed Changes

The street entrance locations presented in the FEIS were based on design objectives for passenger convenience, which included the desire to span the length of the public circulation space within the LIRR Concourse. In addition, their locations were chosen so that each passenger entrance could also function as an emergency exit to meet New York State Building Code requirements. The Code requires that an emergency exit be within 250 feet of all public spaces within the Concourse. To meet this requirement the Project would need to construct emergency exits at 45th, 46th, 47th, and 48th streets.

The current design would meet the Code requirements since an emergency stair would be provided at 45th Street in lieu of the passenger entrance. As in the FEIS design, an emergency staircase would be provided at 46th Street in the Roosevelt Hotel, and the 47th Street at 245 Park Avenue, and 48th Street at 280 Park Avenue entrances would also serve as emergency exits meeting Code requirements.

The latest planning assumptions and modeling techniques were used to assess potential impacts in the GCT area that could result from the proposed design changes. The updates include:

- A 2006 origin-destination survey of LIRR customers used to assign passengers to their final destinations. In the FEIS, 1990 U.S. Census data was used;
- Projects that will be implemented by 2020 were included in the No Action alternative including Second Avenue Subway and the No. 7 Extension;
- The latest 2020 NYMTC socioeconomic forecasts for Metro-North and NYCT growth rates;
- New pedestrian counts in the GCT area that were recorded in October 2008; and
- Use of STEPS (Simulation of Transient Evacuation and Pedestrian movementS), a dynamic model that provides real-time 3D simulations of pedestrian movements, level of service and usage, in lieu of the manually calculating pedestrian movements as was done in the FEIS.

The characterization of significant adverse impacts within GCT and on sidewalks and crosswalks near the entrances followed the same methodology used the FEIS identified above.

As indicated below, the revised entrance scheme would not result in significant adverse impacts in any of the NEPA impact areas nor change the conclusions presented in the FEIS or any of the other NEPA reviews.

Pedestrian Conditions Within GCT and the 47th Street Crosspassage

Currently approximately 77,700 Metro-North Customers either enter or leave the GCT Upper Concourse to/from the street during the PM peak hour (which is slightly higher than the morning peak hour). By 2020, that number is expected to grow to approximately 90,800 Metro-North Customers (and 101,200 MNR customers in year 2030). Only about 10,530 LIRR customers are expected to traverse GCT's Upper Concourse en route to the

escalators in the Dining Concourse to the new LIRR Concourse. This is a worst-case number based on the LIRR operating at full capacity – 24 fully loaded trains per peak hour. Hence, LIRR customers will comprise only about 10 to 12 percent of railroad customers in GCT proper (i.e., not including the 47th Street cross passage) in future years.

Using up-to-date assumptions and assigning the new pedestrian overlay onto GCT without the 44th and 45th Street entrances, the findings of the FEIS did not change appreciably and no new significant pedestrian impacts were identified at likely potential impact locations (primarily areas in and around the 47th and 48th Street entrances).

Two previously cited significant impact locations, the Museum escalators and the West Stairs (north set) from the Dining Concourse would *not* experience impacts because of the current design configuration of the LIRR escalators into the Dining Concourse. In the case of the Museum escalators, the current design significantly reduces the reliance of this particular element, and pedestrians would primarily use the center areas of the Dining Concourse to ascend up and out of the new LIRR Concourse and GCT. In the case of the West Stairs (north set) from the Dining Concourse, the new LIRR escalators would connect to the Dining Concourse in between the north and south sets of stairs, so both stairwells would likely be used fairly equally and the combined stair capacity would be sufficient to result in LOS C operations. Pedestrian simulation modeling of these areas mentioned indicates that these spaces and elements would operate acceptably.

For areas of concern within the 47th Street Crosspassage, time-space analyses indicate that acceptable levels of service would prevail. Pedestrian simulation modeling of this area indicates that while there would be small areas of congestion for short time durations, the overall space would operate acceptably. The VCEs connecting to the street would continue to function, as reported within the FEIS, with volume-to-capacity ratios indicative of conditions under capacity and no queuing.

Person Trips at 47th and 48th Street Entrances in 2020 Build Conditions

Location	FEIS MNR	FEIS LIRR	Current Design LIRR
48th Street (280 Park/270 Park/415 Madison)	na	1500	1800
NE corner of Park/48th (@ Westvaco Building)	900	725	1,150
47th Street btw Park and Lex (245 Park Avenue Bldg)	560	245	720
47th Street btw Mad. and Vand. (northside of 47th)	680	275	120
Madison / 47th (inside Bear Stearns Bldg)	635	220	720

Volume to Capacity (V/C) Ratio at 47th and 48th Street Entrances in Year 2020

Location	FEIS No Build	FEIS Build	Current Design Build
48th Street (280 Park/270 Park)	na	0.35	0.53
NE corner of Park/48th (@ Westvaco Building)	0.38	0.68	0.90
47th Street btw Park and Lex (245 Park Avenue Bldg)	0.22	0.32	0.52
47th Street btw Mad. and Vand. (northside of 47th)	0.32	0.55	0.49
Madison / 47th (inside Bear Stearns Bldg)	0.28	0.37	0.63

These volume-to-capacity ratios indicate that all VCEs would operate under capacity in the current design.

Pedestrian Conditions on Sidewalk Corners and Crosswalks

The northeast and southeast corners of the Madison Avenue /47th Street and Park Avenue/48th Street intersections would operate similar to those cited in the FEIS (Tables 9C-34 and 9C-35). These conditions are summarized below.

Location	Corner	PM FEIS (from Table 9C-34)	PM Current Design
Madison Avenue at 47th Street	Northeast	C	C
	Southeast	D	D
Park Avenue at 48th Street	Northeast	C	D

Location	Crosswalk	PM FEIS (from Table 9C-35)	PM Current Design
Madison Avenue at 47th Street	North	D	C
	East	E	E
	South	C	D
Park Avenue at 48th Street	North	B	B
	East	D	D

Other Environmental Impact Areas

No changes would result to the conclusions found in the FEIS with regard to the proposed modifications in the following impact categories:

- Land Use, Zoning, and Public Policy
- Social Conditions
- Economic Conditions
- Visual and Aesthetic Considerations

- Historic Resources
- Archaeological Resources
- Transportation – subways, vehicular traffic, parking
- Air Quality
- Noise and Vibration
- Utilities
- Energy
- Contaminated Materials
- Natural Resources
- Coastal Zone Management
- Construction Impacts
- Environmental Justice
- Secondary and Cumulative Effects
- Safety and Security
- Commitment of Resources

IV. GCT OPERATING POLICY

MTA has decided that LIRR operations in GCT will be consistent with MNR's operations, which currently do not provide 24 hour service, seven days per week. This decision has no impact on the conclusions or mitigation measures presented in the FEIS, since the FEIS focuses on worst-case analyses during peak hours and makes no mention of a nighttime operating policy. This decision will not adversely affect LIRR service; Penn Station will continue to provide nighttime service.

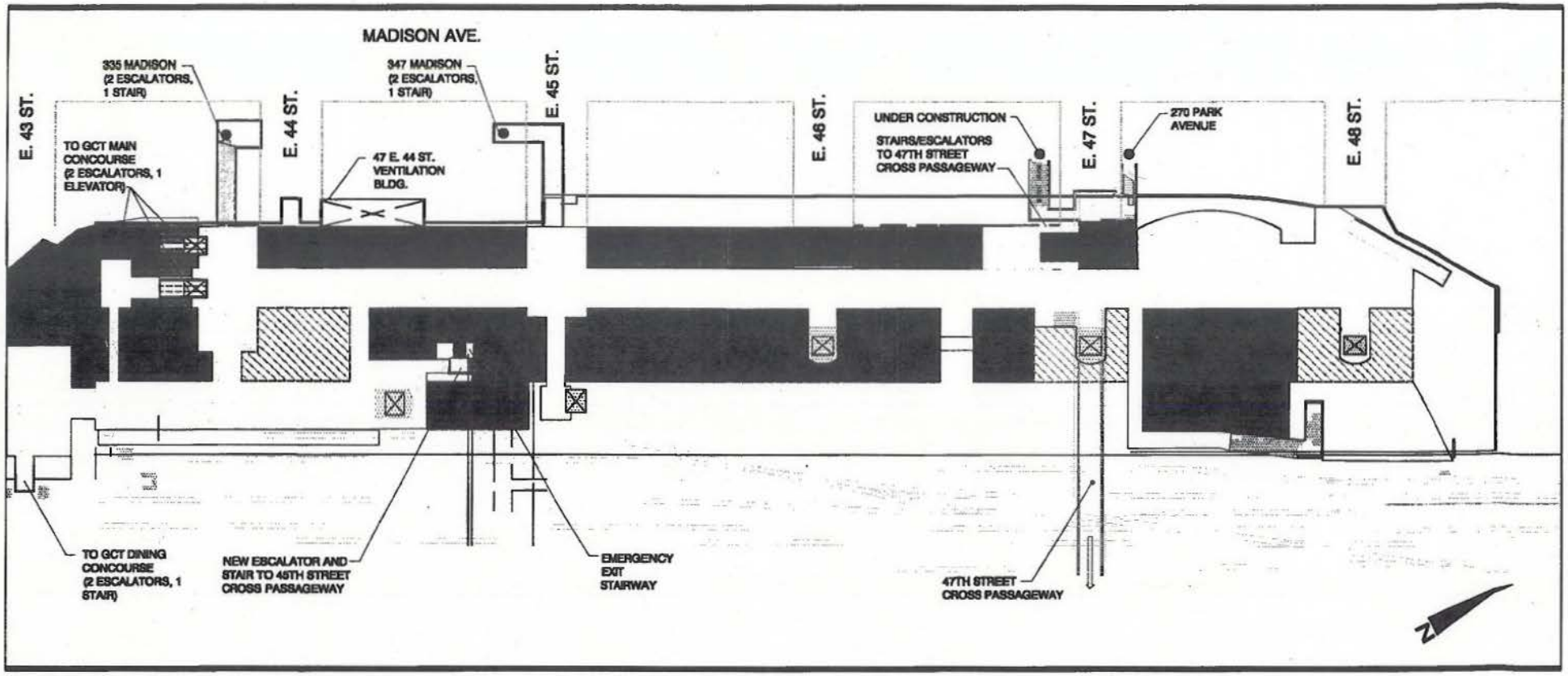
IV. PROGRAMMATIC AGREEMENT AMENDMENT

The following language is proposed to be added to the Programmatic Agreement:

Additional Built Historic Properties and archaeologically sensitive areas (collectively historic resources) not referenced in this PA may be identified by MTA CC with FTA, NYSHPO, NYCLPC and other appropriate New York agencies as project engineering proceeds and if new project elements are added to the design. If additional historic resources are identified within the existing APE that could potentially be affected (via either direct or indirect effects) by the design change, the stipulations of this PA will apply. For any change of design that affects the project's horizontal alignment, the APE will be expanded consistent with how the APE is defined in this document. Any previously unevaluated historic resource identified in newly affected areas will be identified and evaluated by MTA CC for listing in the National/State Register of Historic Places or as a New York City Historic Landmark in consultation with NYSHPO and the NYCLPC. The associated documentation will be comprised of an inventory form, a physical description, a statement of significance, and photographs of the resources in question for Historic Built Properties and a Stage 1A Archaeological Assessment for archaeological resources. The potential effects on those additional historic resources will be assessed prior to construction by FTA and MTA CC, in consultation with

NYSHPO, in accordance with the Section 106 process (36 CFR 800). If additional historic resources that could potentially be affected (via either direct or indirect effects) are identified within the expanded APE, the stipulations of this PA will apply.

MTA CC will consult with FTA, NYSHPO and NYCLPC annually to ensure that FTA and MTA CC maintain up-to-date lists of historic resources within the existing and expanded APEs as the design and construction of East Side Access proceeds.



LEGEND

- Proposed Vertical Circulation to Street
- Proposed Vertical Circulation from Platforms
- Proposed Retail / Amenities / Other LIRR space
- Proposed Waiting Area
- Exits to Street

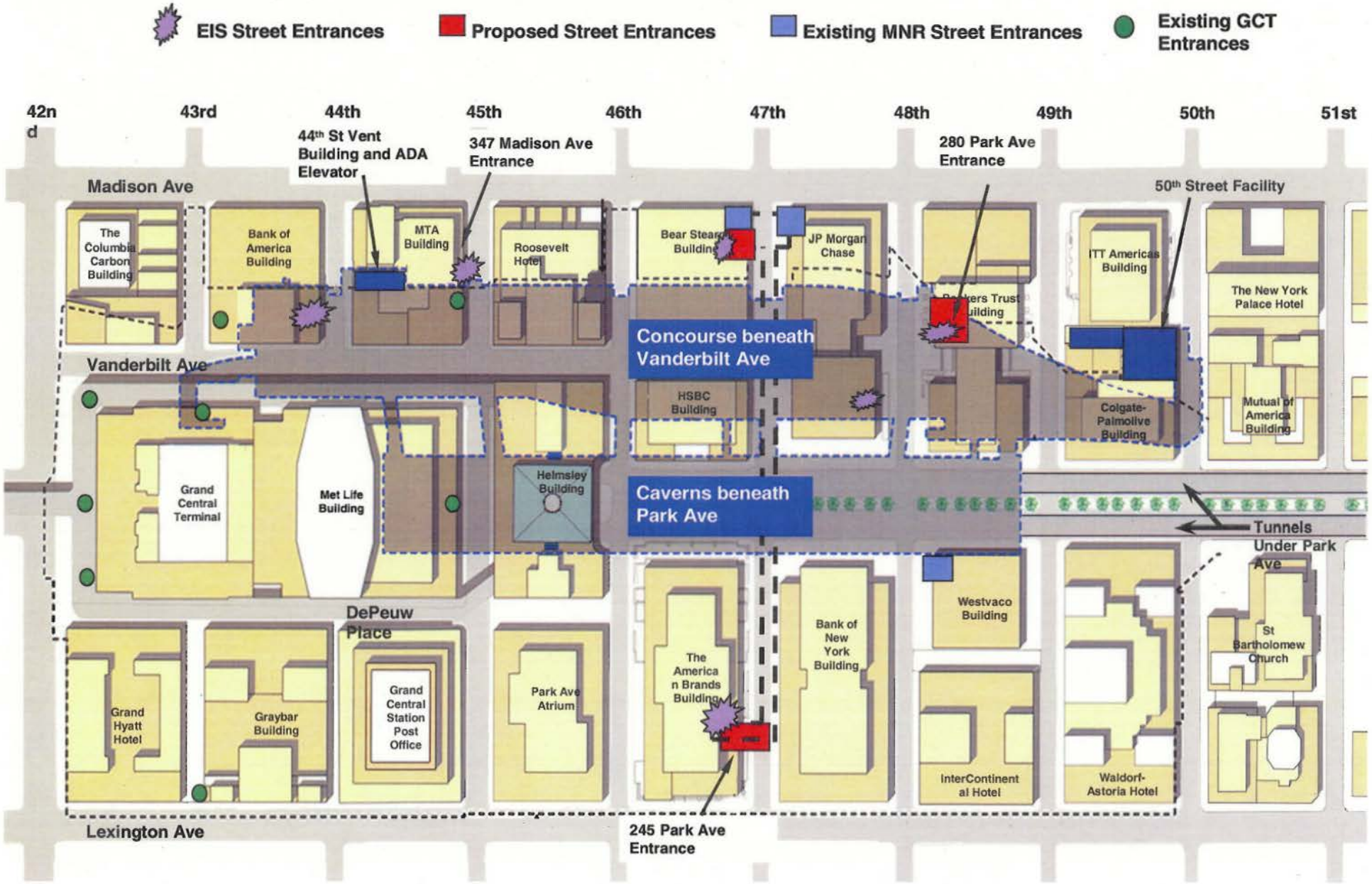
0 50 100 150
SCALE

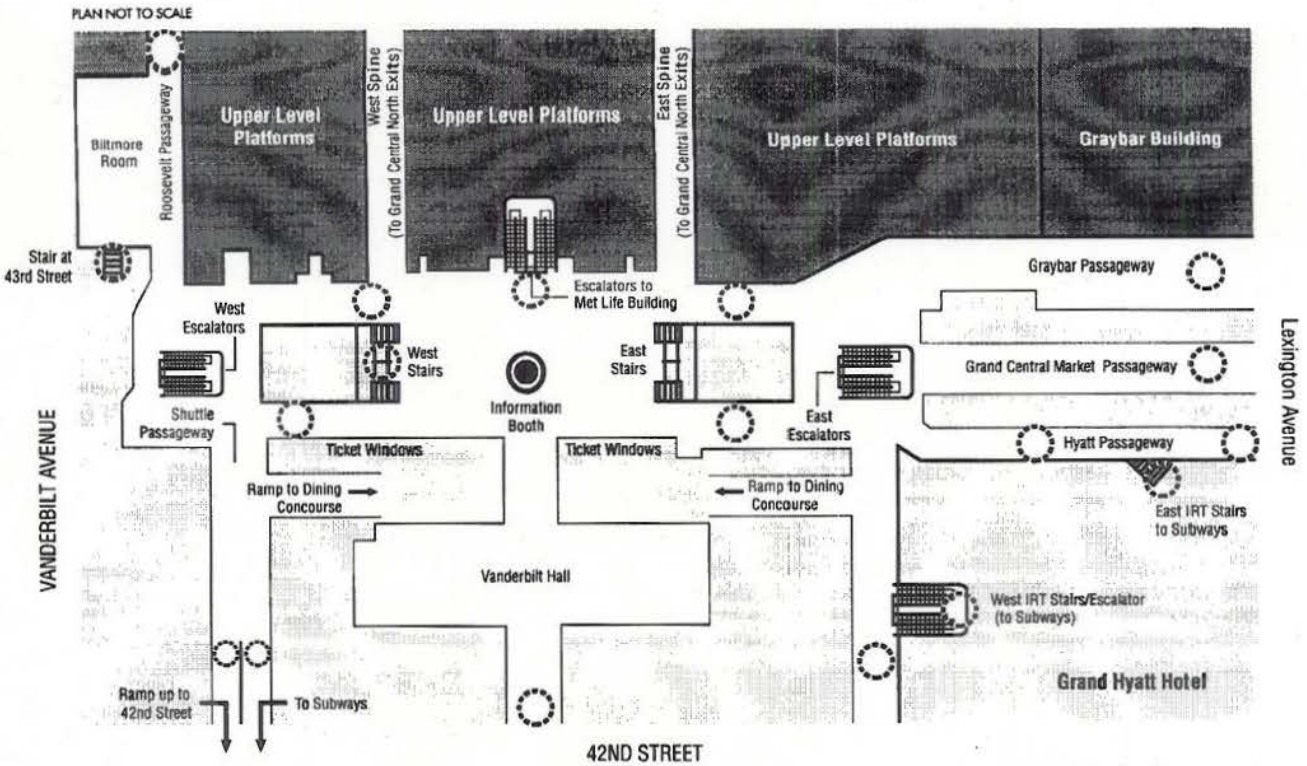
MTA/LIRR
East Side Access

Figure 2-8

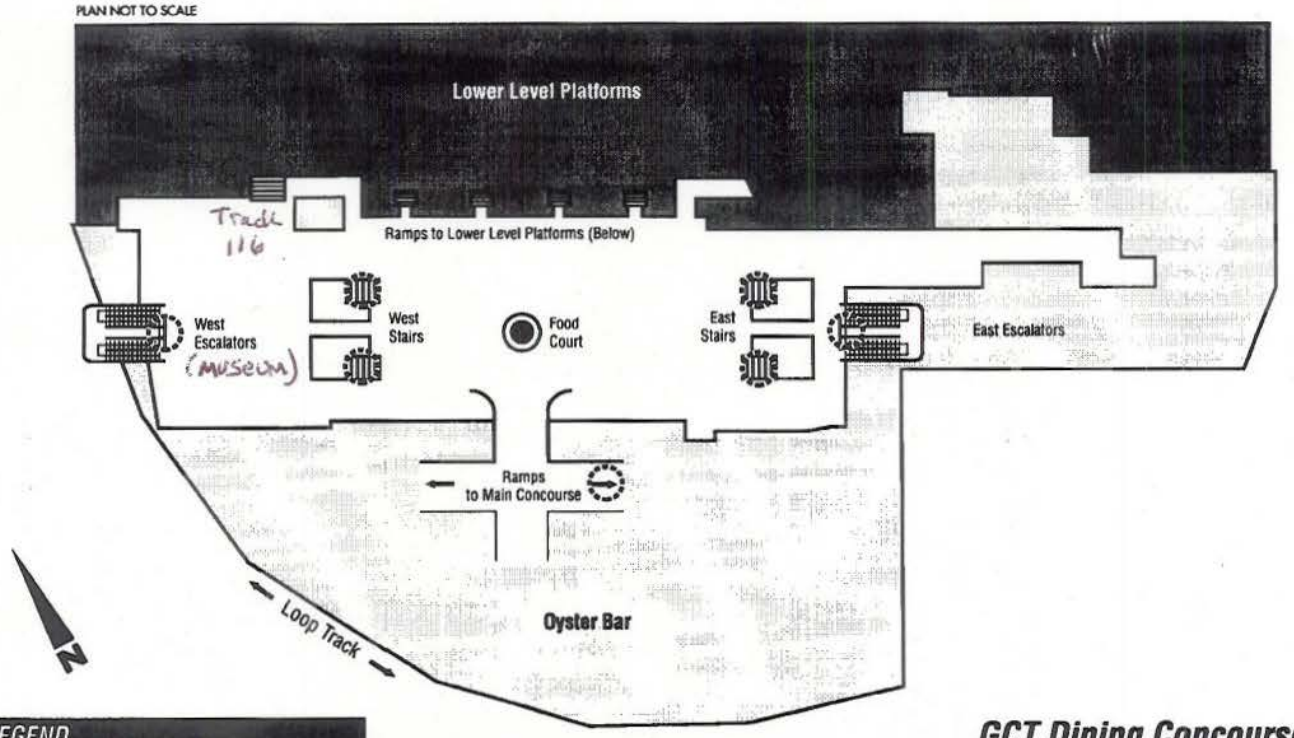
Proposed Concourse at Lower Level: Option 2

East Side Access Entrance Locations

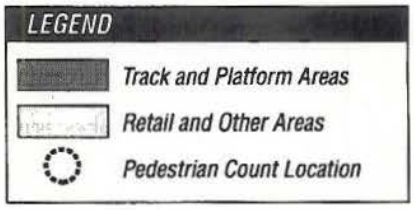




GCT Main Concourse



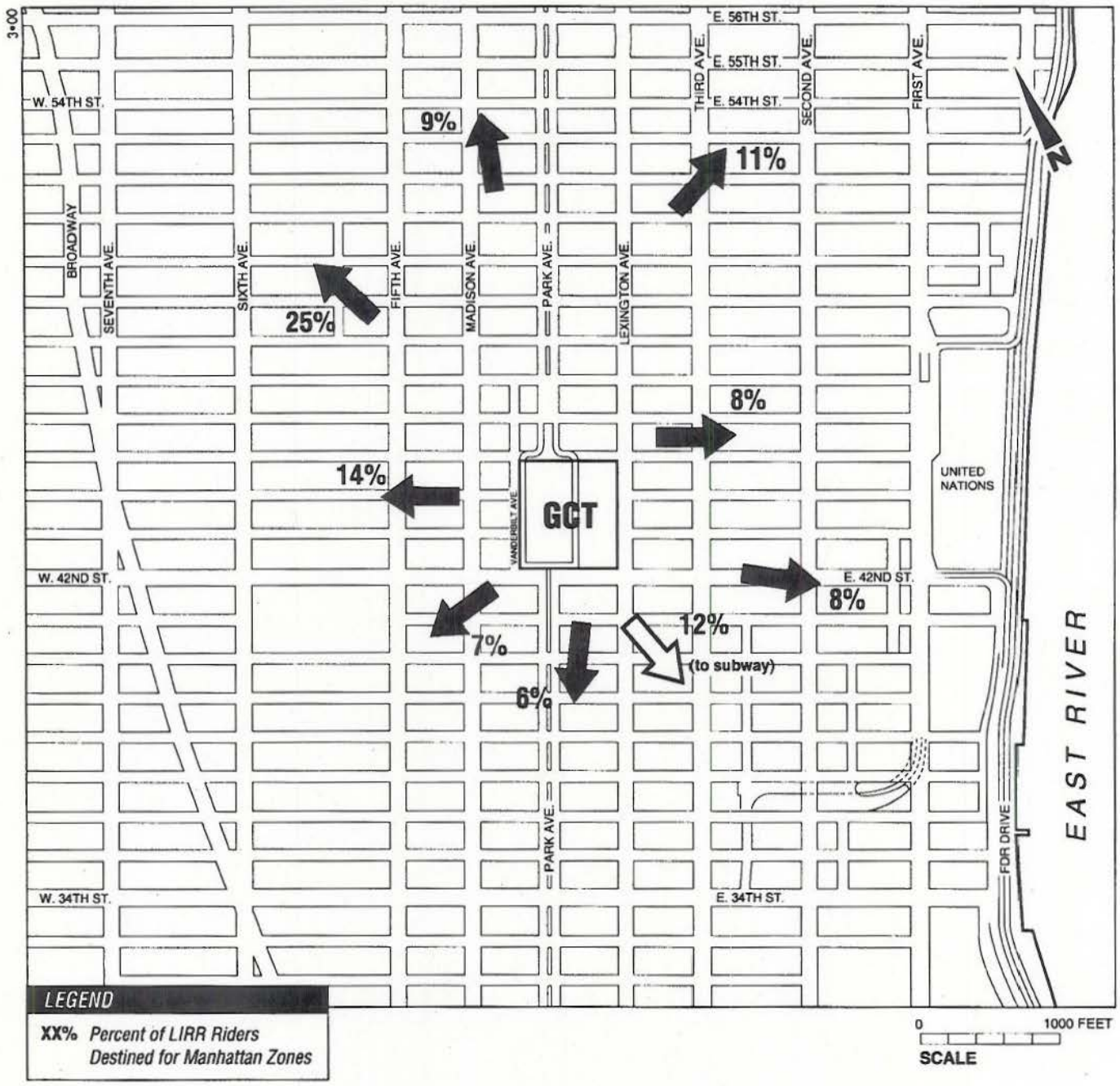
GCT Dining Concourse



MTA / LIRR
East Side Access

Figure 9C-2

Pedestrian Count Locations: Grand Central Terminal



MTA / LIRR
East Side Access

Figure 9C-7

Projected Distribution of LIRR Ridership at Grand Central Terminal

Table 9C-29

2020 PREFERRED ALTERNATIVE PEAK PERIOD LEVEL-OF-SERVICE (LOS) ANALYSIS OF PEDESTRIAN CIRCULATION ELEMENTS WITHIN GRAND CENTRAL TERMINAL

Pedestrian Element		Peak 5 Minutes within Peak 15 - Minute Period		Peak 15 - Minute Period	
Location	Section	AM	PM	AM	PM
1. Met Life Building Escalators	3 Up Escalators	under capacity	under capacity	under capacity	under capacity
	1 Down Escalator	under capacity	under capacity	under capacity	under capacity
2. Graybar Passageway	Corridor	A	A	A	A
3. East Stairs / Escalators	North Stairs from Dining Concourse	B	A	A	A
	South Stairs from Dining Concourse	A	A	A	A
	Up Esc. Facing Hudson News	under capacity	under capacity	under capacity	under capacity
	Down Esc. Facing Hudson News	under capacity	under capacity	under capacity	under capacity
	North Corridor	B	B	A	A
	South Corridor	C	C	C	C
3A. 43rd Street Passageway	Corridor	A	A	A	A
4. Hyatt Passageway	Corridor	B	B	B	A
5. Eastern IRT Subway Stairs	Stairs	D	D	C	C
6. Western IRT Subway Stairs / Escalators	Stairs	F*	F*	E*	E*
	Up Escalator	over capacity	under capacity	near capacity	under capacity
	Down Escalator	over capacity*	under capacity	over capacity*	under capacity
7. East Passageway to 42nd St. (Park-Lex)	Corridor	C	B	B	B
8. Lower Concourse East Ramp	Ramp	A	B	A	A
9. 42nd St. Main Entrance	Corridor	A	B	A	A
10. Shuttle Passageway	Corridor	C	B	B	B
11. Ramp to Vanderbilt Ave. / 42nd St. Corner	Ramp	C	C	C	C
12. West Stairs / Escalators	North Stairs from Dining Concourse	E*	D*	D*	D*
	South Stairs from Dining Concourse	A	A	A	A
	Up Esc. Facing NYC Transit Museum Store	over capacity*	under capacity	over capacity*	under capacity
	Down Esc. Facing NYC Transit Museum Store	under capacity	over capacity*	under capacity	over capacity*
	North Corridor	B	B	B	B
	South Corridor	B	B	B	B
13. 43rd St. Stairs in Biltmore Room	Stairs	D*	C	C	C
14. Roosevelt Passageway	Corridor	B	A	B	A

* SIGNIFICANT IMPACTS

Grand Central Terminal Recycling and Waste Management Facility

Categorical Exclusion Documentation

December 2009

Prepared by:

MTA Capital Construction Company
2 Broadway
New York, NY 10004

1.0 Introduction

This environmental documentation is being submitted in support of a Categorical Exclusion (CE) under the National Environmental Policy Act of 1969 (NEPA), for the proposed construction of the Grand Central Terminal Recycling and Waste Management Facility (the Project). MTA Capital Construction has prepared this documentation for the Federal Transit Administration (FTA), in accordance with the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500) and U.S. Department of Transportation regulations which includes the following:

> *"construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community" may qualify as a CE if appropriately documented.* [23 CFR 771.117 (d)(11)]

The Project would provide an efficient, consolidated trash management operation in Grand Central Terminal (GCT) for MTA Metro-North Railroad (Metro-North) and MTA Long Island Rail Road (LIRR). The project would reduce the number of truck trips needed for refuse removal from GCT, greatly expand the MTA's recycling program, and restore an unused track needed for service storage in order to improve Metro-North operational efficiency. The Project location is shown on Figure 1.

The new recycling facility would be constructed concurrent with, and largely within, the MTA East Side Access (ESA) Concourse, which will be built in a portion of the lower level of GCT. Its construction would be below ground and entirely within the GCT trainshed area (which is not part of any historic designation). Trash and recyclables would be taken out by train to Bronx North (BN) Yard where it would be loaded onto truck for disposal, consistent with the current Metro-North operation to remove recyclables from GCT. No improvement to BN Yard would be necessary.

The GCT Recycling and Waste Management Facility is not part of the East Side Access project – a separate funding source is being sought (e.g. a TIGER application was submitted in September 2009) and the project has independent utility.

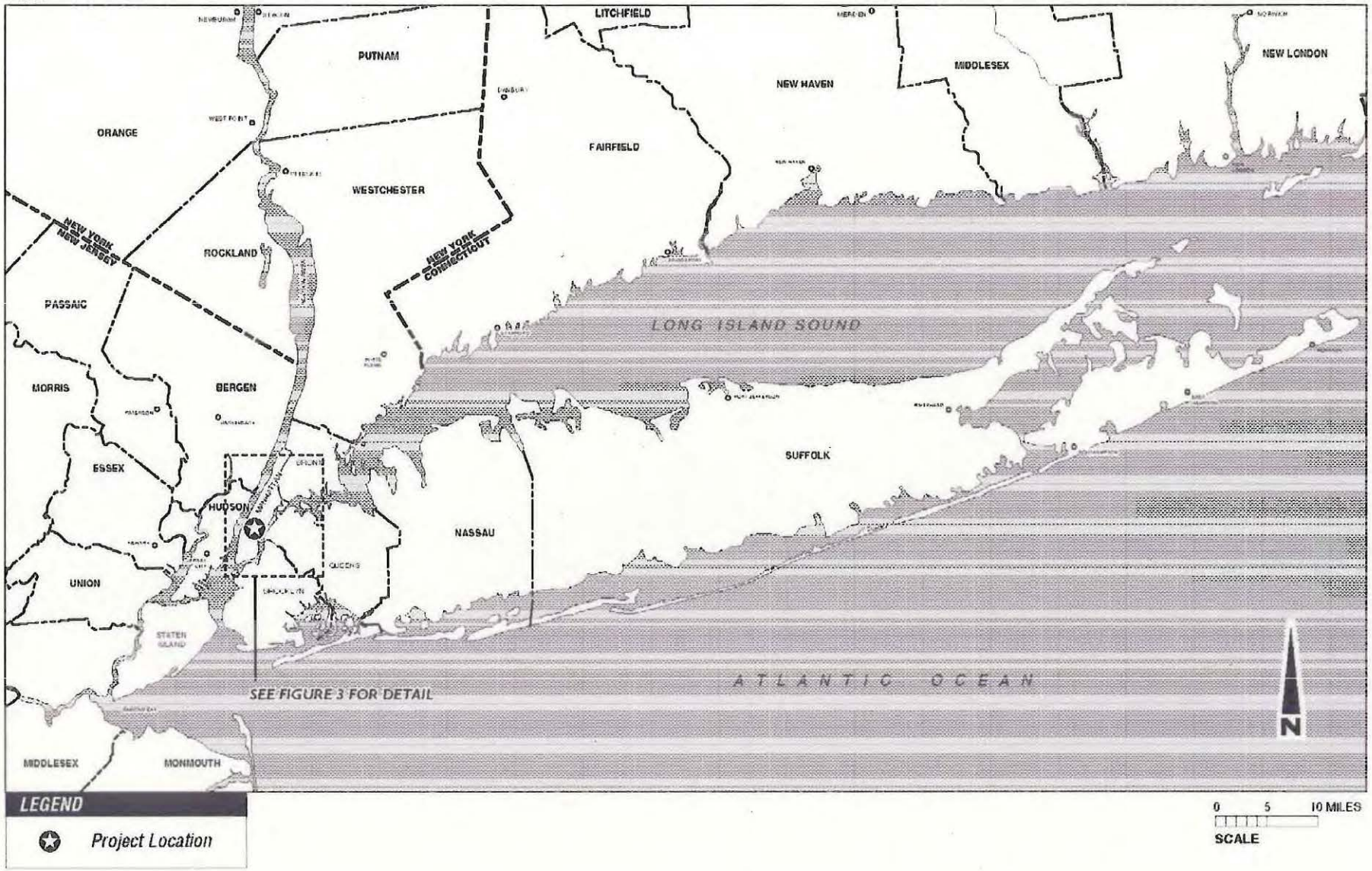
A number of environmental benefits would result from the Project. Recycling saves energy, water, and resources such as trees and metal ores; reduces global warming pollution from manufacturing, land filling, incinerating, and the transport of goods; and protects habitat and biodiversity.

The Project would not require acquisition of property; would not induce significant impacts to planned growth or land use for the areas affected; or require the relocation of people. The Project would not have significant localized adverse impact on natural, cultural, recreational, historic or other resource; would not involve significant air, noise, or water quality adverse impacts; would not have significant adverse impacts on travel patterns; and would not otherwise, either individually or cumulatively, have any significant adverse environmental impacts.

The Project is covered by an exemption from SEQRA contained in Section 1266(11) of the Public Authorities law, which states in pertinent part:

> No project to be constructed upon real property theretofore used for a transportation purpose, or on an insubstantial addition to such property contiguous thereto, which will not change in a material respect the general character of such prior transportation use, nor any acts or activities in connection with such project, shall be subject to the provisions of article eight, nineteen, twenty-

9.10.09



MTA / LIRR
East Side Access

Project Location

Figure 1
Project Location

> four or twenty-five of the environmental conservation law, or to any local law or ordinance adopted pursuant to any such article. Nor shall any acts or activities taken or proposed to be taken by the authority or by any other person or entity, public or private, in connection with the planning, design, acquisition, improvement, construction, reconstruction or rehabilitation of a transportation facility, other than a marine or aviation facility, be subject to the provisions of article eight of the environmental conservation law, or to any local law or ordinance adopted pursuant to any such article if such acts or activities require the preparation of a statement under or pursuant to any federal law or regulation as to the environmental impact thereof. (emphasis added.)

The "article eight" referred to above is Article 8 of the NYS Environmental Conservation Law, which is SEQRA. The Project continues an existing essential support activity integral to the carrying out of a transportation purpose in locations already in use for this transportation purpose. Consequently, the Project is exempt from SEQRA pursuant to the above provision in the PAL.

2.0 Purpose and Need

Existing, planned and proposed waste management facilities for Metro-North and LIRR at GCT are shown on Figure 2. The purpose and need for the new facility is outlined below.

GCT and Current Practices

The current recycling program at GCT is inefficient and limited due to space constraints for staging and separation of waste at Track 14. Currently, metals, glass and plastics are mixed with the trash that is sent to a landfill due to the lack of space to separate and stage these items for recycling. In addition, at Depew Place, each trash container must be loaded directly onto a truck, requiring a second truck trip to provide the empty replacement container for use on the platform at Track 14, since there is no space for staging at Depew Place.

East Side Access and Future LIRR Service

MTA's ESA will soon bring LIRR trains into a new terminal beneath Grand Central, with a large 350,000 square foot concourse occupying space within a portion of GCT's lower level. Under the current planned operating scheme for GCT, waste from the new LIRR terminal, trains, and operations would be handled through a new facility built on East 50th Street between Park and Madison Avenues, which would contain a freight elevator and loading dock, in addition to ventilation fans, ducts, substation and other equipment for operation of the terminal. Compactable waste (wet trash) would be collected in a 30 cubic yard (CY) self-contained compactor. When the compactor is full, a night-time truck pick-up would be scheduled and a second truck would deliver an empty replacement compactor to this facility (again due to space constraints). Non-compactable waste would be stored in a 30 CY open container located in the LIRR service corridor until full, then loaded on the freight elevator to the loading dock for truck pick-up. Newspaper and cardboard would also be collected in the service corridor and transferred to the loading dock for nightly pickup. Metro-North's wet trash and non-compactable waste would continue to be handled as described above.

Proposed Action

The Project would provide an efficient, consolidated trash management operation in GCT for Metro-North and LIRR. The project would reduce the number of truck trips needed for refuse removal from GCT, greatly expand the MTA's recycling program, and restore a currently unused track needed for service storage in order to improve Metro-North operational efficiency.

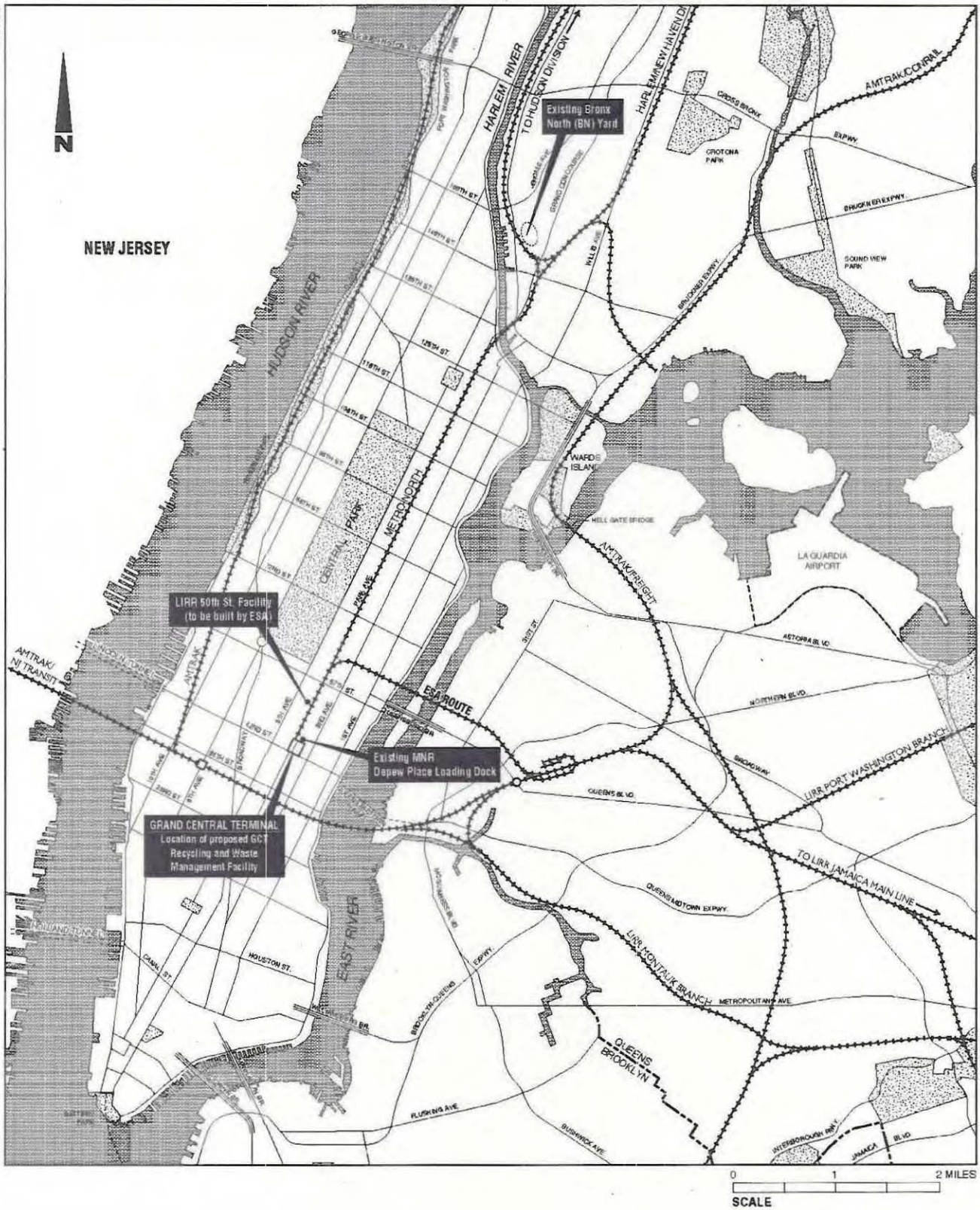


Figure 2
Existing and Planned Waste Management Facilities

3.0 Detailed Project Description

Three waste transfer stations – South, Mid and North- would be constructed, as shown on the conceptual layout (see Figure 3 for a key plan and Figures 3A, 3B and 3C for details). The South and Mid Transfer stations would be constructed within the ESA Concourse, serving as collection points for GCT Metro-North waste and ESA-LIRR waste, respectively. Trash shuttles would operate at regular intervals in the Concourse, "shuttling" the trash to the North-Transfer Station for flatcar loading. The North Transfer Station would be located on currently unused stub tracks 186 through 188, just north of the ESA Concourse. A new central loading platform would be constructed at Track 187. This area would be partially enclosed on three sides to provide environmental controls, such as those described below.

A ventilation system with a minimum of 20 air changes per hour would be installed to control odor and maintain temperatures of 85 degrees F in the summer and 65 degrees F in the winter. The existing ballasted track areas would be replaced with slab-on-grade track with trench drains located in between the rails to facilitate track clean-up of any trash overflow and the pressure washing of the area. Overhead cranes would pick up the trash shuttle containers from the shuttle trailers and deposit the contents into the appropriate flatcar containers. During this operation, the containers would be weighed to record amounts of trash and recyclables collected from the particular transfer station. The containers would be bar-coded to allow optical scanning and tracking of the waste streams for cost and revenue distributions from the trash and recycling operations. Each of the three transfer stations would be operated 24-7 and equipped with CCTV monitoring for security.

Metro-North's Track 14 would be restored for revenue service storage as soon as the new facility is operational, since it would no longer be needed for trash hauling.

The Project is scheduled to be complete by February of 2012. Use of the facility would be phased in; immediately upon completion, it would be used by Metro-North for recycling and wet trash, and by ESA for removal of construction debris (about 5,000 tons per week). When the ESA project is complete and LIRR passenger service commences in 2016, the new facility would be used jointly by Metro-North and LIRR as a recycling and waste management facility serving all of GCT and the new LIRR terminal.

Use of the GCT tunnels and potentially the BN Yard was anticipated in the FEIS for removal of construction & demolition debris during construction of the ESA Project (see FEIS page 17-18). The added capacity for debris removal resulting from the Project would facilitate this effort and reduce potential conflicts with Metro-North operations.

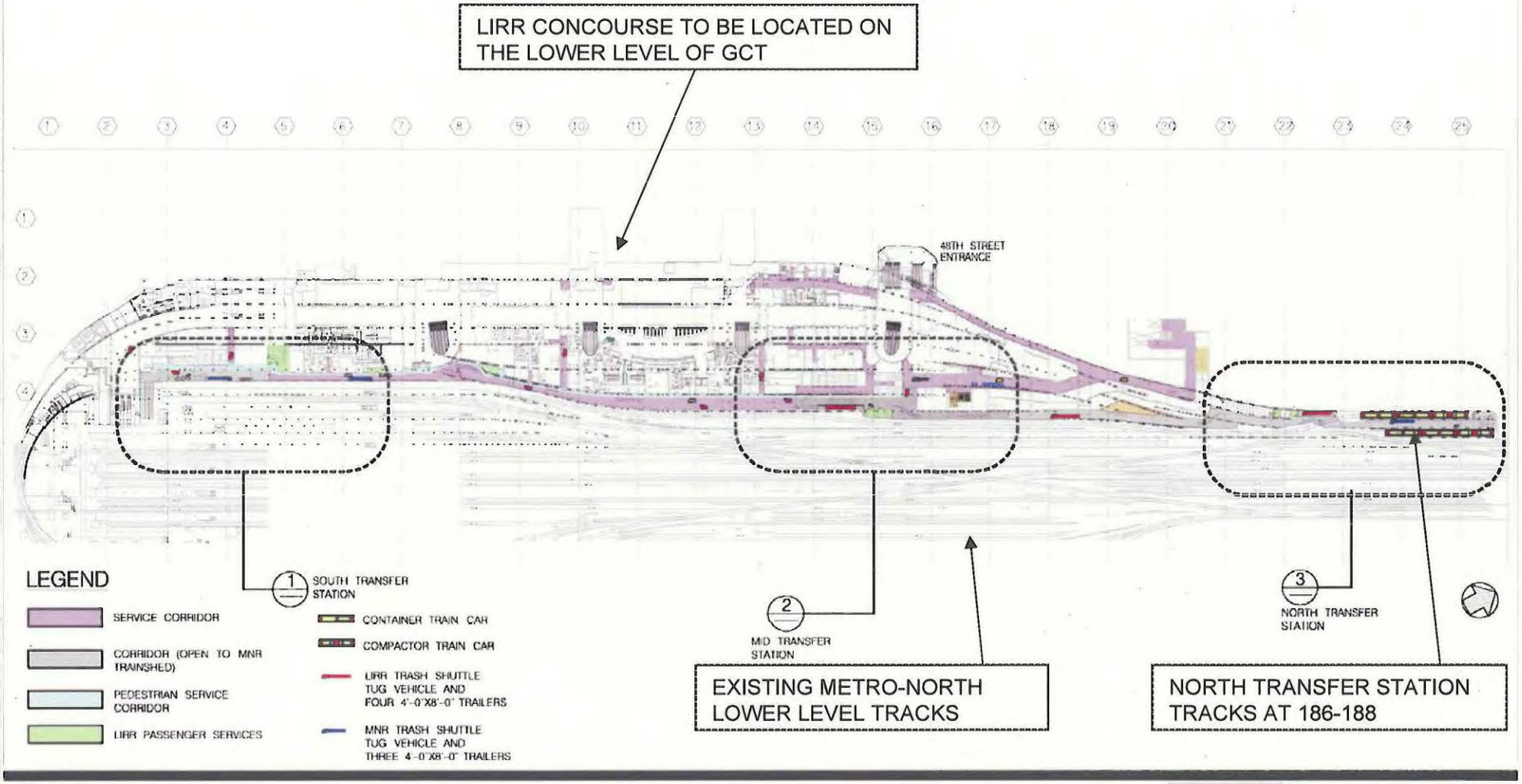
Construction costs are estimated at $20,695,000. Construction cost savings (about $5 million[1]) would be realized by "piggybacking" on the construction and program management services already in place for ESA.

4.0 Existing and Proposed Waste Management Operations

Existing Operations

Waste is collected throughout the Terminal, on the platforms, in the concourses (upper and lower), from the restaurants and retail establishments, the trains, and Metro-North operations. Currently, trash management operations at GCT include two main collection points for exiting non-hazardous waste streams:

[1] Savings are on the order of 10 percent of the construction cost for union supervision of trade workers and 12 percent for construction and program management services.



Metropolitan Transportation Authority
Capital Construction Company

Long Island Rail Road
East Side Access

Figure 3

GCT Recycling & Waste Management Facility Key Plan

South, Mid & North Transfer Stations

GEC PB STV PARSONS
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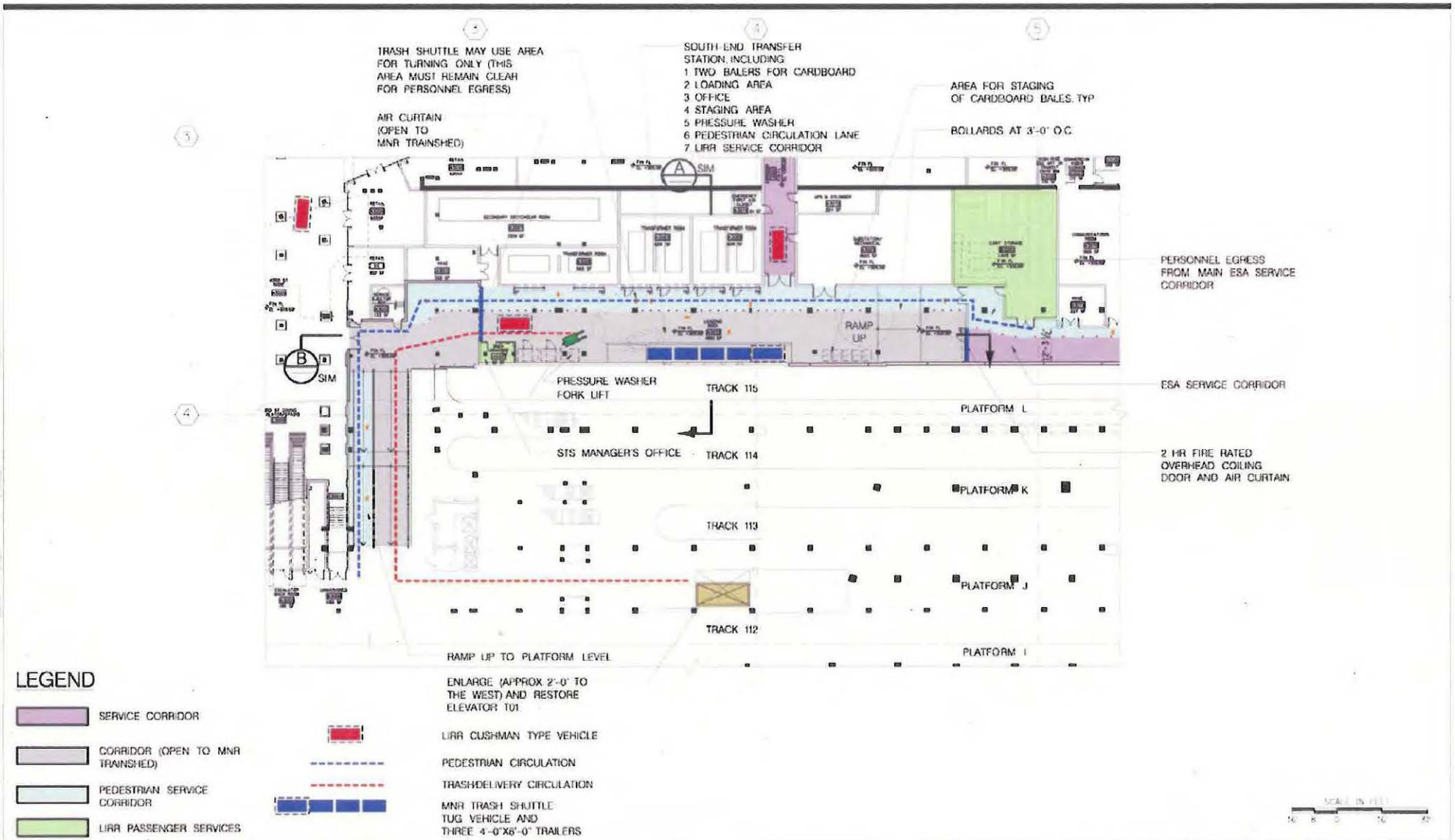

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Figure 3.A

Detail 1

South Transfer Station

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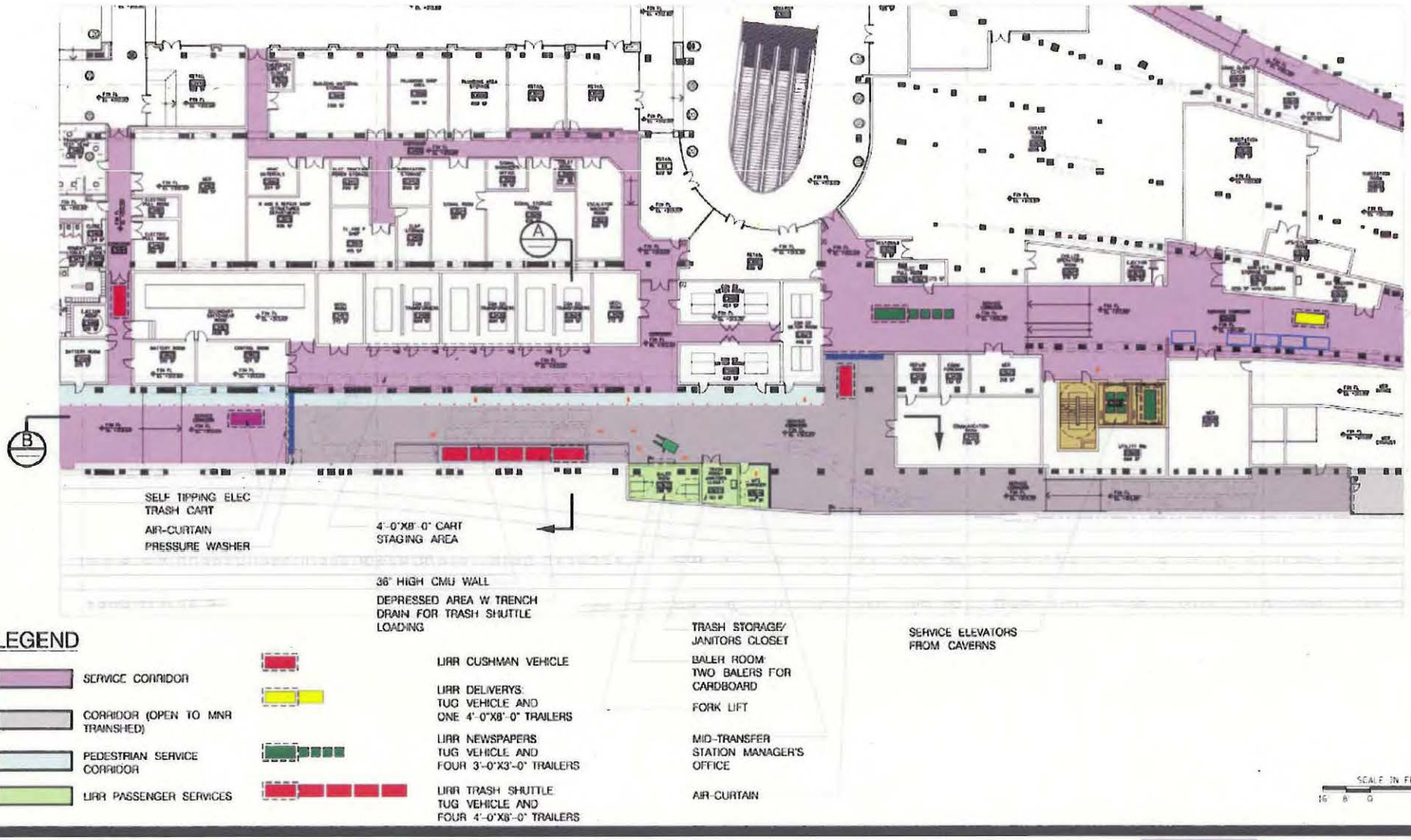

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Figure 3.B

Detail 2

Mid Transfer Station

GEC PB STV PARSONS
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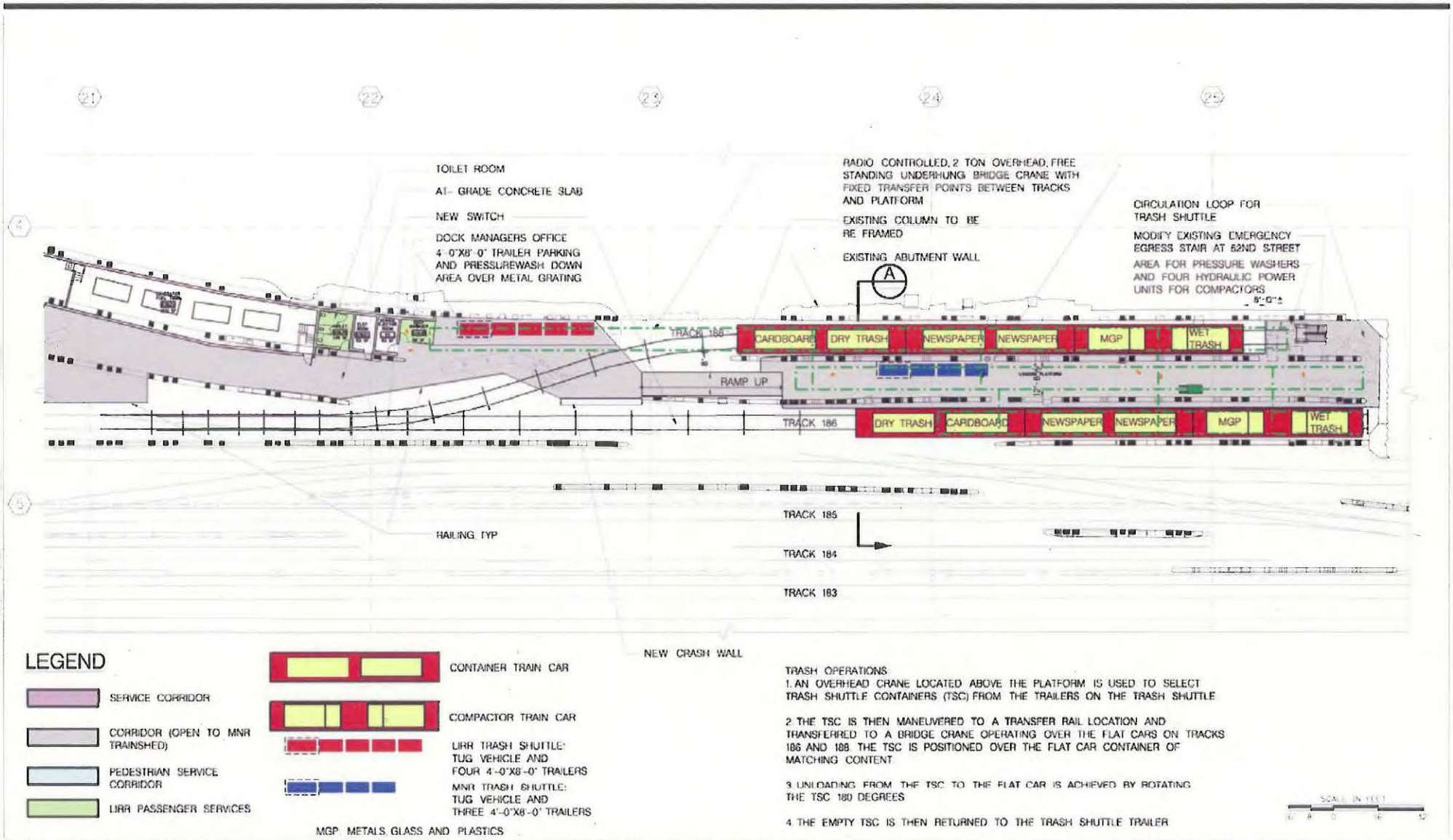

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Long Island Rail Road
East Side Access

Figure 3.C

Detail 3

North Transfer Station

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- The Depew Place Loading Dock handles all compactable waste (wet trash) and deliveries via five bays, two 35-cubic yard compactor units (in a refrigerated room), a loading dock office, a ramp to street level, and two freight elevators. None of the bays have dock lifts or levelers. Space is severely constrained and the dock is expected to operate at capacity in the near future.
- Track 14 (Platform F) serves as a collection point for non-compactable waste generated by the Metro-North (e.g., 3rd rail sections, track fasteners, and miscellaneous track and power hardware) and Construction &Demolition (C&D) debris; as well as cardboard and newspaper, the only recyclables currently collected at GCT. The space is outfitted with a cardboard baler and electric charging stations for forklifts.

Off-site processing from the Depew Place Loading Dock in Midtown Manhattan is via truck to a landfill. Off-site processing from Track 14 is via flatcar to the BN Yard, an existing operational yard in the Bronx, where contracted truck haulers remove and replace the containers that are off-loaded from the flatcars.

Currently a trash train with three flatcars makes a trip to the BN Yard three nights per week for the existing Metro-North newspaper recycling effort. One truck at a time picks up one of two 30 CY containers on a flatcar. As a result, up to six trucks per day (for three days out of the work week) travel to and from the BN Yard, typically between the hours of 10 AM and 5 PM. Currently, the newspaper is recycled at a New Jersey recycling facility (via the Major Deegan Expressway to the George Washington Bridge).

Future Operations with the Project

The proposed facility would handle about 12,600 tons of waste per year, of which about 70 percent would be recycled, an increase of about 20 percent over No Action conditions. In the No Action condition, an estimated 2,567 tons per year of metals, glass and plastic (MGP) waste would be disposed of in landfills rather than recycled. The proposed facility would combine three crowded and inefficient recycling and waste management operations serving GCT into one efficient operation, with state-of-the-art equipment and design, and an ability to recycle all MGP waste in GCT for the first time. The Project includes the provision of MGP containers that would be placed throughout GCT and the new LIRR terminal. This high visibility recycling effort at GCT would promote sustainable practices to the 750,000 people who pass through GCT each day and to an additional 160,000 daily LIRR customers once ESA is operational.

The trash train would need to make five trips per week (at night), carrying four flatcars and eight 30 CY containers. Hence, up to eight trucks per day would travel to and from the BN Yard to haul the MGP waste. The hauler/recycling facility is unknown at this time. The new recycling contract would go through the MTA bidding process and the lowest competent bidder would be selected. Processing costs, which include waste hauling, would be minimized for haulers using recycling centers in the Bronx, thus giving Bronx processing centers a competitive edge in any bidding process.

5.0 Environmental Consequences of the Project

The environmental benefits of recycling have been well documented. Recycling saves energy, water, and resources such as trees and metal ores; reduces global warming pollution from manufacturing, and filling and incinerating; and protects habitat and biodiversity. Recycled goods replace materials mined and manufactured outside of the region with materials collected and processed within the region. As a result, significant energy and transportation benefits accrue due to the avoidance of the transport or goods in addition to the mining and processing of virgin materials. Recycling increases the longevity of existing landfills and prevents the costly process of siting new landfills.

The potential localized impacts of recycling are described below.

Land Use, Zoning and Socioeconomic Conditions

The operation of the new facility within GCT would have no significant adverse impacts on land use, zoning or socioeconomic conditions in Manhattan. As described above, truck trips in Manhattan would decrease. Transporting trash by train is consistent with Mayor Bloomberg's initiatives and the New York Metropolitan Transportation Council's (NYMTCs) Plan to increase rail hauling and decrease truck trips in Manhattan. NYMTC supports this project and NYMTC's Transportation Improvement Plan (TIP) will be amended to add this project, should it proceed.

The BN Yard (44 West 225th Street) is owned by the MTA and zoned M1-1 as a manufacturing district. The site borders other areas zoned as manufacturing, commercial, and residential (see Figure 4). The BN Yard is immediately adjacent to a Target Store at 40 West 225th Street, and bounded by the Major Degan Expressway to the east, live railroad tracks to the southwest, and 225th Street to the north (see Figure 5). Just north of 225th Street is the Marble Hill Housing project. The Marble Hill Houses complex in the Bronx has eleven buildings, 14 and 15-stories high with 1,682 apartments housing an estimated 3,433 people. The 16.64-acre complex was completed March 3, 1952 and is bordered by Broadway, Exterior, West 225th and West 230th Streets.

The year 2000 U.S. Census population and income characteristics of the study area are shown below. Those in the Marble Hill Census Tract and the BN Yard Study Area (which includes all census tracts adjacent to BN Yard) contain similar percentages of minority populations and those with incomes below the poverty level when compared to the Bronx as a whole. When compared to the City and State statistics, the study area has a high percentage of minority residents and those with incomes below the poverty level.

U.S. Census Year 2000 Population Characteristics

	Marble Hill Census Tract	BN Yard Study Area	Bronx	New York City	New York State
Total Population	7,820	22,454	1,332,650	8,008,278	18,976,457
% Non White	76.29%	74.29%	70.13%	55.34%	32.05%
Median Household Income (1999 Dollars)	$25,754	$27,209	$27,611	$38,293	$43,393
% of Individuals Below Poverty Level	29.92%	30.38%	30.70%	21.20%	14.60%

While the Project would increase truck trips at BN Yard by up to 16 per day (i.e., worst- case, eight trucks in and out), as described below, significant adverse impacts are not expected to result. Because of its distance from 225th Street and location between an expressway and live railroad tracks, operations in the Yard (which consist only of transferring enclosed

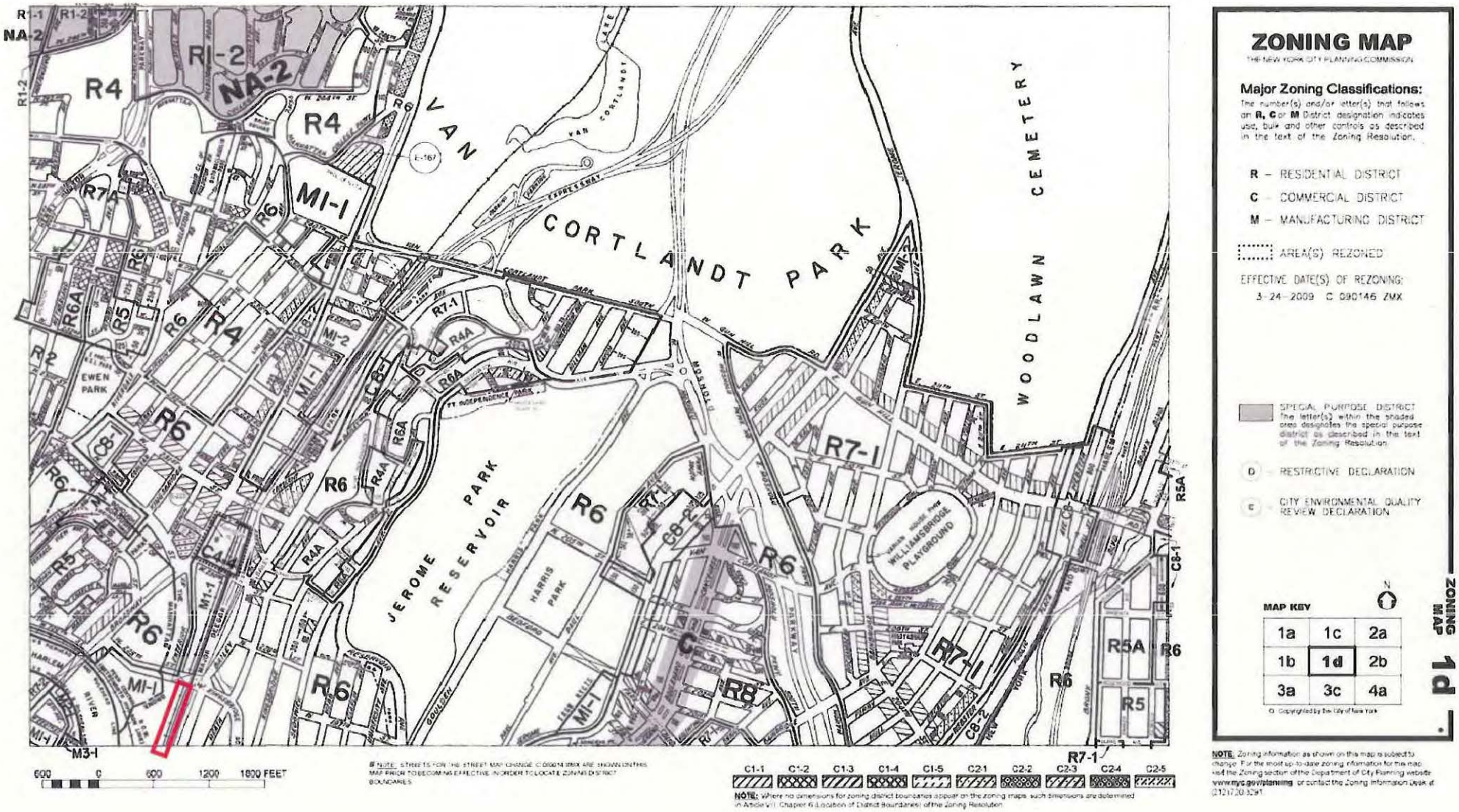

Figure 4
Bronx North Yard and Environs
Zoning Map

Figure 5
Bronx North Yard and Environs
Satellite Map

containers from flatcar to truck), are well buffered from the zoned residential area North of 225th Street. The easy access to the Major Deegan Expressway (see Figure 6), makes BN Yard an ideal location for such an operation. Furthermore, all future contracts with haulers/recyclers operating at the BN Yard will be required to use Ultra Low Sulfur Diesel Fuel, which significantly reduces PM_{10} and $PM_{2.5}$ emissions from trucks.

The new GCT facility would directly employ 47 people, and create a total of 87 jobs when indirect and induced impacts are considered, potentially in the Bronx, an Economically Depressed Area.

Cultural Resources

Operation of the project would have no direct or indirect effects on historic built properties, parkland, or archaeological resources. Improvements within GCT only affect the new LIRR Concourse and an area in the trainshed that has no historic designation. There is no parkland in the project area and since construction would occur only within GCT, in a previously disturbed area, there is no potential to unearth archaeological resources.

Transportation

One train trip per night would replace nine nightly trucks for garbage pick-up and nine nightly trucks for delivery of empty containers (or a total of 36 truck trips) that travel in Midtown Manhattan, where highway access is limited and trucks must travel on local roads to leave the island (e.g., trucks traveling from/to the Bronx must use 2nd and 3rd Avenues and traverse East Harlem and other neighborhoods where high asthma rates are found).

The restoration of Track 14 to revenue storage would contribute to more efficient Metro-North operations. Track 14, if not needed to transport recyclables, would add capacity to platform an additional eight-car passenger train and store it during the day. Without this capacity, the train would need to deadhead (travel without customers) in the morning peak period seven miles to Highbridge Yard in the Bronx and back again to pick up customers during the PM Peak. While the new facility would add two nightly train roundtrips per week to handle the increase in recycling materials, the restoration of Track 14 to passenger use would reduce five daily train roundtrips. Thus, an overall reduction in the number of train trips to and from the Bronx would result from the Project.

The operations analysis performed for the Project concludes that the maximum increase in the number of trucks that would report to the BN Yard in order to pick up the collected trash and recyclables from the Project is eight (8) per day or sixteen (16) truck trips. The New York City Environmental Quality Review Act ("CEQR") threshold for preparing a detailed analysis of intersection Levels of Service ("LOS") is 50 passenger car equivalents (trips) in the peak hour, with each truck being considered as equivalent to two (2) cars. This places the Project well below the threshold requiring the preparation of a LOS analysis.

While truck vehicle miles traveled (VMT) would decrease in Manhattan as a result of this program, overall changes in truck VMT are dependent on the final destination of the recycling processing center, which is unknown at this time. As a result, overall truck VMT reductions were not quantified.

Air Quality and Odor

As a result of the new facility, truck traffic would increase in the vicinity of the BN Yard. Currently up to six (6) trucks per day (for three (3) days out of the work week) travel to and from BN Yard for Metro-North's waste management operation. The number of trucks with the Project would increase to eight (8) per day (for five (5) days of the work week). The New York City Department of Environmental Protection Interim Guidance on the need for $PM_{2.5}$ analyses includes the following thresholds for heavy

Figure 6
Truck Routes from Bronx North Yard

duty diesel vehicles (HDDV):

> If the proposed action would generate fewer than the below incremental traffic per hour or its equivalent in vehicular emissions, a need for the detailed $PM_{2.5}$ analysis would be unlikely:
>
> - 12 HDDV: for paved roads with < 5000 veh/day
> - 19 HDDV: for collector type roads
> - 23 HDDV: for principal and minor arterials
> - 23 HDDV: for expressways and limited access roads

With only eight (8) HDDV's per day, the Project is well below the threshold requiring preparation of a $PM_{2.5}$ analysis. Furthermore, the trucks operating at the BN Yard would be required to use Ultra Low Sulfur Diesel (ULSD), which significantly reduces sulfur dioxide, PM2.5 and other particulates.

Trash would not be stored at the BN Yard, nor would there be open containers of wet trash at the site when it was not in use. The 30 CY wet trash containers delivered to and from the BN Yard each day would be lined and sealed. The containers would be loaded onto trucks the same day as they were delivered to the BN Yard, so that the trash train could return for nightly pickup at GCT. As a result, no significant odor impacts are expected.

Noise and Vibration

A noise analysis was performed using the latest modeling techniques endorsed by FHWA to assess the increase of truck trips that would be generated by the proposed facility. The results of the analysis demonstrate that the increase in truck traffic would cause no more than a one dBA increase in noise levels at sensitive receptors in the area. The methodology used and a summary of the results of the assessment are included in Appendix A. A one dBA increase in noise levels would not be noticeable to the human ear and is below the CEQR impact threshold. Vibration levels at sensitive receptors are unlikely to increase since no new source of vibration would be introduced by the proposed project.

Energy

Overall energy savings would likely be realized since the number of train trips to BN Yard would be reduced and truck VMT (which is dependent on the recycling contractor) is not likely to increase significantly, and may also decrease (if a local hauler/processor of waste is selected as the MTA contractor).

Natural and Water Resources

No direct or indirect significant adverse impacts on natural or water resources would result from operation of the Project. There are no wetlands or other natural or water resources in the Project area and the Project would not trigger a Coastal Zone assessment or interfere with local Waterfront Revitalization Plans.

Hazardous Materials

The GCT Recycling and Waste Management Facility would not be used to collect or transport hazardous materials. Hazardous materials from Metro-North are currently securely stored in Alley 3 and taken out via track 100, as needed. Hazardous waste generated by LIRR operations is planned to be securely stored in the service corridor portion of the new Concourse and hauled via truck at the 50th Street facility. The Project would not change the current or planned practices.

Safety and Security

Each of the three transfer stations would be operated 24-7, equipped with CCTV monitoring for security, and benefit from safety and security provisions that will be put in place by East Side Access.

Infrastructure and Utilities

Operation of the Project would have no significant adverse effect on infrastructure or utilities in the Project area because no utilities or active infrastructure would be disturbed or utilized.

Construction Impacts

The Project would be constructed below ground, entirely within the GCT trainshed area (which is not part of any historic designation). No improvement to the BN Yard would be necessary. The Project would not require acquisition of property and would not induce significant impacts to planned growth or land use for the areas affected; would not require the relocation of people. Construction of the Project would be concurrent with the construction of the concourse for the East Side Access Project. Hence, no significant adverse impacts would result from the construction of the Project. Specifically, no significant adverse impacts would occur in the following categories:

- Land Use, Zoning, Socioeconomic Impacts
- Cultural Resources
- Transportation
- Air Quality and Odor
- Noise and Vibration
- Hazardous Materials
- Natural, Water Resources/Coastal Zone/Waterfront Revitalization
- Safety and Security

Environmental Justice

No significant adverse impacts are expected to occur from construction or operation of the Project. Therefore, the Project would not disproportionately adversely affect low-income or minority populations in the Bronx or Manhattan or businesses or social services in the area. The Project could potentially provide new jobs at an existing recycling center in the Bronx, or a new one created to handle the MGP waste from the facility, and it is chosen as the competent low-bidder for this work.

Appendix A

GCT Recycling and Waste Management Facility Noise Analysis Memo

AKRF

Environmental and Planning Consultants

440 Park Avenue South
7th Floor
New York, NY 10016
tel: 212 696-0670
fax: 212 213-3191
www.akrf.com

Memorandum

To:	Audrey Heffernan
From:	Benjamin H. Sachwald
Date:	December 15, 2009
Re:	Bronx North Yard Acoustical Study - DRAFT
cc:	Stephen S. Rosen, Ph.D. Julie Cowing, AICP

A. INTRODUCTION

An increase in truck traffic would result as part of the planned Grand Central Terminal (GCT) Trash Management program. This program would use trash trains to haul GCT- LIRR and MNR waste from GCT to the Bronx North (BN) Yard. The purpose of the this study was to determine whether the additional truck trips to and from the BN Yard would result in a perceptible change in noise levels at locations located along the routes that trucks would use to access/egress the Bronx BN Yard. Due to the volume of vehicular traffic on the Major Deegan Expressway, noise emissions from train activity in the BN yard would not have any appreciable effect at nearby noise-sensitive locations. The assessment included monitoring to determine existing noise levels at noise-sensitive locations along the anticipated truck routes, noise levels due to trucks travelling to and from the BN Yard were calculated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5, and the results of the assessment were compared to the noise impact criteria outlined in the New York City Environmental Quality Review (CEQR) Technical Manual.

B. ACOUSTICAL FUNDAMENTALS

Quantitative information on the effects of airborne noise on people is well documented. If sufficiently loud, noise may interfere with human activities such as sleep, speech, communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Several noise scales and rating methods are used to quantify the effects of noise on people, taking into consideration such factors as loudness, duration, time of occurrence, and changes in noise level with time. However, it must be noted that all the stated effects of noise on people vary greatly with each individual.

"A"-WEIGHTED SOUND LEVEL (dBA)

Noise is typically measured in units called decibels (dB), which are 10 times the logarithm of the ratio of the sound pressure squared to a standard reference presence squared. Because loudness is important in the assessment of the effects of noise on people, the dependence of loudness on frequency must be taken into account in the noise scale used in environmental assessments. One of the simplified scales that accounts for the dependence of perceived loudness on frequency is the use of a weighting network, known as "A"-weighting, in the measurement system to simulate the response of the human ear. For most noise assessments, the A-weighted sound pressure level in units of dBA is used in view of its widespread recognition and its close correlation with perception. In this study, all measured noise levels are reported in A-weighted decibels (dBA). Common noise levels in dBA are shown in **Table 1**.

ABILITY TO PERCEIVE CHANGES IN NOISE LEVELS

The average ability of an individual to perceive changes in noise levels is well documented (see **Table 2**). Generally, changes in noise levels of less than 3 dBA are barely perceptible to most listeners, whereas changes in noise levels of 10 dBA are normally perceived as doubling (or halving) of noise loudness. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80-90
Busy city street, loud shout	80
Busy traffic intersection	70-80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50-60
Background noise in an office	50
Suburban areas with medium-density transportation	40-50
Public Library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Notes: A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.

Sources: Cowan, James P., *Handbook of Environmental Acoustics*, Van Nostrand Reinhold, New York, 1994.
Egan, M. David, *Architectural Acoustics*, McGraw-Hill Book Company, 1988.

Table 2
Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A "dramatic change"
40	Difference between a faintly audible sound and a very loud sound
Sources: Bolt Beranek and Newman, Inc., *Fundamentals and Abatement of Highway traffic Noise*, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.	

NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

Because the sound pressure level unit of dBA describes a noise level at just one moment, and because very few noises are constant, other ways of describing noise over more extended periods have been developed. One way is to describe the fluctuating noise heard over a specific period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors, such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively. Discrete event peak levels are given as L_{01} levels.

For this assessment, the maximum 1-hour equivalent sound level ($L_{eq(1)}$) has been selected as the noise descriptor to be used for this noise impact evaluation. $L_{eq(1)}$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic noise impact evaluation, and is used to provide an indication of highest expected sound levels.

C. ASSESSMENT IMPACT DEFINITION

Based on the criteria outlined in the *CEQR Technical Manual*, this study uses the following criteria to define a significant noise impact:

- An increase of 5 dBA or more in noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those measured for the Existing condition, if the Existing levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 4 dBA or more in noise levels at sensitive receptors over those measured for the Existing condition, if the Existing levels are 61 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 3 dBA or more in noise levels at sensitive receptors over those measured for the Existing condition, if the Existing levels are greater than 62 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.

D. ASSESSMENT METHODOLOGY

VEHICULAR TRUCK TRAFFIC NOISE

The planned GCT Trash Management scheme of using trash trains to haul GCT-LIRR and MNR waste from GCT to the BN Yard would generate a small number of truck trips above existing conditions. Due to access constraints at the BN Yard, only one truck is permitted in the BN Yard at a time. This information

was used to develop the assessment's reasonable worst case scenario. Since there may be two different trucking operators handling the GCT-LIRR and MNR waste, the maximum expected number of additional trucks would be two trucks in one hour. The TNM Version 2.5 software was used to calculate the noise generated by the additional truck traffic on roadways near the BN Yard and these levels were added to existing (measured) noise levels to determine the reasonable worst case scenario's one-hour L_{eq} noise levels.

Traffic Noise Model

The TNM is a computerized model developed for the FHWA that calculates the noise contribution of each roadway segment to a given noise receptor. The noise from each vehicle type is determined as a function of the reference energy-mean emission level, corrected for vehicle volume, speed, roadway grade, roadway segment length, and source-receptor distance. Further considerations included in modeling the propagation path include identifying the shielding provided by rows of buildings, analyzing the effects of different ground types, identifying source and receptor elevations, and analyzing the effects of any intervening noise barriers.

The analysis consisted of the following five step procedure:

1. Street level noise measurements were made at noise-sensitive locations along the anticipated routes that trucks would use to access/egress the BN Yard;
2. The existing building, roadway, and ground elevation geometry was coded into the TNM software;
3. The TNM was used to calculate noise levels produced by trucks that are part of the planned GCT waste trucking operations;
4. The quietest measured existing $L_{eq(1)}$ values were added to the TNM results obtained in step 3 to obtain the total noise levels with the planned GCT Trash Management program; and
5. The total noise levels obtained in step 4 were compared to the quietest measured existing noise levels and the differences were compared to the impact criteria outlined above.

E. EXISTING CONDITIONS

SITE DESCRIPTION

The BN yard is located to the west of the Major Deegan Expressway, to the east of the Harlem River and south of West 225th Street. There is an access road leading from West 225th Street behind the existing commercial spaces. The neighborhood surrounding the project site is predominantly characterized by residential, parking and commercial uses.

SELECTION OF NOISE RECEPTOR LOCATIONS

Four locations around the project site were selected for noise monitoring. All receptor sites were chosen due to their location along the anticipated routes that trucks would use to access/egress the BN Yard. Sites 1 and 2 were located on West 225th Street between Broadway and Bailey Avenue, with Site 1 located further west along West 225th Street and Site 2 located further east along West 225th Street. Site 3 was located on Bailey Avenue between West 229th Street and West 230th Street and Site 4 was located on Bailey Avenue between West 193rd Street and West 225th Street (see **Table 3** and **Figure 1**). These receptor sites are representative of other locations in the immediate area and are generally the locations where maximum potential increases would be expected.

NOISE MONITORING

It is anticipated that additional trucks associated with the planned GCT Trash Management scheme would access/egress the BN Yard during the weekday daytime. The potential for a noise impact would be greatest when the existing noise levels are lowest (i.e., not during the weekday AM and PM rush hour). Consequently, noise monitoring was performed from approximately 9:30 AM to 4:30 PM. During this time, twenty minute measurements were taken throughout the day. Noise monitoring occurred on December 1 and 2, 2009.

Table 3
Noise Receptor Locations

Receptor Site	Location	Associated Land Use
1	West 225th St between Broadway and Exterior Street (Near Broadway)	Residential
2	West 225th St between Broadway and Exterior Street (Near Exterior Street)	Residential
3	Bailey Avenue between West 230th and West 229th Streets (At 2860 Bailey Avenue)	Residential
4	Bailey Avenue between West 225th and West 193rd Streets (At 2686 Bailey Avenue)	Residential/School

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using Brüel & Kjær Sound Level Meters (SLM) Type 2260, Brüel & Kjær Sound Level Calibrators Type 4231, and Brüel & Kjær ½-inch microphones Type 4189. The Brüel & Kjær SLMs are Type 1 instruments. The meters used (S/N 2384814 and 2385602) were calibrated on August 7, 2009 and August 14, 2009, respectively and are valid through August of 2010. The calibrators used (S/N 2412436 and 2688762) were calibrated on August 7, 2009 and July 23, 2009, respectively and are valid through August and July of 2010, also respectively. The instruments were mounted on a tripod at a height of approximately 5 feet above the ground. The SLMs were calibrated before and after readings using Brüel & Kjær Type 4231 sound level calibrators with the appropriate adaptors. The data were digitally recorded by the SLMs and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. Windscreens were used during all sound measurements except for calibration. All measurement procedures were based on the requirements of ANSI Standard S1.13-2005.

RESULTS OF BASELINE MEASUREMENTS

Table 4 summarizes the noise monitoring results for the weekday analysis hours. Values are shown for specific monitored weekday time periods. In general, noise levels are relatively high and reflect the level of vehicular activity on adjacent streets and, at Sites 1 and 2, elevated subway activity. At Site 1, measured noise levels consist of a combination of vehicular traffic on West 225th Street/Broadway and the elevated MTA No. 1 train. At Site 2, measured noise levels consist primarily of vehicular traffic on West 225th/Exterior Street; the elevated MTA No. 1 train also contributes to the overall noise level at Site 2. At Sites 3 and 4, measured noise levels are primarily a function of vehicular traffic on Bailey Avenue and the Major Deegan Expressway.

F. ASSESSMENT RESULTS

Table 5 summarizes the results of the assessment. Predicted increases in noise level values are shown for the quietest measured time period to assume a worst case scenario. The increase in $L_{eq(1)}$, as a result of the additional trucks that would access/egress the BN Yard associated with the planned GCT Trash Management scheme, would be less than 1 dBA at all four receptor sites. An increase in noise levels of this magnitude would not be considered perceptible and would be below the CEQR threshold for an impact.

Table 4
Measured Existing Noise Levels (in dBA)

Receptor Site	Location	Measurement Start Time	$L_{eq(1)}$	L_1	L_{10}	L_{50}	L_{90}
1	West 225th St between Broadway and Exterior Street (Near Broadway)	9:40 AM	70.7	79.7	72.9	68.4	64.1
		10:37 AM	71.6	82.7	72.2	66.6	62.5
		11:48 AM	69.3	79.1	71.9	66.5	62.0
		1:56 PM*	69.1	78.5	72.1	66.3	61.5
		2:53 PM	70.3	80.2	74.3	66.8	62.0
		3:46 PM	71.8	81.2	73.8	68.1	62.8
2	West 225th St between Broadway and Exterior Street (Near Exterior Street)	10:09 AM	71.0	80.3	74.3	67.3	63.0
		11:04 AM	69.7	78.2	72.8	67.1	62.0
		12:17 PM	69.3	77.9	72.3	66.6	60.8
		2:26 PM*	69.2	77.6	72.8	66.1	60.9
		3:19 PM	69.4	77.9	72.1	67.6	62.9
		4:11 PM	71.1	81.2	73.2	67.6	63.0
3	Bailey Avenue between West 230th and West 229th Streets (At 2860 Bailey Avenue)	9:58 AM	69.9	74.3	71.5	69.5	67.6
		10:55 AM	69.4	73.4	71.1	69.1	67.2
		12:08 PM	69.9	73.5	71.3	69.4	68.1
		1:03 PM	70.1	74.0	71.6	69.9	68.1
		3:19 PM	68.6	73.4	70.4	68.1	66.3
		4:11 PM*	68.4	73.5	69.6	67.7	66.4
4	Bailey Avenue between West 225th and West 193rd Streets (At 2686 Bailey Avenue)	9:29 AM	70.3	73.9	71.8	69.9	68.5
		10:27 AM	69.9	74.9	71.3	69.4	67.8
		12:35 PM	70.0	73.8	71.4	69.7	68.1
		1:31 PM	70.2	76.0	71.7	69.5	68.0
		2:51 PM	70.0	75.9	71.9	69.4	67.2
		3:47 PM*	69.4	75.9	71.6	68.3	66.2

Notes: Field measurements were performed by AKRF, Inc. on December 1 and 2, 2009
* Lowest measured value

Table 5
Acoustical Analysis Results (in dBA)

Receptor Site	Location	Existing $L_{eq(1)}$	TNM $L_{eq(1)}$	Total $L_{eq(1)}$	Increase $L_{eq(1)}$
1	West 225th St between Broadway and Exterior Street (Near Broadway)	69.1	55.2	69.3	0.2
2	West 225th St between Broadway and Exterior Street (Near Exterior Street)	69.2	57.8	69.5	0.3
3	Bailey Avenue between West 230th and West 229th Streets (At 2860 Bailey Avenue)	68.4	53.5	68.5	0.1
4	Bailey Avenue between West 225th and West 193rd Streets (At 2686 Bailey Avenue)	69.4	54.3	69.5	0.1

G. CONCLUSIONS

As shown in Table 5, the results of the assessment demonstrate that predicted increases in $L_{eq(1)}$, as a result of the additional trucks that would access/egress the BN Yard associated with the planned GCT Trash Management program, a would be less than 1 dBA at all four receptor sites. An increase in noise levels of this magnitude would not be considered perceptible and would be below the CEQR threshold for an impact.

*

Pedestrian Simulation of East Side Access and Grand Central Terminal

November 2009

Prepared for:

MTA Capital Construction

Prepared by:

STV Incorporated

LIRR EAST SIDE ACCESS

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I. Introduction and Project Scope Overview

A comprehensive pedestrian flow modeling analysis of Grand Central Terminal (GCT) and the new LIRR Terminal was undertaken to determine the effects of East Side Access (ESA) at GCT without the construction of the 44th and 45th street entrances, which were assumed in the design analyzed in the 2001 Final Environmental Impact Statement (FEIS) that was prepared for the project. A number of changes have occurred since the FEIS analyses were prepared, including: higher than anticipated Metro-North Railroad (MNR) growth; the opening of the North End Access entrances; and the commitment to build both Phase 1 of the Second Avenue Subway and the No. 7 Line Extension. The modeling analysis incorporates the latest planning assumptions and relevant survey data to determine whether additional pedestrian flow impacts that were not identified in the FEIS would result under the proposed design. The modeling analysis was also undertaken to verify that the design of the new ESA caverns and concourse will meet the level of service criteria (i.e., LOS C/D) established for the project.

Data collection involved weekday peak-period pedestrian counts at stairs, escalators, and passageway areas in GCT for input into the model to simulate existing conditions. These counts were collected over a series of typical midweek days (i.e., Tuesday, Wednesday, Thursday) in October 2008. Counts of pedestrian queues during end/beginning-of-month days at the GCT ticket window area in the Upper Concourse were made to capture the worst-case queuing. Pedestrians exiting and entering each MNR track were counted on both levels within GCT. Pedestrian tracings of groups of people from each track and from key vertical circulation elements (VCEs) were developed to establish a base origin/destination pattern within GCT.

To analyze pedestrian conditions under the design change (no street connections to either 44th or 45th streets), the study focused on the PM peak period for model development after data indicated the late afternoon hours process more people through GCT than during any other period of a typical weekday. There are a number of reasons for this pattern, including the concentration of flows that occur in the PM given that the terminal is an end destination, and ticket buying and general person queuing within the terminal is much more pronounced later in the day. Model runs included Existing Conditions, 2020 No Build, and 2020 Build assuming that the 44th and 45th street entrances would not be built. As in the FEIS, the analysis of potential impacts within GCT and the LIRR Concourse focused on key representative corridors, passageways, and stairwells that would be affected by design change. The affected locations include vertical connections and areas in GCT's Dining and Upper concourses, the Oyster Bar ramps, passageway elements within GCT including the 47th Street crosspassage, and Grand Central North (formerly referred to as North End Access) entrances.

In addition to analyzing the proposed design changes, problematic areas at the south end of the 105 East 42nd Street corridor and the IRT Fare Control Area (FCA) 238 were re-examined to assess the effects of the latest planning information (i.e., higher than anticipated MNR growth, and the effects of SAS and the No.7 Line Extension). These areas would not be affected by the proposed design changes since the same number of LIRR customers would use the subway whether or not the street entrances are constructed. FCA 238 was identified in the FEIS as a location where significant adverse impacts would occur under Build conditions. This area of concern was analyzed for both the AM and PM peak hours and years 2020 and 2030. The

"Kenneth Cole Stairs", a new VCE that is in the NYCT 2010-2014 Capital Plan connecting the 105 East 42nd Street corridor and FCA 238, was included in the model.

Lastly, two other configurations were modeled to inform future MTA planning projects in GCT. The additional runs included a lower level loop track connection to the NYCT FCA 238 and an escalator between the ESA concourse and the Biltmore Room

One complete united LIRR ESA / MNR GCT terminal was modeled, including the LIRR Concourse; 47th Street Crosspassage; GCT Dining Concourse (DC) and Upper Concourse; Oyster Bar ramps; passageway to Roosevelt hotel; incoming train room; passageways to 42nd Street to Vanderbilt/42nd corner, Park/42nd corner and to the 105 East 42nd (midblock between Park and Lexington), Graybar and Lexington passageways, and the connection to Vanderbilt Avenue from the Upper Concourse. Vertical circulation elements that connect these areas were included; for vertical connections leading to areas not being studied herein (such as VCEs into the Met Life building or down to and beyond NYCT FCAs turnstile lines), the model "assumed" that sufficient downstream capacity existed to accept pedestrian loads leaving the terminal.

There are many areas typically unaffected during peak hours by normal pedestrian commuter flows. As such (and because schedule constraints limit the extent of the modeling effort), the following areas were not included within the simulation model:

- GCT Central Market corridor (commuters typically do not walk through this space to reach their destination).
- The seating and dining areas within the Dining Concourse (the dining areas beneath the east and west stairs to the Main Concourse and the circular dining areas east and west of the information booth; commuters do not walk through these spaces).
- Vanderbilt Hall (space dedicated for holiday vendors and special events).
- Restaurant areas just inside the Vanderbilt Avenue side entrance.
- MNR platforms (space not to be used by LIRR passengers).
- ESA LIRR mezzanine and platforms (space not to be used by MNR passengers).
- Passages within the Met Life building (not anticipated to be used by LIRR passengers).
- Outside sidewalks (beyond the main influence area of LIRR passengers).
- Connections above the Roosevelt passageway into the 347 Madison building (not anticipated to be used by LIRR passengers).
- 45th Street crosspassage (LIRR passengers will not use this deep connection because there are no connections to the LIRR Concourse).
- NYCT paid-area subway mezzanines and platforms.

As is typical for the conduct of pedestrian analyses, the peak 15-minute period was modeled using the STEPS pedestrian simulation model. The existing conditions model was created to calibrate and validate existing pedestrian flows within GCT, and thus serve as the basis of future-conditions model runs.

The new LIRR service was assumed to operate at capacity to simulate reasonable worst-case conditions. Twenty-four fully loaded (95 percent full) trains per hour would operate during the peak period. This assumption is consistent with the analyses performed for the FEIS.

This report represents the third in a series of three documents, and was prepared to summarize the development of the future condition pedestrian flow volumes and findings from the future condition pedestrian simulation model. The first two memoranda focused on data collection results and model development, and are included in attached technical appendices.

II. STEPS Model Development

The development of the STEPS model can be organized into two categories, the building of the physical background elements and the creation of pedestrian movements. The physical background elements of the model consist of floor levels, walls, escalators, stairs and turnstiles, elevators, and train movements into and out of the terminal – in essence, all the physical elements that compose a "working structure." The pedestrian events identify the characteristics of the people who will be modeled in the simulation; specifically, the number of people, their origins, and destinations, walking speeds, assigned routes, and patience levels. A more detailed discussion about the model inputs for the physical background and pedestrian events elements is provided in Appendix C.

III. Model Validation

An important and standard step within modeling processes is the validation of the results in order to determine the accuracy of the inputs/outputs. The validation was achieved through visual and quantitative assessment of the model outputs. Specifically, the methods used to review the model include: a visual assessment of the simulation, quantitative evaluation of the population within the model, and comparison of model analysis findings with results obtained from field observations and calculations.

A. Visual Assessment

The model simulation was visually examined to verify that pedestrian movements closely represent pedestrian circulation patterns within GCT. Special attention was paid to highly congested areas, such as the 105 East 42nd Street corridor that connects to NYCT FCA 238, to ensure that they represent the conditions observed during the peak periods. The size of the queues at the vertical circulation elements (VCEs), and number of people on the VCEs and their processing rate were checked. In addition, levels of service (LOSs) from the model and in the existing terminal were compared to match.

In STEPS, pedestrians are assigned to the shortest (straight-line) path. In addition, travel time is calculated in segments and not from the origin to final destination as a whole. The model does not have the ability to recognize that a shorter travel time can be achieved by detouring pedestrians to take "non-straight-line" paths to avoid crowds; even though the walking distance would be longer, faster walking speed could be attained to achieve shorter traveling time. Through observations of the model, checkpoints were strategically placed at highly populated areas to guide pedestrians through congestion. These checkpoints serve as "stepping stones" to break up the route into short travel segments, creating many decision (guiding) points, allowing the model to calculate the next action at each checkpoint to accommodate unexpected

interferences. Checkpoints were also used to recreate, in the model, the existing walking patterns of the people in GCT.

B. Population and Operation Validation

Due to the many possible path combinations existing in GCT, there was no feasible way to track the exact origins and destinations of the many thousands of people in the terminal during the peak periods during the data collection efforts. Therefore, main decision points, locations where noticeable amounts of people from different origins would cross paths and then disperse into different directions, were identified throughout the terminal. This was done in STEPS by sub-routes, when people approach a main decision point, the percentages defined within the sub-route, assigned to that point, would divide them once again into different directions. Each main route is made up of a combination of sub-routes. To verify that the model was accurately populated, the volume of pedestrians exiting the model and the amount of pedestrians crossing each main decision point were checked. The pedestrian volumes in the model were not accepted until they were within five percentage of accuracy.

During the AM peak hour, about 29,000 new LIRR riders would use ESA in 2020, which would not change appreciably in future years given that trains would be fully loaded. Detailed volume information during the PM peak hour and PM peak 15-minute is presented in Table 1 and Table 2.

A 2006 LIRR origin-destination survey was used to assign LIRR customers through the terminal and out to the street. The FEIS relied on 1990 census data for these assignments. As in the FEIS, most LIRR customers would be headed to points north of the terminal, using the entrances/exits at the 47th Street crosspassage and 48th Street entrance, and not enter the main GCT concourse (see Figures 1 and 2).

Table 1: PM Peak Hour Passenger Volumes in GCT Proper

Location	Existing	2020 No Build	2020 Build	% Total	2030 No Build	2030 Build	% Total
MNR Customers entering GCT Upper Concourse from street	41,700	48,800	na	82%	54,300	na	84%
LIRR Customers entering GCT to LIRR Concourse **	na	na	10,530 *	18%	na	10,530 *	16%

* without short subway loop from LIRR Concourse to FCA 238 (about 36.5% of all LIRRers); short subway loop would reduce LIRR customers entering GCT Proper by about 2330, to 8,200.
** based on 24 trains per hour @ 1,202 pax/train

Table 2: Peak 15-minute Passenger Volumes in FCA 238

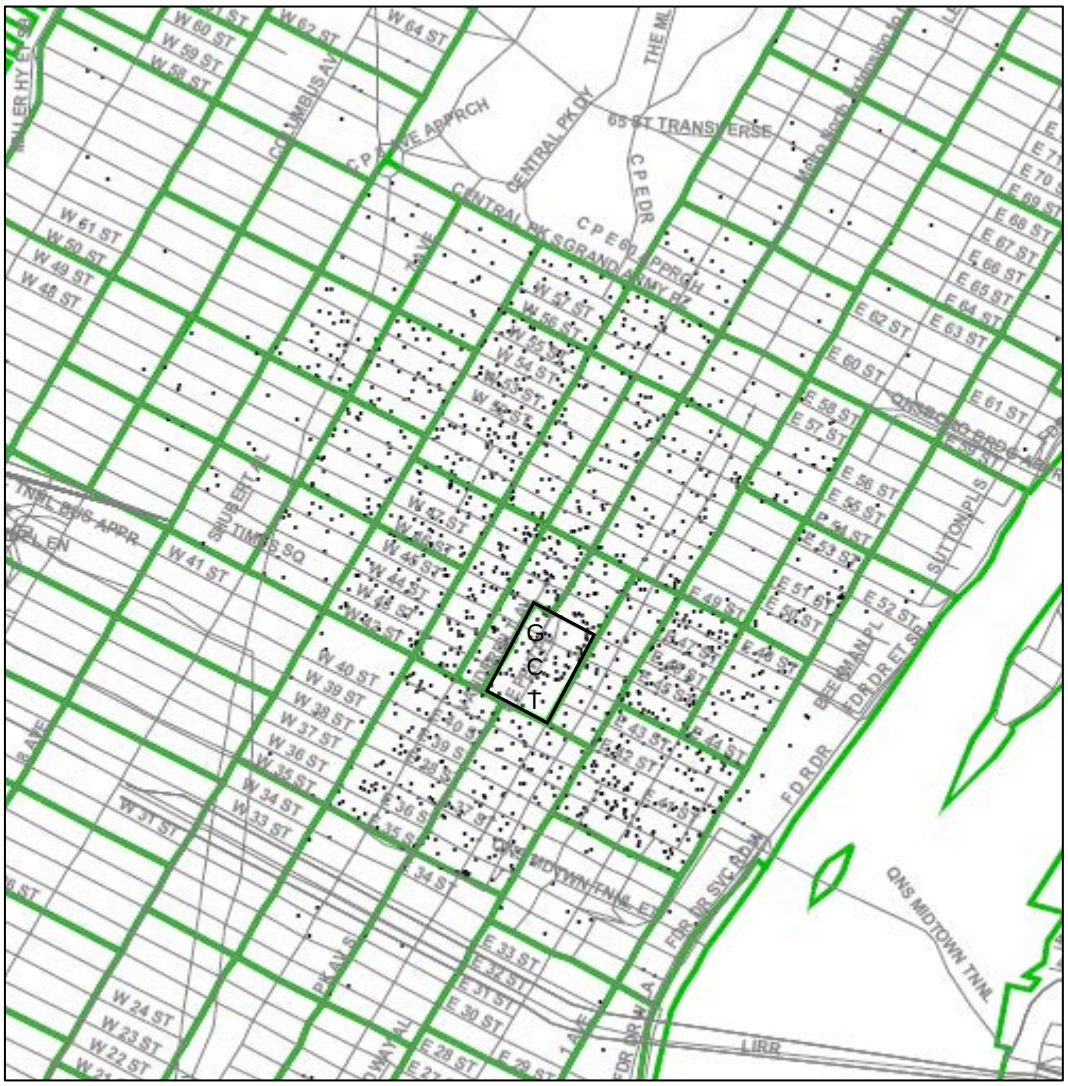
	Existing	2020 No Build	% Total	2020 Build	% Total	2030 No Build	% Total	2030 Build	% Total
LIRR	na	na	na	2,630	40%	na	na	2,630	38%
MNR	1,230	1,490	39%	1,490	23%	1,710	40%	1,710	25%
NYCT	2,070	2,370	61%	2,370	37%	2,580	60%	2,580	37%
Total	3,300	3,860	na	6,490	na	4,290	na	6,920	na

It is important to note that the growth in pedestrians between 2020 and 2030 is all due to MNR and NYCT growth as the ESA service is assumed to be at capacity in 2020.

In a similar manner to the EIS, LIRR riders were assigned to/from their final Midtown destination, LIRR patrons were assume to use one or more of the nearest exits closest to their end location. (From the four main escalator banks connecting the LIRR mezzanine to the LIRR Concourse, LIRR passengers would be ascending each bank by "favoring" the southern ends of the LIRR platforms given that platform VCEs are positioned toward the north end. Thus, more train cars would be processed by the southern VCEs as follows: 33 percent to the southmost VCE, 25 percent to the south middle VCE, 21 percent to the north middle VCE, and 21 percent to the northmost VCE). Once on the street, people were assumed to follow as direct a path as possible into that Midtown destination zone.

Those pedestrians who would have used the 44th or 45th street entrances in the FEIS design were assigned to the nearest exit, primarily through the 47th Street Crosspassage to an existing escalator on the south side of 47th Street at Madison Avenue (the closest and most direct to 44th and 45th streets.

Figure 1: Distribution of LIRR Ridership at GCT (Based on 2006 LIRR O/D Survey)



Each dot represents a destination cluster, not an individual person trip, within the MTA RTFM zone system

Figure 2: Distribution of LIRR Ridership at GCT

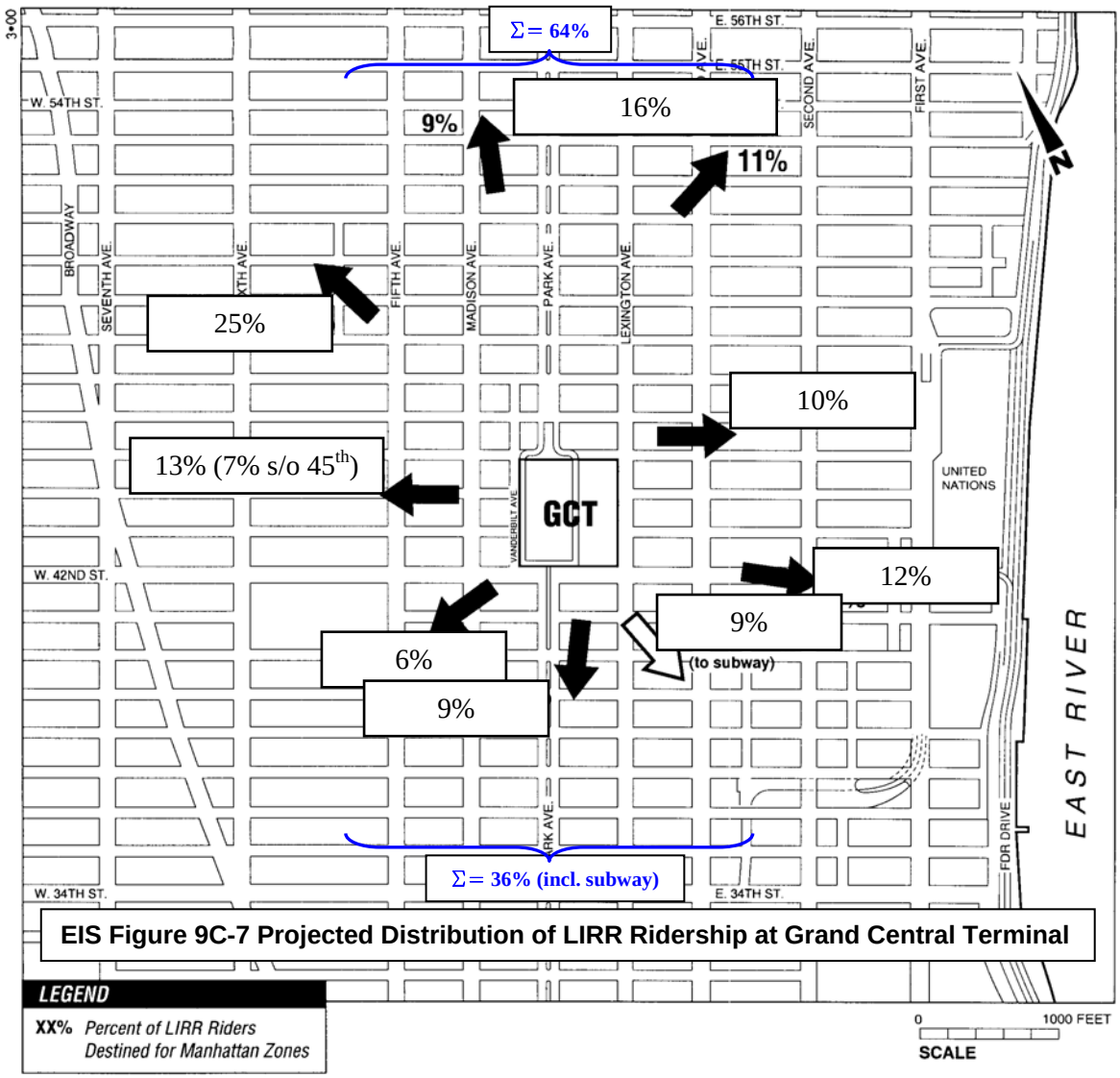


Table 3 lists the LIRR pedestrian flow conditions in GCT PM peak 15 minute period.

Table 3: LIRR Pedestrian Flow Conditions in GCT PM Peak 15-minute Period (highest terminal passenger volume; output from model)

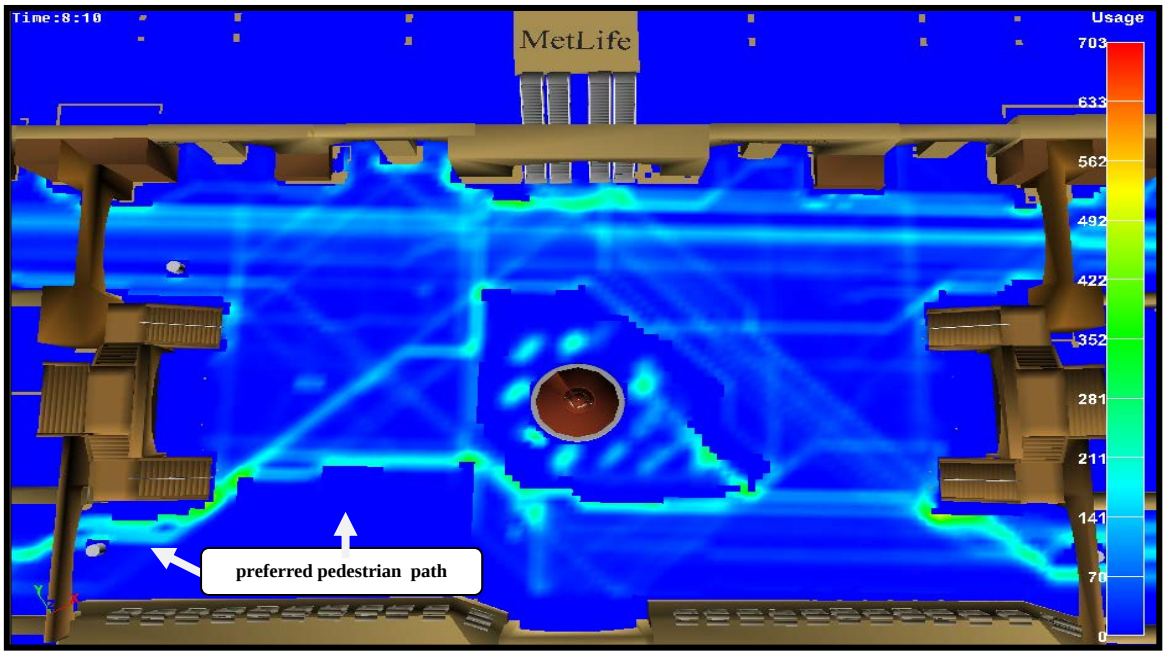
Location	Existing	2020 w/o ESA	2020 w/ESA
NYCT IRT Fare Control Area 238	1,580 up / 1,640 down	1,800 up / 2,230 down	2,400 up / 2,150 down
ESA Escalators in GCT Dining Concourse	--	--	2,340
Transit Museum Escalator to Dining Concourse (down)	220	260	560
LIRR Concourse bet. 44th and 48th Streets	--	--	4,020
LIRR Concourse bet. 44th Street and Escalators to GCT Dining Concourse	--	--	1,760
Passageway bet. NYCT Transit Museum and NYCT Shuttle	1,910	2,040	2,040
in 47th Street Crosspassage			
VCE to LIRR Concourse	--	--	2,770
VCE to Westvaco (NE corner of 48th/Park)	430	530	1,440
VCE to 245 Park Avenue	--	--	820
VCE to Chase (NE corner of 47th/Madison)	970	1,200	1,300
VCE to Bear Stearns (SE corner of 47th/Madison) (w/o Biltmore Room stairs)	70	90	870
Crosspassage near LIRR Escalator	850	1,060	3,040
Crosspassage East End e/o GCT East Spine	90	100	810

IV. Model Results

The STEPS model provides three useful simulation outputs that assist the analyst in examining the terminal. First, a real-time simulation output of pedestrians walking and queuing within corridors, ascending/descending VCEs, and traversing through turnstiles is provided to give the viewer a sense of scale for the project in terms of the sizes of the facility and the volume of people. For example, a stakeholder can visually understand the difference between 500 versus 5,000 people per hour walking through a ten-foot-wide corridor.

Second, the simulation can highlight high-usage walking paths through the terminal. The easy identification of desired pedestrian routes can guide designers to properly locate way-finding signage, VCEs, and retail kiosks so as not to obstruct preferred pedestrian paths (see Figure 3). Obstructions within these desire lines would create pedestrian turbulence, a reduction in pedestrian walking speeds, and a deterioration in pedestrian LOS.

Figure 3: PM Peak Period Usage Paths in Main Concourse



Third, the simulation identifies "hot spot" locations that exhibit high pedestrian densities and possibly operate at poor levels of service. The hot spots are sensitive areas that at times even a slight increase in volume can result in disruption to the flows and deteriorated conditions. The images from the model are similar to Doppler radar pictures, which identify locations of intense precipitation; in STEPS, the deep red color signifies dense pedestrian activity operating at a poor level of service.

The following list identifies GCT hot spots that exist today:

1) NYCT FCA 238 after trains unload (see Figure 4). These conditions, while certainly problematic, occur nearly every day as commuters queue in dense interpersonal spacing, and tolerate poorer levels of service (in part, because this remains the shortest travel path) in order to clear the area sooner.

2) The junctions/main decision points, such as where the Lexington Passage crosses the 105 East 42nd Street corridor, where dense pedestrian paths intersect each other, which result in slower traveling speeds (see Figure 5).

3) 105 East 42nd Street corridor, which has a number of obstructions within and lining it, such as an information kiosk, refuse cans, a police desk, retail store information board etc., and its effective width is significantly narrowed (the north end of this corridor is shown in Figure 5).

4) The ticketing windows on the south side of GCT's Upper Concourse, where there are a significant number of stationary people narrowing the available walking space (see Figure 6).

The hot spots, however, do not endure for the entire peak period (e.g., 6-10 AM), but can occur briefly throughout the peak period. Small isolated hot spots usually occur for less than one minute at a time. These brief times of congestion would not constitute a significant pedestrian impact, per CEQR, since they do not endure for the entire 15-minute period. Nevertheless, such conditions are indicative of potential longer-duration problems that may occur in the future. Hot spots at VCE banks can last longer because they are usually based on train arrivals. The effects of ESA on these locations are discussed in the next section.

Figure 4: PM Level of Service at NYCT FCA 238 during Subway Alighting Surge

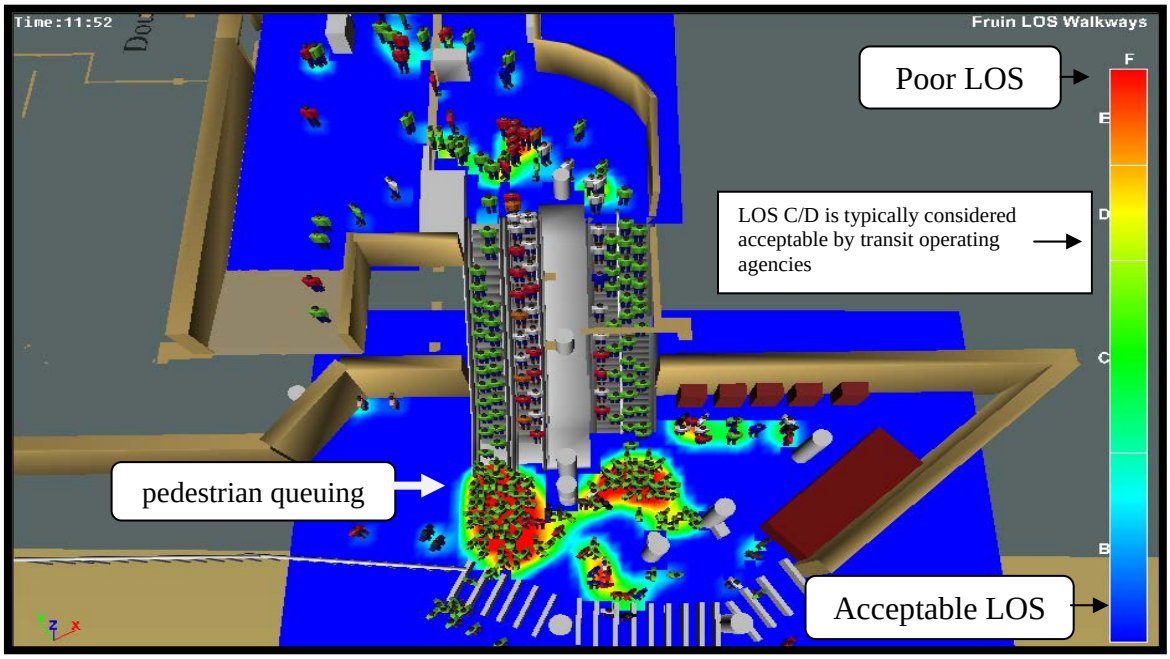


Figure 5: **PM Momentary Hot Spots at Pedestrian Intersection (GCT Upper Concourse)**

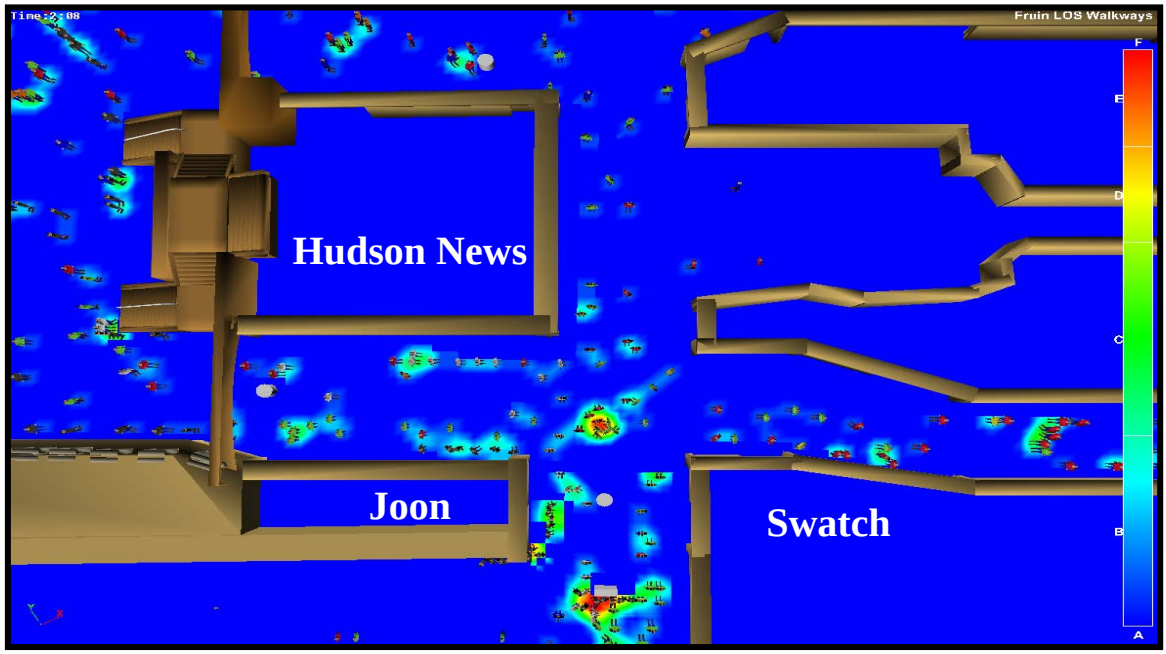
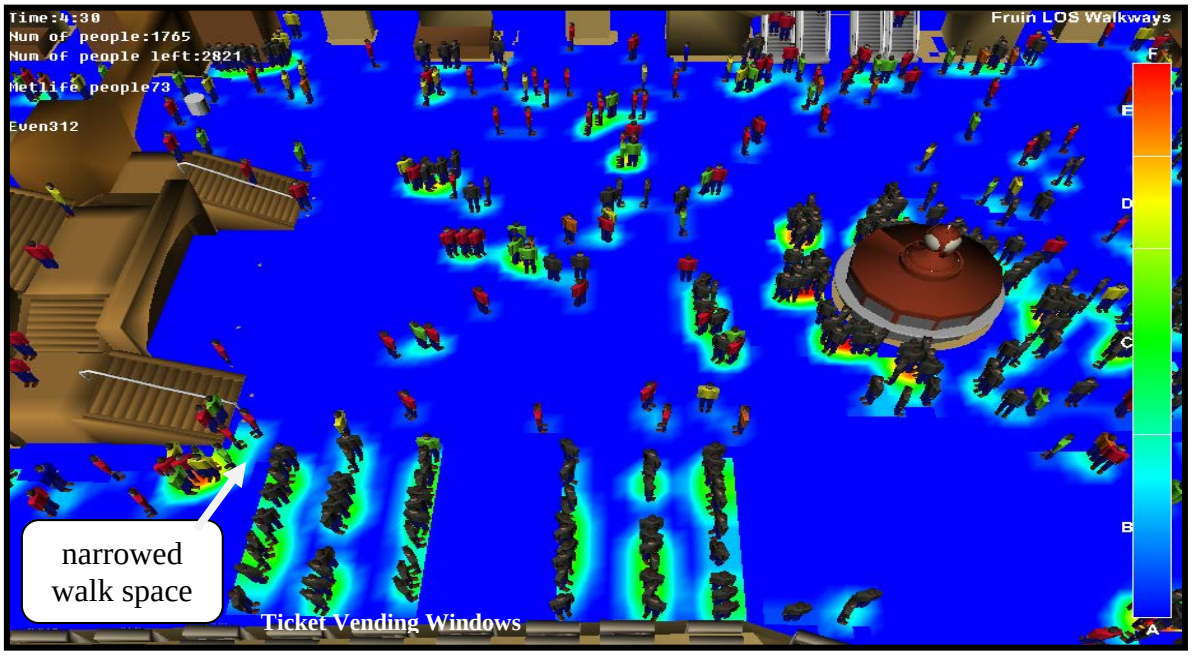


Figure 6: PM Poor Walkway LOS by Lines at Ticket Vending Windows (GCT Upper Concourse)



A. Level-of-Service Assessment

When a simulation is running, STEPS constantly calculates analytical values of the model such as the number of people occupying a location, the usage of an exit, the amount of people that have left the model, etc. The modeler can specify these values to be recorded for display on screen or saved to a separate file. Even though LOS can be visually observed in real time while the model is running, outputs from the model would be needed to accurately compare LOS among the different scenarios.

For this study, the first step was to select representative locations to monitor. For some areas, AM and PM locations are different from each other to capture the main pedestrian flows. For example, at FCA 238, the studied locations were placed at the top of the stairs for the morning where people tend to amass in large clusters, whereas in the evening, the most critical areas for queuing occur in the turnstiles areas. Tables 4 and 5 list summarized levels of service for the locations in each scenario and the volumes of pedestrians passing through the locations during the recorded 15 minutes. For each location, the 15-minute LOS was calculated via a weighted average to describe the general operational condition of the location. In essence, this weighted average is similar to a static spreadsheet analysis that yields an average LOS as defined in the *CEQR Technical Manual*. For procedures on how LOS was recorded and calculated, please refer to the Appendix D. The tables showing percentage values for each recorded minute can be found in Appendix E.

The Build scenarios were evaluated for future years 2020 and 2030. As indicated above, the growth in pedestrians in GCT between 2020 and 2030 is entirely due to MNR and NYCT growth, as the ESA service is assumed to be at capacity in 2020. For each Build year, the model

architecture was based on the Proposed Design, and modified for several design alternatives as described above for assessing AM conditions at critical locations.

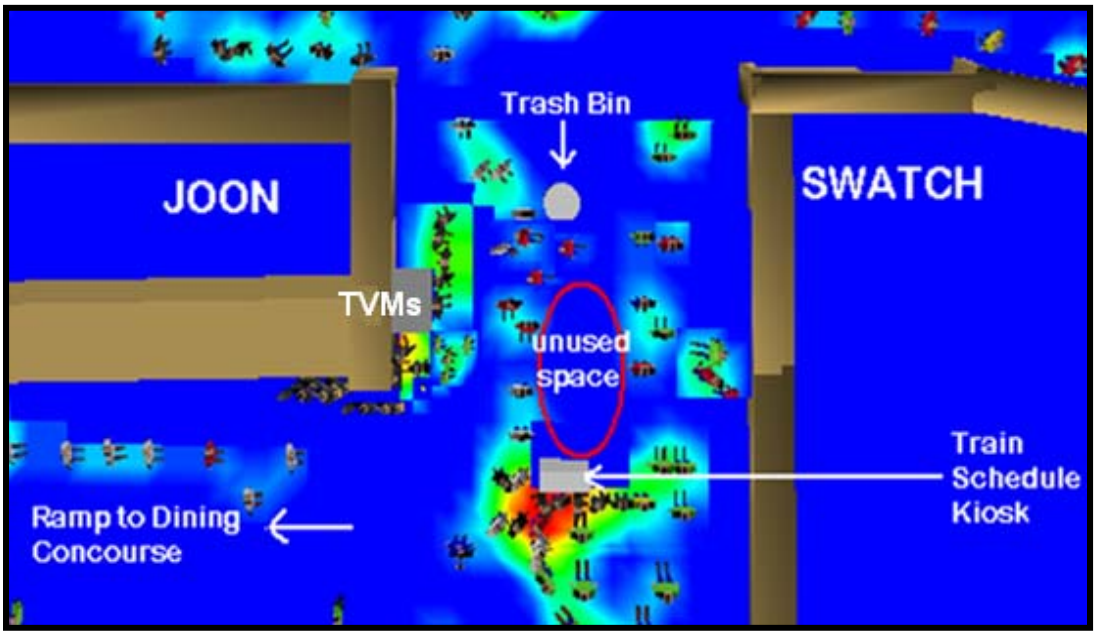
In terms of current operations in GCT, many of the evaluated VCEs are operating at LOS C or better, with the exception of the elements at FCA 238. In the AM peak 15 minutes, the stairs leading to FCA 238 function at LOS C or better, while the escalators are operating at LOS D. Conditions are worse in the PM peak period, where all of the vertical circulation elements operate at an average LOS E, with approximately a quarter of that time in LOS F. These conditions are attributed to the pedestrian surges from the subway when multiple trains unload at once.

The 105 East 42nd Street corridor connected to FCA 238 is also influenced by these subway surges, especially around the location of the information kiosk and the ticket vending machines (TVMs). The commuters that gather around the TVMs to check the train schedule utilize almost half of the corridor's width. The placement of the information kiosk and trash bin at the center of the corridor splits the corridor into half, creating a pocket of unused space between them (see Figure 7). (For better utilization of the corridor at this location, these obstructing items can be relocated along the wall.)

Cross movements of people on the Oyster Bar east ramp going to the Dining Concourse further contribute to the congestion. Shopper movements were not specifically included since field observations indicated that these flows are not significant and thus do not influence overall levels of service and congestion. Instead, the width of the walking corridor was artificially made narrower in the model to account for stationary people who tend to wait out of the main moving flows and for people entering a store. The model was then calibrated to match existing, observed conditions.

The 47th Street Crosspassage is currently operating at LOS C or better. The majority of commuters utilize the VCEs to Chase Bank and at the Westvaco Building. Even though, the beer carts along the north wall of the passageway take up one third of its width, this segment is still operating at acceptable LOSs in the PM peak period.

Figure 7: Corridor Congestion in the PM Peak Period of Existing Scenario



A1. Alternatives Modeled

Proposed Design
When compared to the FEIS design, the proposed design includes minor modifications to the new LIRR Concourse, no street connections to 44th or 45th street, and the inclusion of the Kenneth Cole Stairs. The Kenneth Cole stairs will provide a new twelve-foot-wide stair, offering much-needed additional capacity between the 105 East 42nd Street corridor and FCA 238. It will be constructed in the location of the Kenneth Cole store on the west side of the 105 East 42nd Street corridor.

Proposed Design with Biltmore Room VCEs
The first alternative to the Proposed Design includes vertical connections to the Biltmore Room, which would house two escalators, linking the LIRR Concourse to the former incoming train room in GCT.

Proposed Design with Biltmore Room VCEs + Short Loop Connection
In the second alternative, in addition to the Biltmore Room escalators, a short subway loop was added, providing direct connection between the south end of the LIRR Concourse and FCA 238.

A2. Model Results – Proposed Design

Tables 4 and 5 summarized AM and PM LOS results under the Proposed Design. To facilitate referencing to text below, table cells will be colored.

<u>LIRR Concourse</u>: LOS analyses were conducted for several locations in the new LIRR Concourse and for the LIRR VCE connecting the GCT Dinning and LIRR concourses, which would be composed of one stair and two escalators (Location #1). Analyses indicate that LOS C

or better would characterize conditions on this VCE as well as the entire concourse, as it was designed for.

Transit Museum Escalators: This VCE would operate at acceptable LOS C or better, although the number of people using this element (Location #5 in the LIRR Concourse figures) by the Transit Museum to reach the Dinning Concourse almost doubled in the Build conditions.

47th Street Crosspassage: Directly connected to LIRR Concourse, the 47th Street Crosspassage would also be affected by new LIRR service. Although it was assumed that the same number of LIRR passengers arrived in the AM peak period would return in the PM peak period to the LIRR Concourse, there would be a more noticeable effect on LOS in the crosspassage in the morning due to the surges of passengers alighting from trains. Consequently, the condition of the escalator at the Westvaco building (Location #3, see green cells) leading up to 48th Street would slightly worsen from existing LOS C or better to LOS D in the morning.

Given the sizeable capacity of the VCEs in the former Bear Stearns building, even though the usage in the Build conditions more than tripled from existing demands, these elements would still operate at acceptable levels of service. Significantly underutilized today, these VCEs will provide valuable capacity relief to the escalator at Chase Bank in the future by creating a more balanced split of vertical circulation demand to keep both VCE banks operating at LOS C to D or better. (Location #2; see tan cells)

The addition of LIRR passengers would not have considerable influence on the remaining locations in the crosspassage, which would all continue to operate at LOS C or better.

FCA 238: The Proposed Design would not alter the conclusions of the FEIS or significantly change the analyses at the VCEs at FCA 238 because virtually the same number of LIRR customers is proposed to transfer to the subway. Currently, about 36 and 43 percent of the respective AM and PM peak 15-minute would be characterized by LOS E-F (see grey cells). The Kenneth Cole VCE (which is included in the NYCT 2010-2014 Capital Program) would provide enough capacity relief for the existing escalators to operate with less incidence of LOS E and F (see blue cells) for the 2020 No Build (PM Peak), 2030 No Build (PM Peak), 2020 Build (AM Peak) and 2030 Build (AM Peak) scenarios as compared to Existing Conditions. The LOS for the double escalator bank (Location #1) in PM Build conditions, with the provision of Kenneth Cole stairs, would not worsen significantly, and even compared to the existing conditions (LOS E-F increases by less than 15% of the time; see purple cells)

In the AM, the existing stairs (Location #2) would remain operating at acceptable LOS C or better in the year 2020, and deteriorate slightly to LOS D by the year 2030 without the short loop and improve to LOS C or better with a short loop connection (see red cells). For the PM peak period, the operating condition of these stairs would be relieved from LOS E to D with the introduction of Kenneth Cole stairs in the year 2020 (No Build, Build) and 2030 (No Build), but return to LOS E in 2030 Build Condition (see orange cells).

The Kenneth Cole stairs would continue to operate at LOS C or better for the AM peak periods, but worsen to LOS D and E for the respective 2020 and 2030 PM Build cases (see pink cells).

The condition of 105 East 42nd Street Corridor is also worth noting. Because of the 2020/2030 background growth and the introduction of LIRR riders (a volume increase of 16 percent in total or 690 in 15 minutes), this corridor would operate at a much more congested condition (see Figure 8). As shown in Figure 8, more hot spots (LOS E-F) would occur along the corridor, compared to existing conditions (Figure 7). To relieve the congestion, the TVMs, arrival board kiosk, refuse containers, and rolling information board in this corridor could be relocated along the walls or completely out of the corridor. The LOS analyses were not performed for this corridor due to the continuously changing and random hot spots along the whole corridor.

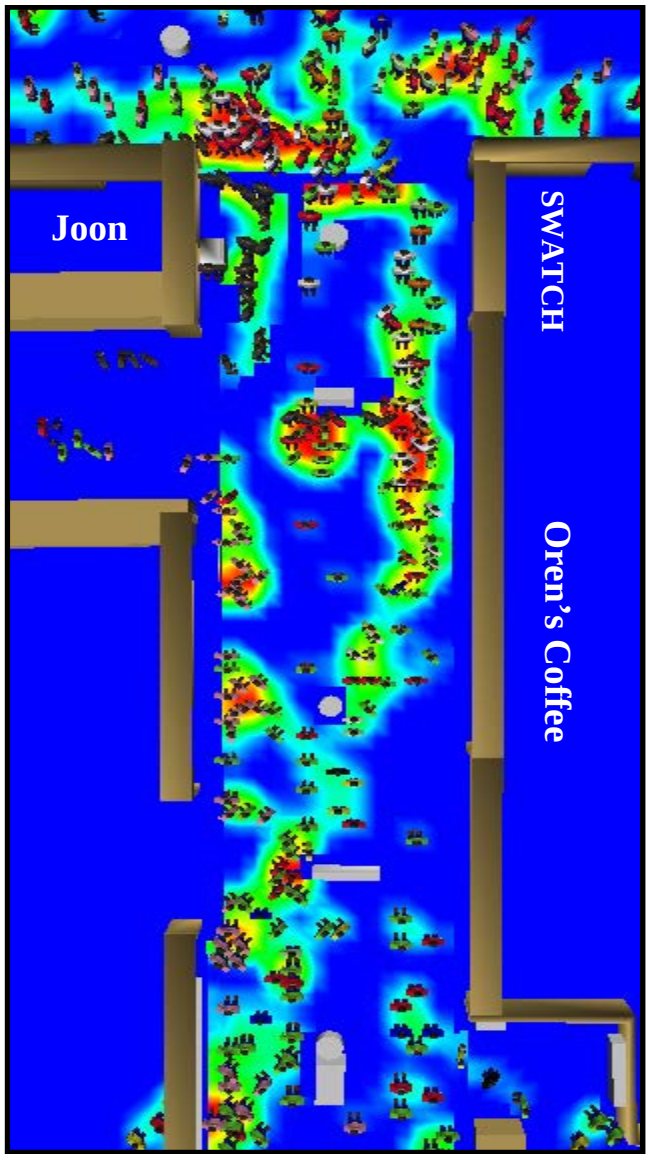
A2. Model Results – Proposed Design and Biltmore Room Escalators

The Biltmore escalators would attract some of the passengers from the VCEs that lead up to the former Bear Stearns building, at 47th Street Crosspassage. However, since the VCEs in the former Bear Stearns building are already operating at LOS C or better, the addition of these escalators (and the draw of people to these Biltmore Room elements) would not affect the operating condition there. The main purpose of the Biltmore escalators would be to provide another connection between LIRR Concourse and the main terminal, to help balance out the usage of the LIRR Concourse by attracting more people to the south end of the corridor.

A3. Model Results – Proposed Design and Short Loop Connection to the Subway

This subway loop is projected to offer some relief at FCA 238 by navigating passengers directly into the subway's paid zone within the passageway to the Shuttle, avoiding the crowds at the unpaid area by the existing VCEs. The short loop would improve the LOS D condition, in the AM in year 2030, of the existing stairs (Location #2) to a LOS C or better (red cells).

Figure 8: Corridor Congestion in the PM Peak Period in 2020 Build Scenario



B. Other Assessments

In addition to level of service, other outputs from the model have been summarized and assessed, including:

1) Number of pedestrians per one minute increment through major entrance/exit points, connections between corridors and vertical circulation egresses (Appendix F)
2) Total number of people in the model for the entire LIRR Concourse, GCT, and FCA 238 areas over time (Appendix G)
3) Journey time for major routes between the LIRR Concourse and GCT Upper Concourse or 47th Street Crosspassage (Appendix H)

The procedures on how the above outputs were recorded and analyzed as well as the results summary can be found in Appendices F, G, and H.

V. Conclusions

The pedestrian model analysis findings have presented an updated look at how GCT would function in future years without street connections in the LIRR Concourse to 44th and 45th streets.

From this update, there are some important differences to note.

1. This Proposed Design would not significantly impact the NYCT Museum escalators given that the main connection from the LIRR Concourse is a VCE that would channel people further into the Dining Concourse to the immediate west of the center information booth. The EIS showed the Museum escalators to be an area of congestion (since it was assumed that these escalators would be the first VCE seen by LIRR customers, which was only the case under EIS Option 1). The core of the Dining Concourse (DC) itself is spacious enough to process both MNR and LIRR sets of volumes (typically, the DC processes only about ⅓ of MNR's riders, and ESA would add about ⅓ of its passengers through it). GCT processes 500,000 MNR customers today and another 250,000 visitors. Of LIRR's 160,000 daily customers, only about 36 percent (about 58,000 people) would use GCT proper. The percent of LIRR passengers would decrease to about 45,000 (about 28 percent) if the Short Loop connection is constructed (which would be used by about 13,000 people, or just over eight percent). MNR expressed concern that the path that would carry people down the Oyster Bar ramps, west past Junior's in the Dining Concourse, and into the main VCE that would connect the LIRR Concourse to the Dining Concourse would be congested. The model indicated that people are typically metered as they enter GCT, whether from the street or from subway connections, and as such, do not arrive in the Dining Concourse en masse, and thus would not experience any significant queuing in the Dining Concourse level.

   The path that would involve use of the 105 East 42nd Street corridor and IRT FCA 238 has been well established as being congested today, and would certainly worsen to points of extreme congestion without the application of any new vertical capacity. The EIS indicated this to be an impact that could only be addressed with additional stairs and/or escalators and a reconfiguration of the FCA. The "Kenneth Cole Stairs" are included in NYCT's next Capital Plan, and will provide a significant capacity increase in the ability for people to move up/down between GCT and the FCA. This stair will also allow people along the corridor to sort themselves on each side (e.g., down volumes on the west side, up volumes to the east side) to some degree so not everyone would have to congregate at the existing stair/escalator near former Oren's coffee shop.

2. The model demonstrated that the "short loop" alternative, with a new fare control line, would allow the majority of LIRR riders destined to the IRT to avoid using GCT at all and simply connect into the existing "paid" crosspassage that connects the Shuttle and IRT trains. Table 4 indicates that the time spent in LOS A-C increased by ten percent and LOS E-F reduced from four to zero percent with provision of the short-loop corridor, compared to the Proposed Design. The analysis results indicated that the short-loop addition, in combination with the new KC stair and reconfigured FCA 238, would allow the FCA area to function without the extreme congestion that is currently occurring.

There are some important similarities between results presented in the EIS and the modeling effort.

1. All areas in GCT affected by the changes in the Proposed Design as compared with the FEIS design would operate at acceptable LOSs. No significant adverse impacts would result from the design changes.

2. The 47th Street crosspassage was shown to operate in the future without any significant congestion except at the LIRR Concourse portal up from ESA (connecting on the south side between MNR Tracks 35 and 36) where minor congestion would prevail as MNR riders traveling further east would mix with LIRR riders. The model indicated that this small mixing area would not create significant queuing elsewhere in the crosspassage.

3. The upper concourse of GCT was shown to operate acceptably in the EIS and in the model, with the exception of minor pockets of friction where crossing paths would occur. One area at the foot of the Vanderbilt Avenue stairs (the south stair) would be slightly congested during times when the ticket-window queues are lengthy. This congestion can be lessened if other ticket windows are opened on the east side of the upper concourse and additional TVMs are added (as is expected in space occupied by the former Joon pen store).

The level of congestion described above, does not constitute significant pedestrian impacts, per CEQR, since they do not endure for the entire 15-minute period.

Table 4: AM Levels of Service

Location		Existing						2020 with Kenneth Cole Stairs at Fare Control Area 238																							
								2020 No Build (without ESA)						2020 Build (with ESA Current Design[2])						2020 Build (with ESA Alternative 1[3])						2020 Build (with ESA Alternative 2[4])					
		Volume[1]	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg
			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F	
FCA 238	Existing Escalator in FCA 238 **(Loc #1)**	1,510 up	60%	4%	11%	25%	D	1,110 up	73%	6%	11%	10%	D	1,330 up	67%	7%	14%	12%	D	1,330 up	67%	7%	14%	12%	D	1,330 up	70%	7%	11%	12%	D
	Existing Stair in NYCT IRT FCA 238 **(Loc #2)**	460 up / 1,700 down	100%				A-C	340 up / 1,000 down	100%				A-C	250 up / 1,280 down	89%	7%	4%		A-C	250 up / 1,280 down	89%	7%	4%		A-C	240 up / 1,020 down	99%	1%			A-C
	Proposed Kenneth Cole Stairs in FCA 238 (Loc #3)	--						840 up / 900 down	100%				A-C	700 up / 1,430 down	97%	3%			A-C	700 up / 1,430 down	97%	3%			A-C	710 up / 1,050 down	99%	1%			A-C
Madison Coucourse	ESA Escalators connected to GCT Dining Conc. **(Loc #1)**	--						--						2,600	98%	2%			A-C	2,600	98%	2%			A-C	2,010	100%				A-C
	Madison Conc. bet. 44th St. and ESC to GCT (Loc #2)	--						--						2,600	100%				A-C	2,600	100%				A-C	2,010	100%				A-C
	Madison Conc. Under 47th St Xpass (Loc #3)	--						--						1,800	100%				A-C	1,600	100%				A-C	1,600	100%				A-C
	48th Street VCE leading to Mad Conc. (Loc #4)	--						--						1,500	100%				A-C	1,500	100%				A-C	1,500	100%				A-C
	Biltmore Room Escalator (Loc #5)	--						--						--						470	100%				A-C	470	100%				A-C
47th Street Cross-passage	VCE to Bear Stearns (Loc #1)	170	100%				A-C	330	100%				A-C	1,060	100%				A-C	680	100%				A-C	680	100%				A-C
	VCE to Chase (Loc #2)	1,300	100%				A-C	1,490	99%	1%			A-C	1,620	87%	10%	3%		A-C	1,620	87%	10%	3%		A-C	1,620	87%	10%	3%		A-C
	VCE @ Westvaco **(Loc #3)**	880	100%				A-C	1,060	99%	1%			A-C	1,830	69%	10%	18%	3%	D	1,830	69%	10%	18%	3%	D	1,830	69%	10%	18%	3%	D
	Crosspassage east end e/o GCT East Spine (Loc #4)	330	100%				A-C	400	100%				A-C	1,200	100%				A-C	1,200	100%				A-C	1,200	100%				A-C
	VCE @ 245 Park Avenue (Loc #5)	--						--						1,180	94%	5%	1%		A-C	1,180	94%	5%	1%		A-C	1,180	94%	5%	1%		A-C
	Crosspassage near LIRR Escalator (Loc #6)	860	100%				A-C	1,250	100%				A-C	3,200	100%				A-C	3,200	100%				A-C	3,200	100%				A-C
	VCE vestibule to Madison Conc. (Loc #7)	--						--						2,015	98%	2%			A-C	2,020	98%	2%			A-C	2,020	98%	2%			A-C

Notes:
1. Volumes without specified direction of flow refer to the main directional flow only
2. Current Design: without Biltmore escalators, without subway short loop
3. Alternative 1: with Biltmore escalators, without subway short loop
4. Alternative 2: with Biltmore escalators, with subway short loop

Table 4 (con't): AM Levels of Service

Location		2030 with Kenneth Cole Stairs at Fare Control Area 238																						
		2030 No Build (without ESA)						2030 Build (with ESA Current Design[2])						2030 Build (with ESA Alternative 1[3])						2030 Build (with ESA Alternative 2[4])					
		Volume[1]	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg
			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F	
FCA 238	Existing Escalator in FCA 238 **(Loc #1)**	1,270 up	66%	4%	17%	13%	D	1,460 up	59%	9%	14%	18%	D	1,460 up	59%	9%	14%	18%	D	1,420 up	65%	7%	13%	15%	D
	Existing Stair in NYCT IRT FCA 238 **(Loc #2)**	350 up / 1,150 down	100%				A-C	280 up / 1,400 down	54%	25%	21%		D	280 up / 1,400 down	54%	25%	21%		D	300 up / 1,140 down	97%	2%	1%		A-C
	Proposed Kenneth Cole Stairs in FCA 238 (Loc #3)	940 up / 1,000 down	100%				A-C	790 up / 1,520 down	97%	3%			A-C	790 up / 1,520 down	97%	3%			A-C	800 up / 1,180 down	97%	3%			A-C
Madison Coucourse	ESA Escalators connected to GCT Dining Conc. **(Loc #1)**	--						2,600	98%	2%			A-C	2,600	98%	2%			A-C	2,010	99%	1%			A-C
	Madison Conc. bet. 44th St. and ESC to GCT (Loc #2)	--						2,600	100%				A-C	2,600	100%				A-C	2,010	100%				A-C
	Madison Conc. Under 47th St Xpass (Loc #3)	--						1,800	100%				A-C	1,600	100%				A-C	1,600	100%				A-C
	48th Street VCE leading to Mad Conc. (Loc #4)	--						1,500	100%				A-C	1,500	100%				A-C	1,500	100%				A-C
	Biltmore Room Escalator (Loc #5)	--						--						470	100%				A-C	470	100%				A-C
47th Street Cross-passage	VCE to Bear Stearns (Loc #1)	540	100%				A-C	1,630	100%				A-C	1,150	100%				A-C	1,150	100%				A-C
	VCE to Chase **(Loc #2)**	1,550	98%	2%			A-C	1,180	56%	25%	19%		D	1,180	56%	25%	19%		D	1,180	56%	25%	19%		D
	VCE @ Westvaco **(Loc #3)**	1,140	98%	2%			A-C	1,920	47%	16%	21%	16%	D	1,920	47%	16%	21%	16%	D	1,920	47%	16%	21%	16%	D
	Crosspassage east end e/o GCT East Spine (Loc #4)	460	100%				A-C	1,270	100%				A-C	1,270	100%				A-C	1,270	100%				A-C
	VCE @ 245 Park Avenue (Loc #5)	--						1,230	93%	6%	1%		A-C	1,230	93%	6%	1%		A-C	1,230	93%	6%	1%		A-C
	Crosspassage near LIRR Escalator (Loc #6)	1,450	100%				A-C	3,390	99%	1%			A-C	3,390	99%	1%			A-C	3,390	99%	1%			A-C
	VCE vestibule to Madison Conc. (Loc #7)	--						2,015	98%	2%			A-C	2,015	98%	2%			A-C	2,015	98%	2%			A-C

Notes:
1. Volumes without specified direction of flow refer to the main directional flow only
2. Current Design: without Biltmore escalators, without subway short loop
3. Alternative 1: with Biltmore escalators, without subway short loop
4. Alternative 2: with Biltmore escalators, with subway short loop

Table 5: PM Levels of Service

Location		Existing						2020 with Kenneth Cole Stairs Built at Fare Control Area 238												2030 with Kenneth Cole Stairs Built at Fare Control Area 238											
								2020 No Build (without ESA)						2020 Build (with ESA Current Design[2])						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
		Volume[1]	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg	Volume	Level of Service				Wt. Avg
			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F			A-C	D	E	F	
FCA 238	Existing Escalator in FCA 238 **(Loc #1)**	1,000 up / 850 down	49%	8%	14%	29%	E	880 up / 850 down	61%	11%	13%	15%	D	950 up / 720 down	39%	13%	22%	26%	E	900 up / 910 down	61%	11%	11%	17%	D	1,050 up / 800 down	35%	17%	20%	28%	E
	Existing Stair in NYCT IRT FCA 238 **(Loc #2)**	600 up / 800 down	48%	14%	17%	21%	E	330 up / 480 down	69%	13%	12%	6%	D	630 up / 520 down	59%	12%	13%	16%	D	350 up / 570 down	67%	12%	10%	11%	D	580 up / 600 down	45%	10%	16%	29%	E
	Proposed Kenneth Cole Stairs in FCA 238 (Loc #3)	–						550 up / 800 down	87%	4%	7%	2%	A-C	830 up / 900 down	64%	8%	13%	15%	D	610 up / 910 down	80%	6%	10%	4%	A-C	820 up / 1,020 down	47%	15%	18%	20%	E
Madison Coucourse	ESA Escalators connected to GCT Dining Conc. **(Loc #1)**	–						–						2,570	99%	1%			A-C	--						2,570	99%	1%			A-C
	Madison Conc. bet. 44th St. and ESC to GCT (Loc #2)	–						–						2,565	100%				A-C	--						2,565	100%				A-C
	LIRR Madison Conc. Under 47th St Xpass (Loc #3)	–						–						4,020	100%				A-C	--						4,020	100%				A-C
	48th Street VCE leading to Mad Conc. (Loc #4)	–						–						1,800	100%				A-C	--						1,800	100%				A-C
Transit Museum	Transit Museum Escalator to Dining Conc. **(Loc #5)**	220	100%				A-C	260	100%				A-C	560	98%	1%	1%		A-C	300	100%				A-C	600	97%	2%	1%		A-C
47th Street Cross-passage	VCE to Bear Stearns (Loc #1)	70	100%				A-C	90	100%				A-C	870	100%				A-C	105	100%				A-C	880	100%				A-C
	VCE to Chase (Loc #2)	970	100%				A-C	1,200	100%				A-C	1,320	98%	2%			A-C	1,380	100%				A-C	1,500	97%	3%			A-C
	VCE @ Westvaco (Loc #3)	430	100%				A-C	530	99%	1%			A-C	1,670	73%	12%	15%		A-C	610	99%	1%			A-C	1,750	61%	15%	23%	1%	D
	Crosspassage east end e/o GCT East Spine (Loc #4)	90	100%				A-C	100	100%				A-C	825	100%				A-C	115	100%				A-C	840	100%				A-C
	VCE @ 245 Park Avenue (Loc #5)	–						–						730	99%	1%			A-C	--						730	99%	1%			A-C
	Crosspassage near LIRR Escalator (Loc #6)	850	100%				A-C	1,060	100%				A-C	3,040	98%	2%			A-C	1,220	100%				A-C	3,200	98%	2%			A-C
	VCE vestibule to Madison Conc. (Loc #7)	–						–						1,850	94%	6%			A-C	--						1,850	94%	6%			A-C

Note:
1. Volumes without specified direction of flow refer to the main directional flow only
2. Current Design: without Biltmore escalators, without subway short loop

APPENDIX A: Pedestrian Conditions within Grand Central Terminal

The analysis of potential impacts within Grand Central Terminal (GCT) focuses on critical representative corridors, passageways, and stairwells that could be affected by the addition of LIRR service into GCT. A new concourse under the terminal's west edge on the Dining Concourse would be utilized by LIRR service, resulting in new pedestrian flows within the terminal. These affected areas could include corridors and stairwells through the Dining and Main Concourse levels of GCT, as well as to the surrounding streets and sidewalks which border the terminal.

Pedestrian volumes are typically peaked in the outbound direction of GCT in the morning as commuters are traveling to work, while the reverse is true for the evening peak period. The AM peak pedestrian activity in the Dining Concourse experiences nominal congestion, due in part to single train arrivals dispersed among all tracks. The Dining Concourse area is not subjected to simultaneous train alightings, involving high cross-flow conflicts, as experienced by the Main Concourse. Although the presence of restaurants and seating areas has significantly reduced free circulation space for pedestrians, no significant increases in congestion has resulted.

The objective of STV's pedestrian count program and analysis is to identify circulation patterns that would closely simulate future LIRR patterns throughout GCT, and observe the current utilization of all the terminal's critical elements that could be affected by ESA passenger overlays. This would allow the verification of both AM and PM 15-minute peak periods, the determination of existing and future pedestrian LOSs with the introduction of LIRR service into GCT, and impact determination.

Overall Terminal Pedestrian Volumes

New pedestrian volume data were collected at each entry point into GCT during October 2008. These new pedestrian counts were performed within the Main Concourse, Dining Concourse, and 47th Street Crosspassage during the weekday 7:30 to 9:30 AM and 4:30 to 6:30 PM peak periods.

The total volume of pedestrians entering GCT is approximately 45,800 during the 8:10 to 9:10 AM peak hour and 48,400 during the 5:15 to 6:15 PM peak hour. Pedestrian volumes during the peak hours are fairly balanced as the peak 15-minute pedestrian volumes represent between 26 and 29 percent of the peak hour volume.

Pedestrian Volumes at Selected Key Locations

The highest levels of pedestrian activity in the Dining Concourse occur at the Oyster Bar ramps leading to the Main Concourse, which processes about 320 people traveling up to the Main Concourse during the AM peak 15-minute period and approximately 650 people traveling down to the Dining Concourse during the PM peak (see Figure 1). The northern staircases above the east and west Dining Concourse stairs process between 160 to 180 ascending pedestrians and 270 to 350 descending pedestrians during the AM and PM 15-minute peak period, respectively. These volumes are not particularly high.

In the Main Concourse, the escalators serving the Met Life Building and the two stair/escalator elements leading to the IRT subway station are among the most highly utilized throughout GCT (see Figure 2). The Met Life escalators process around 2,000 pedestrians ascending out of the terminal during the AM 15-minute peak and about 1,350 people descending into entering during the PM 15-minute peak.

The stair/escalator bank leading toward the subway adjacent to the 42nd Street passage processes approximately 1,960 pedestrians ascending into GCT during the AM 15-minute peak and about 1,640 pedestrians descending to the subway level during the PM 15-minute peak. The eastern subway stairwell along the Lexington Passage processes approximately 1,040 people ascending into GCT and about 720 people descending to the subway level during the AM and PM 15-minute peak periods, respectively.
Another high-volume corridor is the passageway leading to the IRT shuttle train, which processes two-way pedestrian volumes ranging between 1,820 and 1,950 during the AM and PM peak 15-minute periods.

Within the 47th Street Passageway, the pedestrian volumes to/from the access points at Madison Avenue and at Park Avenue/48th Street are fairly even. During the AM peak 15-minute period, these element process between 1,200 and 1,380 pedestrians ascending to street level during the AM peak 15-minute period and between 710 and 970 pedestrian descending to the 47th Street Passage during the PM peak 15-minute period.

Figure 1: Dining Concourse Volumes during AM / PM 15-Minute Peak Period

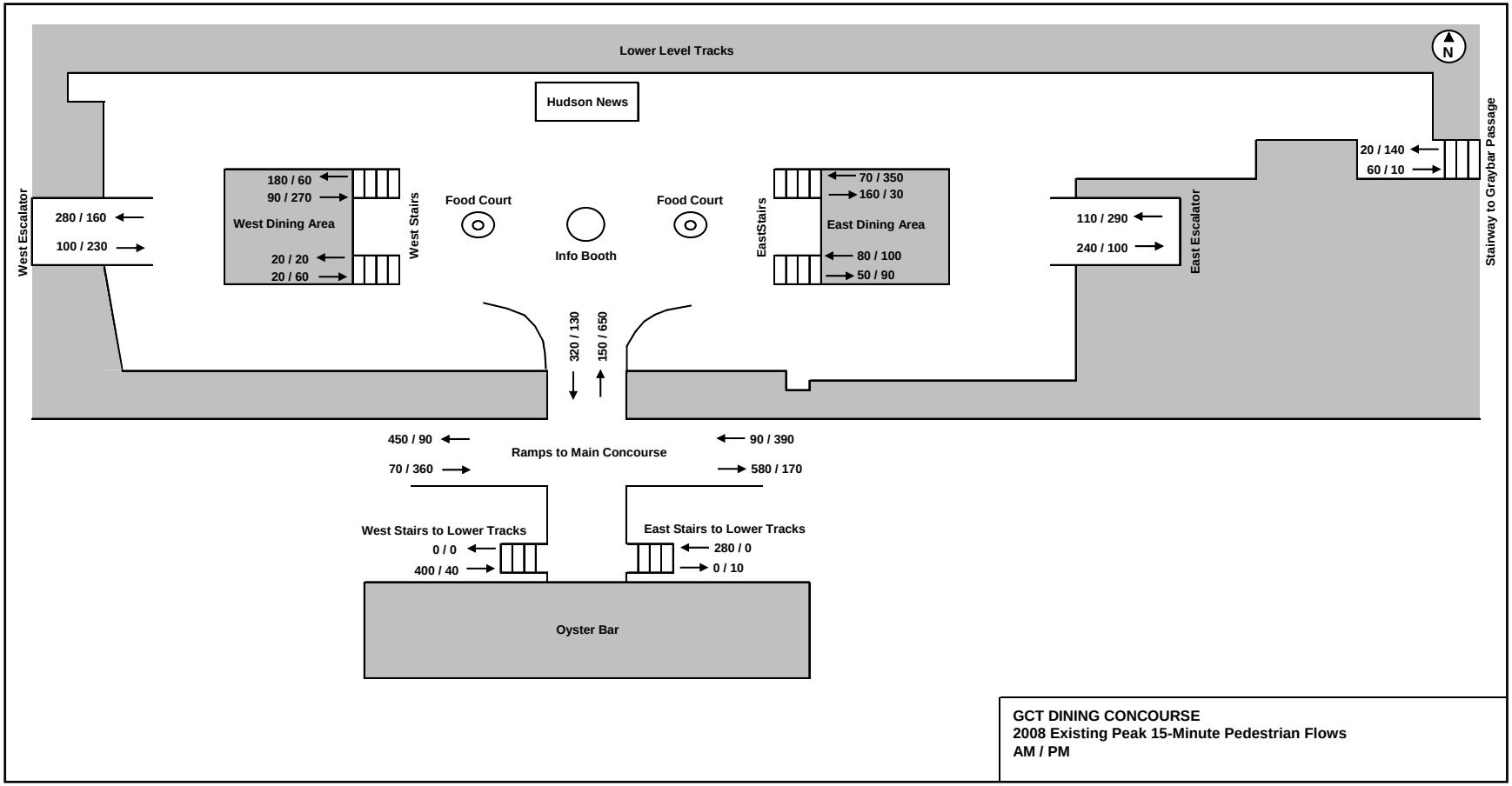


Figure 2: Main Concourse Volumes during AM / PM 15-Minute Peak Period

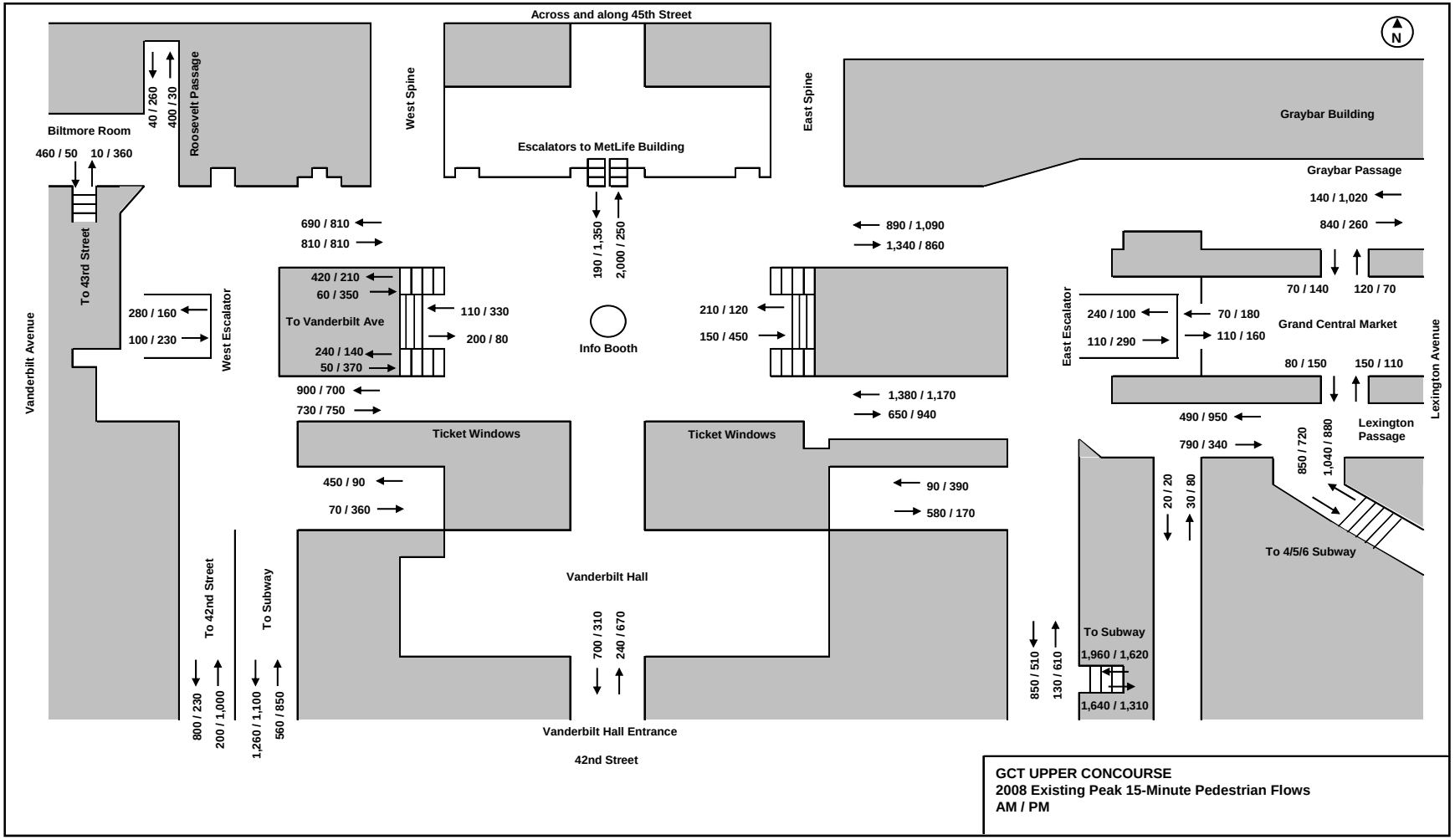


Figure 3: 47th Street Passageway Volumes during AM / PM 15-Minute Peak Period

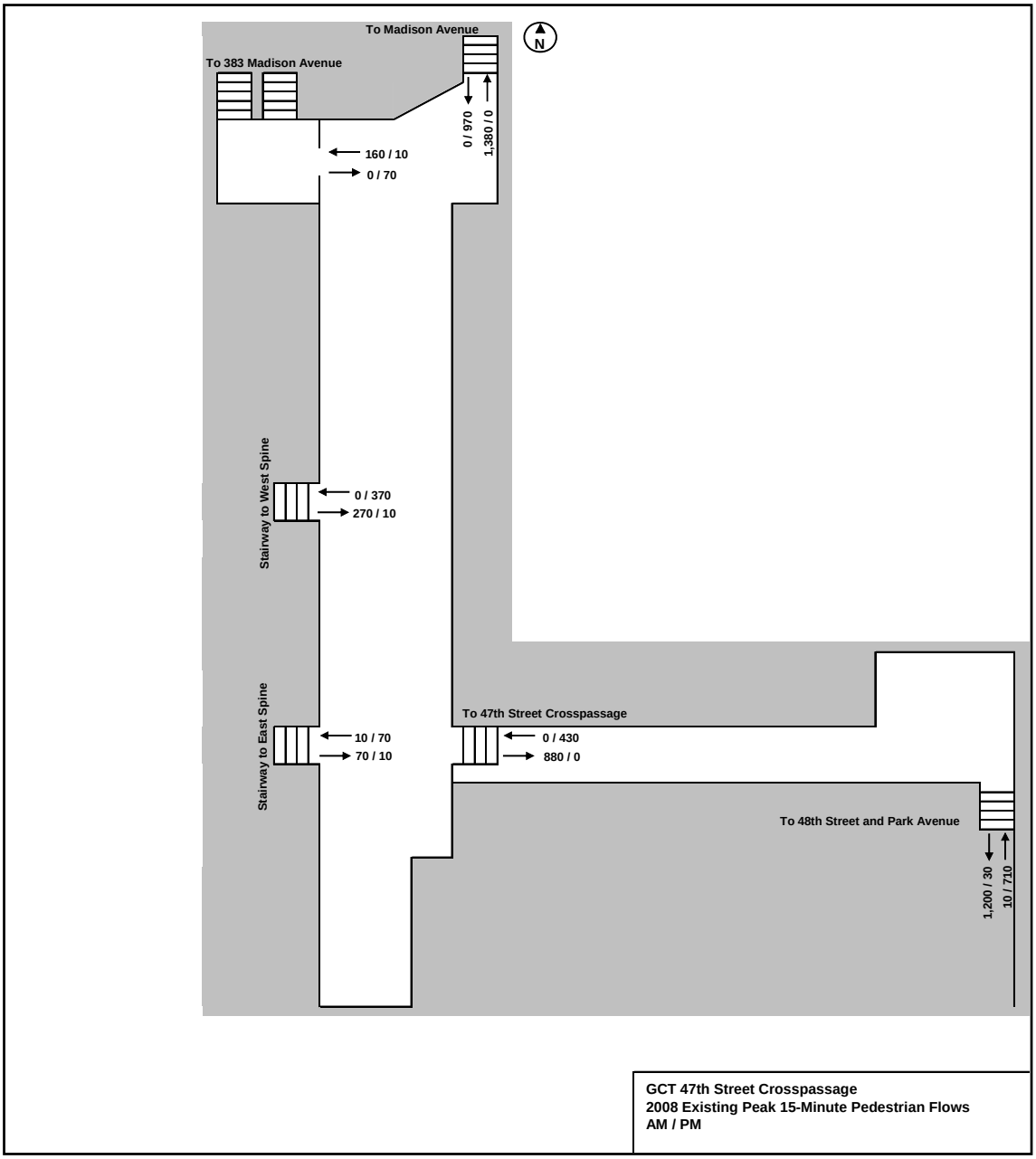


Figure 4: Main Concourse 2020 No Build Volumes during PM 15-Minute Peak Period

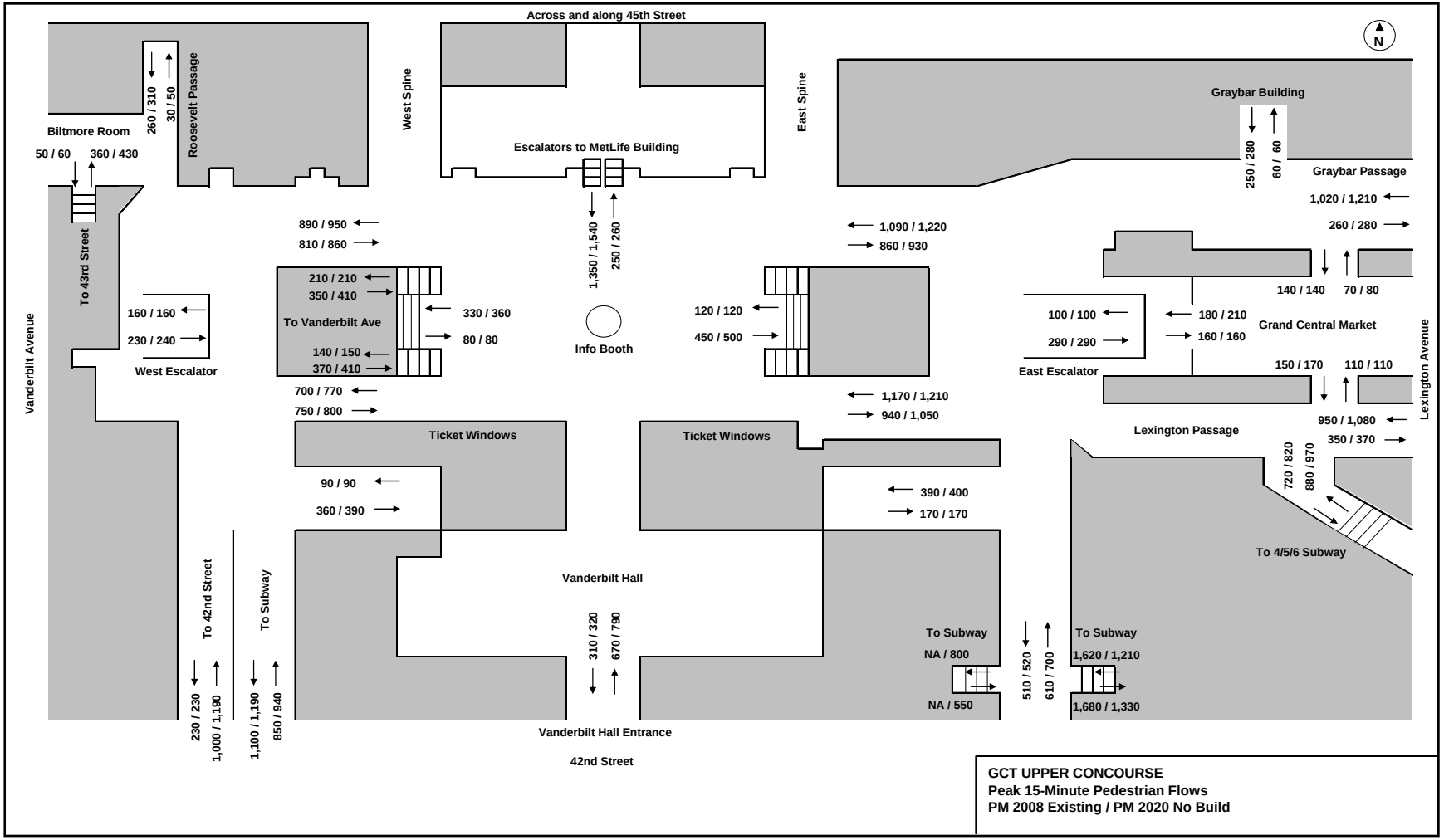


Figure 5: 47th Street Passaeway 2020 No Build Volumes during PM 15-Minute Peak Period

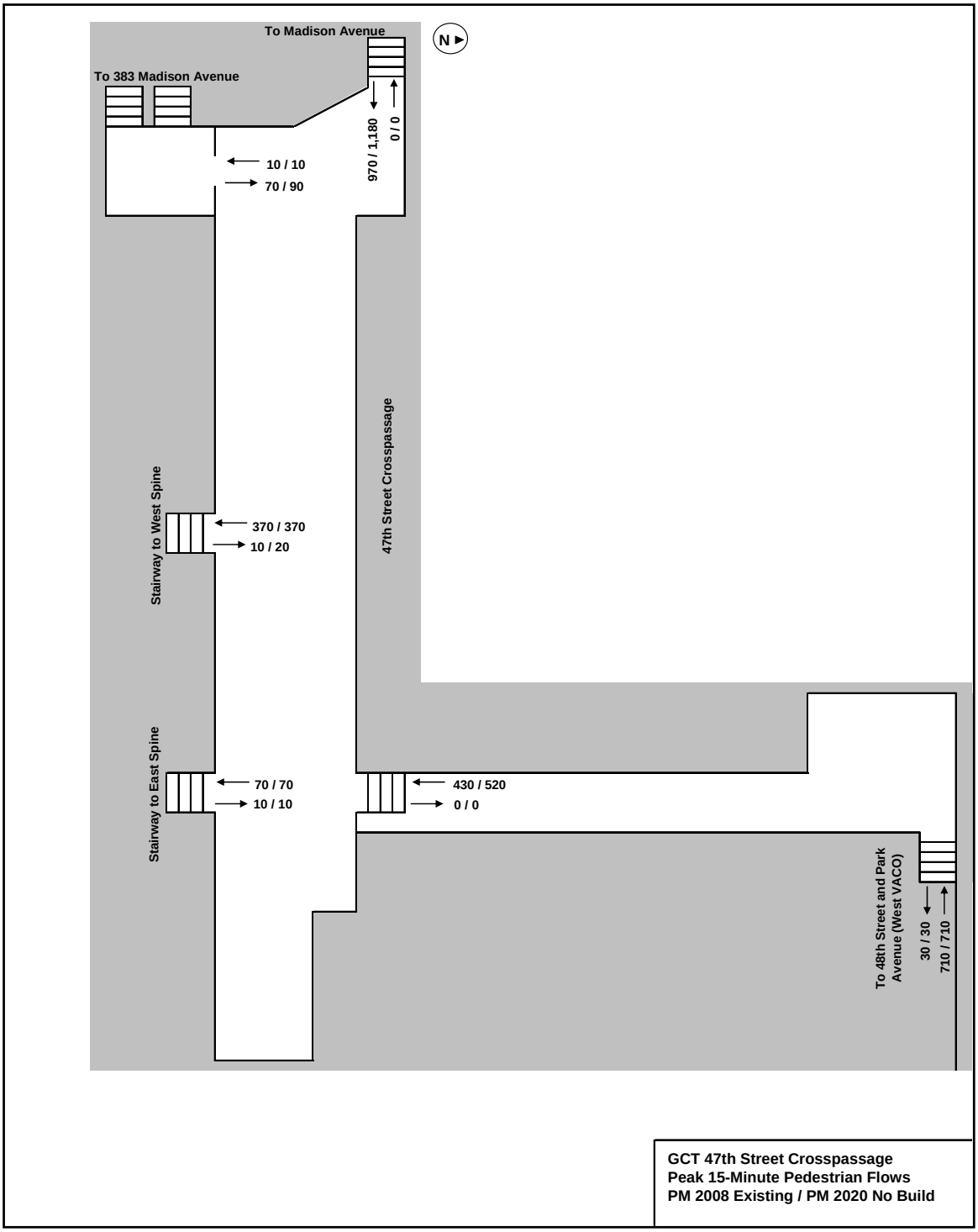


Figure 6: Main Concourse 2020 Build Volumes during PM 15-Minute Peak Period

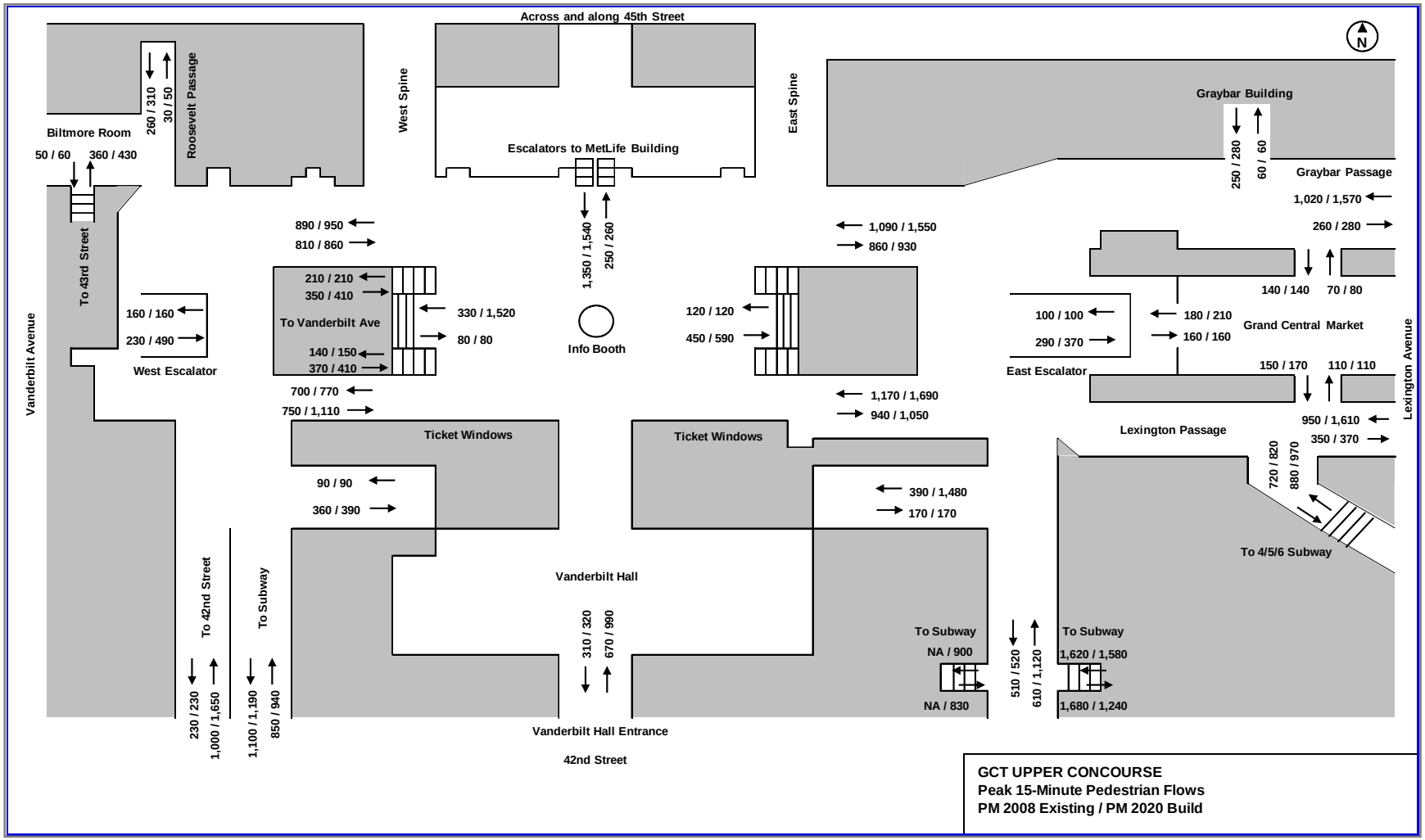


Figure 7: 47th Street Passageway 2020 Build Volumes during PM 15-Minute Peak Period

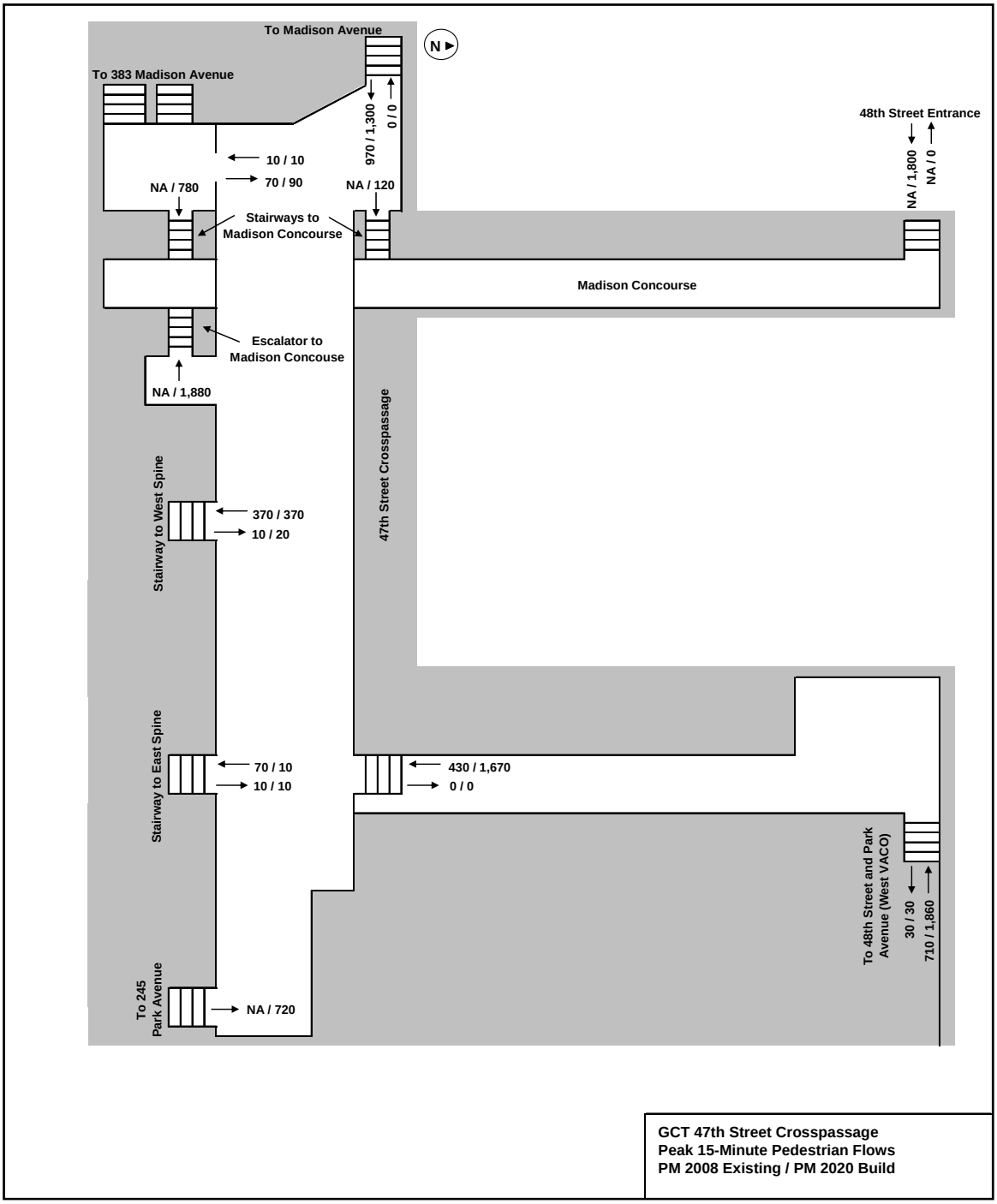


Figure 8: Main Concourse 2030 No Build Volumes during PM 15-Minute Peak Period

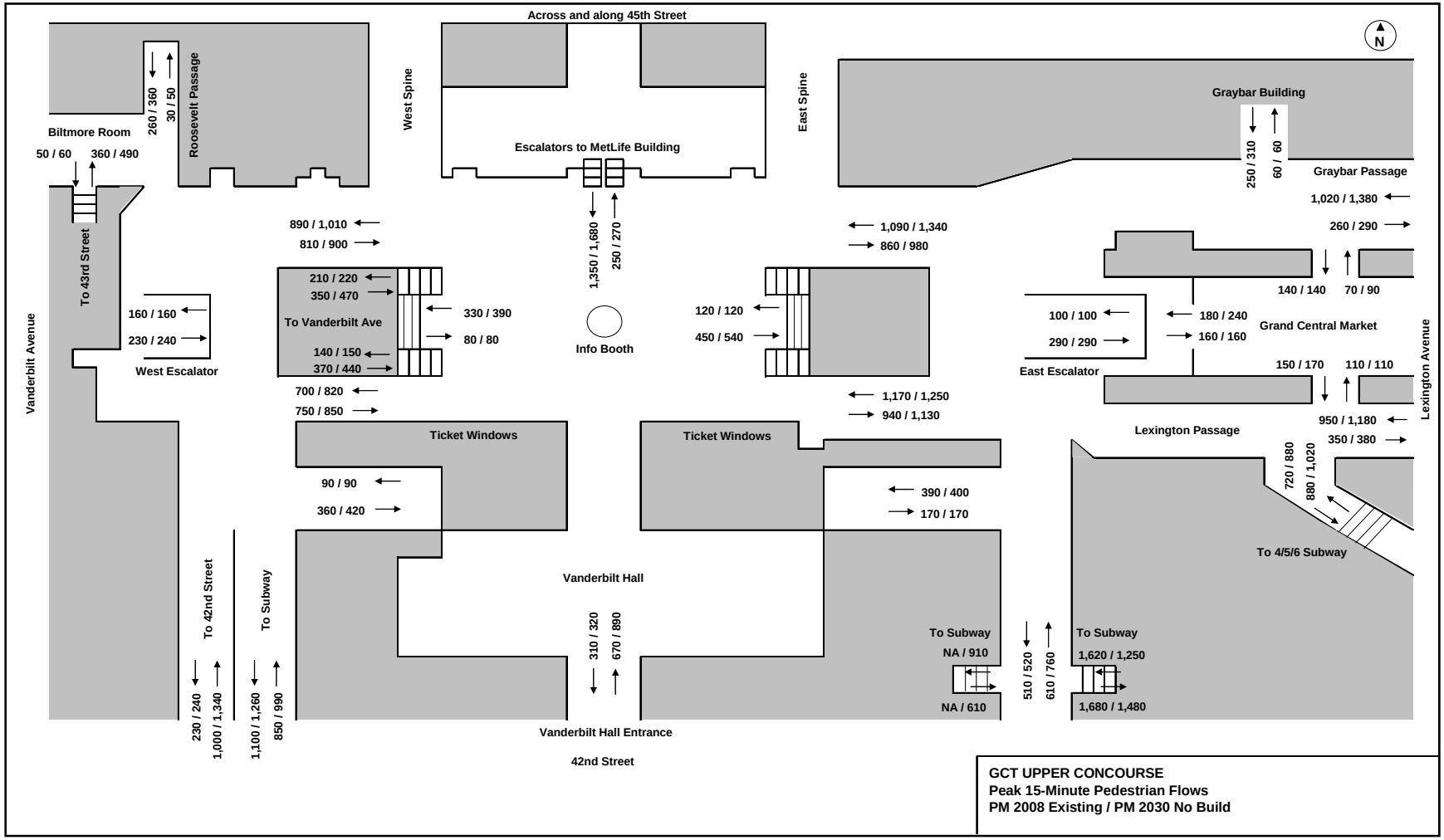


Figure 9: 47th Street Passageway 2030 No Build Volumes during PM 15-Minute Peak Period

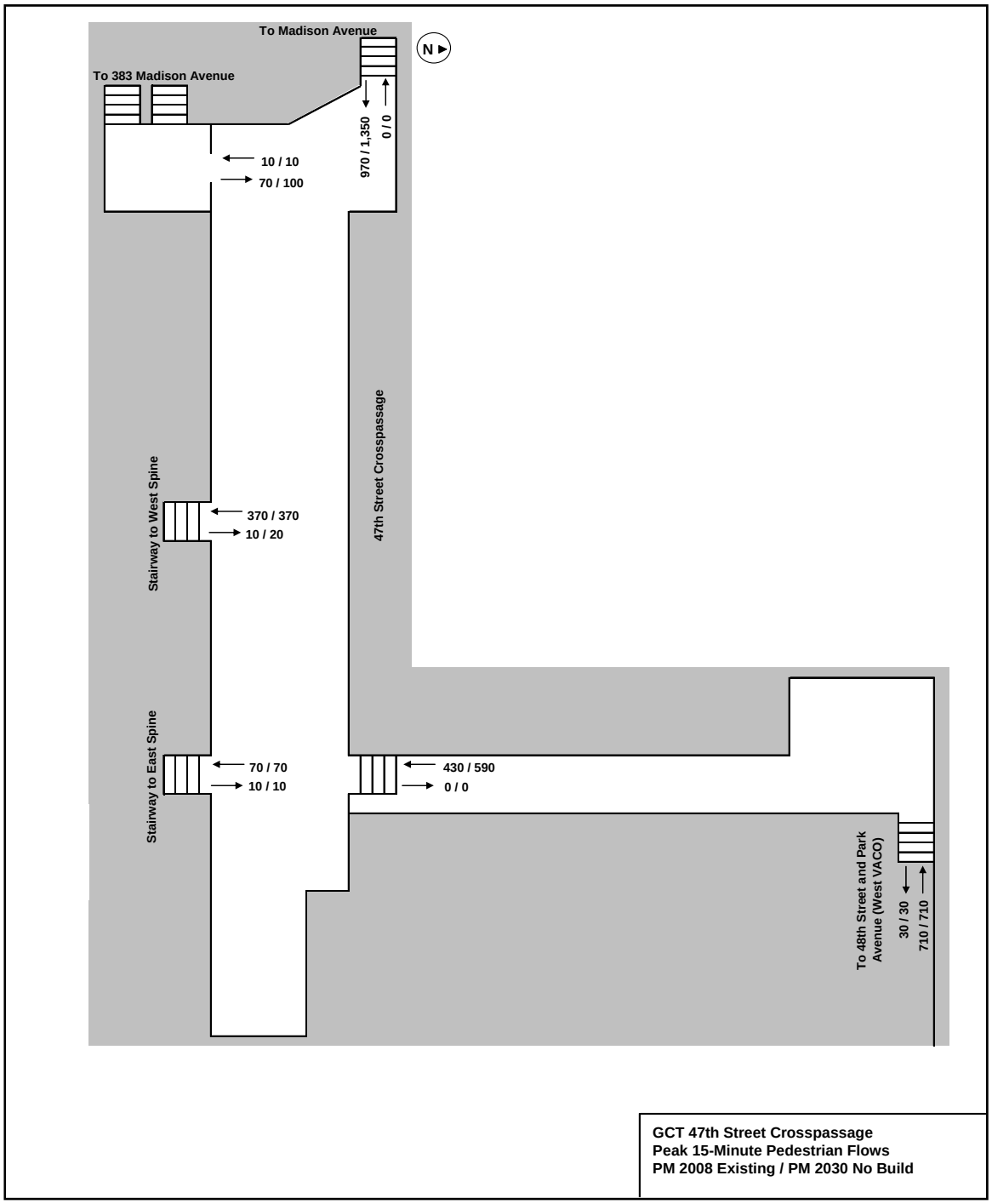


Figure 10: Main Concourse 2030 Build Volumes during PM 15-Minute Peak Period

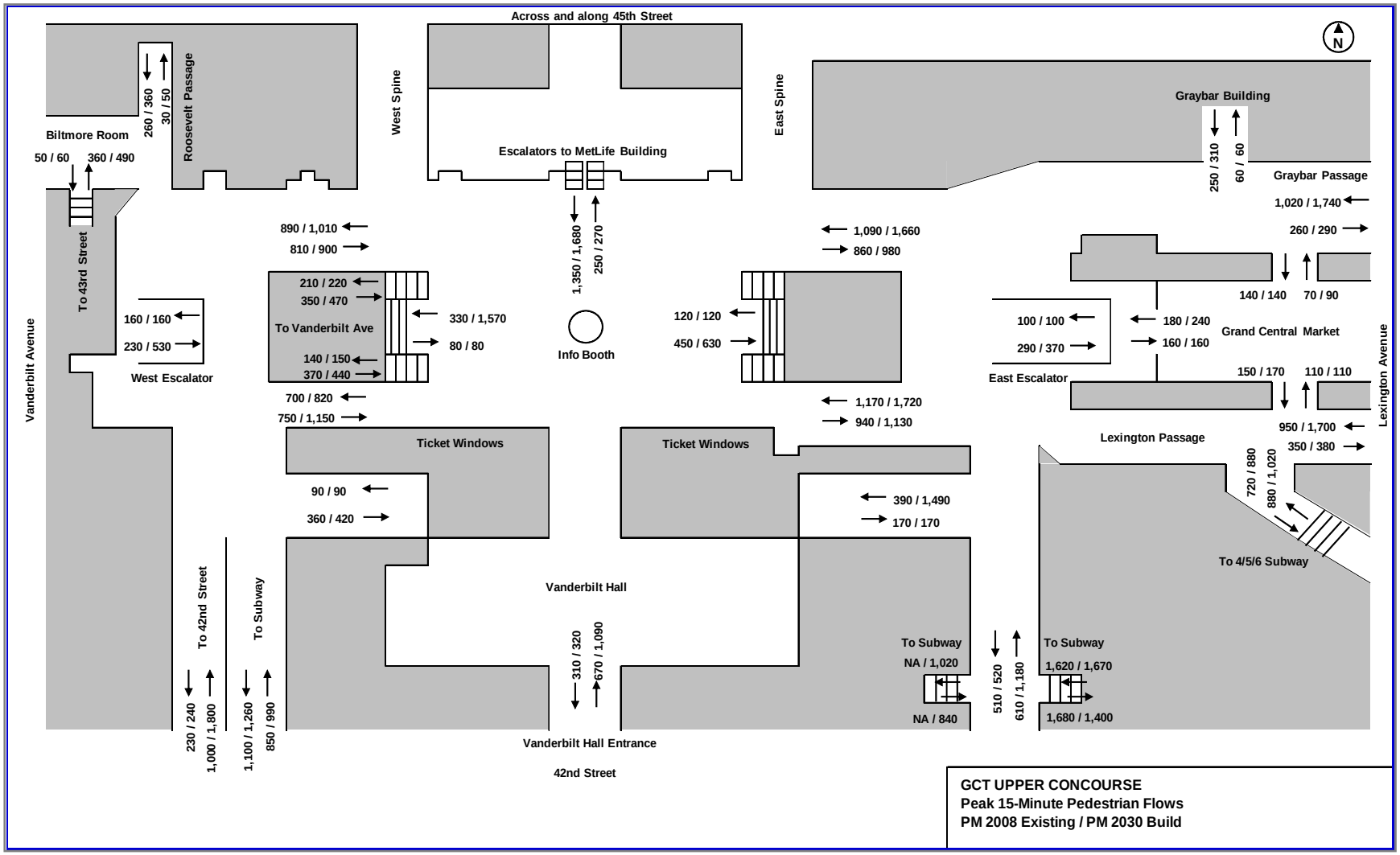
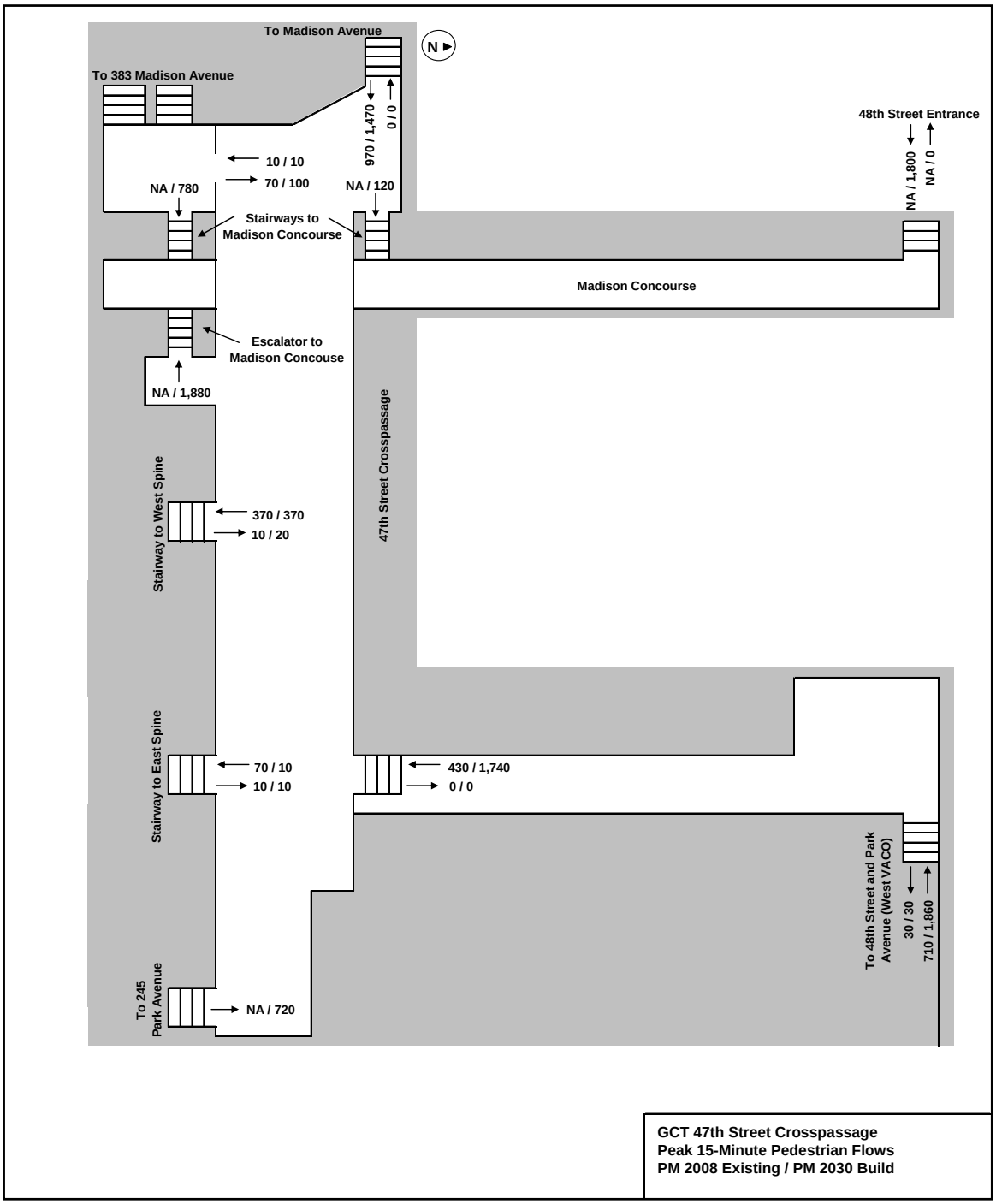


Figure 11: 47th Street Passageway 2030 Build Volumes during PM 15-Minute Peak Period



APPENDIX B: GCT Pedestrian Volume Growth Rate Methodology

The following discussion focuses on the methodology for determining the background growth rate for the pedestrian population entering GCT, which will be used as an input for the STEPS pedestrian simulation modeling effort.

The March 2001 MTA/LIRR East Side Access FEIS indicated that the pedestrian flows within GCT consist of three primary users, Metro-North Railroad (MNR) riders, New York City Transit (NYCT) riders, and pedestrians who do not use the rail services at all, but simply use the terminal to walk through[1]. Consequently, the FEIS assumed different annual background rate for each pedestrian user group, specifically: 1.1 percent for MNR, 0.5 percent for NYCT, and 0.26 for all other pedestrians. However, the final rates used for NYCT were based on the Regional Transit Model, with 22 percent growth for the year 2005 to 2035 and 13 percent growth between the year 2005 and 2020. Weighted averages of these growth rates were used at many analysis locations, since some pedestrian flows within GCT are composed of a combination of MNR riders, NYCT riders, and pass-through pedestrians.

The most recently available MNR daily ridership forecasts to Manhattan[2] were obtained from MNR to update the annual ridership growth rates for MNR riders. These forecasts project a total MNR annual average growth rate of 1.6 percent for the 2007-2020 time period and a growth rate of 1.5 percent for the 2007-2030 time period[3].

The NYCT population growth rate at GCT was assumed to remain the same as the FEIS as no new information was obtained from NYCT. Similarly, the 0.26 percent annual growth rate for non-rail users of GCT was assumed remain the same, which seems reasonable based on available NYC census data[4].

Pedestrian volumes are assigned to into the STEPS pedestrian simulation model based on their point of access into GCT. The composition (i.e., MNR rider, NYCT rider, other) of the pedestrian population at each GCT access point was estimate based on:

- the location of the access point,
- existing pedestrian flow patterns based on recent pedestrian counts, and
- sample pedestrian tracings performed through the terminal.

In some situations, a MNR rider may transfer to the subway and vice versa through GCT. The annual growth rate for the originating pedestrian population would govern for these cases. For example, the MNR growth rate was applied to MNR riders arriving to GCT and transferring to NYCT and the NYCT growth rate was applied to NYCT riders entering GCT and then transferring to MNR. Table 1 lists the annual growth rates applied to the pedestrian volumes entering from each GCT access point.

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[1] The FEIS indicated that as much as a third of all pedestrians do not use the rail services with GCT but simply walk through the terminal.

[2] MNR ridership forecasts used Fall 2007 ridership data as the baseline for existing conditions.

[3] Growth rates are a weighted average for AM peak inbound Manhattan trips for all three MNR lines – Harlem, Hudson, and New Haven.

[4] 1980 to 2000 average annual population growth of Manhattan Community District 5 was 0.5 percent (NYCDCP Dec. 2007) and 1990 to 2000 average annual worker growth for New York City was 0.08 percent (Table CTPP P-6, U.S. Census Bureau).

Table 1: GCT Population Growth Rates

GCT Origin	Percentage of Total Population			2020 Overall Growth Rate (%)	2030 Overall Growth Rate (%)	2020 Growth (%)	2030 Growth (%)
	MNR	NYCT	Other				
Tracks 11-42 (Upper Concourse)	100	0	0	1.60	1.50	21.0	38.8
Tracks 101-117 (Lower Concourse)	100	0	0	1.60	1.50	21.0	38.8
Stairs from Lower Level MNR tracks near Oyster Bar	100	0	0	1.60	1.50	21.0	38.8
Corridor from Lower Level Service Elevators	100	0	0	1.60	1.50	21.0	38.8
Roosevelt Passage	100	0	0	1.60	1.50	21.0	38.8
Northwest Passage	100	0	0	1.60	1.50	21.0	38.8
Northeast Passage	100	0	0	1.60	1.50	21.0	38.8
Graybar Building	57	13	30	1.12	1.02	14.3	25.0
Graybar Lexington Ave entrance	88	7	5	1.49	1.38	19.4	35.2
South Lexington Ave entrance	43	54	3	1.24	1.01	15.9	24.9
Central Market - North door to Graybar	64	0	36	1.12	1.05	14.3	25.9
Central Market - West	100	0	0	1.60	1.50	21.0	38.8
Central Market - South to south Lexington	0	100	0	1.01	0.67	12.8	15.8
East NYCT 4,5,6	0	100	0	1.01	0.67	12.8	15.8
West NYCT 4,5,6	0	100	0	1.01	0.67	12.8	15.8
SE 42nd Street entrance (near Oren's)	39	60	1	1.23	0.99	15.8	24.2
Vanderbilt Ave entrance (north stairs)	90	6	4	1.51	1.40	19.7	35.8
Vanderbilt Ave entrance (south stairs)	30	62	8	1.13	0.89	14.4	21.4
SW 42nd Street entrance (Kitty Kelly ramp)	82	17	1	1.49	1.35	19.4	34.2
Shuttle Passage	0	100	0	1.01	0.67	12.8	15.8
Vanderbilt Hall entrance (main entrance)	85	10	5	1.47	1.36	19.2	34.5
43rd Street entrance (to Biltmore room)	91	6	3	1.52	1.41	19.9	36.2
MetLife Building	42	46	12	1.17	0.97	14.9	23.6

APPENDIX C: Development of STEPS Model

Physical Background

The first step in model development is the importation of Autodesk 3ds Max model of GCT into STEPS. Autodesk 3ds Max is software used for three-dimensional modeling and animating. The 2D AutoCAD drawings can be imported directly into STEPS; however, for presentation purposes, 3D models create more realistic visualization. The importation creates *meshes*[5] within the STEPS model that outline the physical elements of the terminal. The meshes are used to create *items,* which can be turned into *planes* for pedestrians to walk on (i.e., floors) and *blockages* to form walls and corridors. STEPS is a grid-based system, a *plane* is made up of many grids. The grid size defined for each plane in this model is 0.5 meter or 1.64 feet (0.25 square meter; 2.7 SF), which is the average size space that a person occupies.

Throughout the modeling process, various physical background items are adjusted in order to realistically simulate pedestrian conditions and control pedestrian maneuvers. For example, blockages are created adjacent to escalator landings and platform edges to control access and properly shape pedestrian movement restrictions.

Vertical circulation elements (VCEs) within the facility, such as escalators and stairs, are simulated by two methods. The first method is through the creation of two components, *paths* and *exits.* Pedestrians must pass through the *exit* in order to get on the *path,* which could be connected to another path or a plane. A VCE aisle is made of an *exit* and *paths.* A *path* is a line joining two specific points that people will walk on during the simulation. There are two control factors for *paths,* speed and minimum spacing. The speed at which pedestrians can walk along each path can be adjusted, thereby allowing for different traveling speeds on escalators versus staircases. The minimum spacing is the smallest allowable distance between two adjacent persons traveling on the *path* (from the center of a person to another). These two factors and the exit's flow rate control the processing rate of the VCE. In general, each aisle on a 40-inch-wide (two aisle) escalator can process 35 pedestrians per minute (ppm); this equates to a rate of 70 ppm for each escalator unit. At LOS C/D, a stair aisle (two feet wide) would process 20 ppm. However, to match field observations, certain VCEs had to be calibrated to reflect existing conditions in GCT. For example, at FCA 238 in the PM peak period (when multiple subways just unloaded), it was observed that an escalator unit could process up to 75 ppm, while two stair aisles (four feet wide) could process up to a maximum of 70 ppm, which equals to LOS E/F. To match the model to field observations, a minimum spacing of 1.1 meters (3.6 ft) was used, the path speeds ranged from 0.7 to 0.75 m/s (2.3 to 2.5 ft/s), and the exit capacities were set at 44 to 54 ppm depending on the direction of travel. In future scenarios, certain VCEs had to be re-calibrated to accommodate higher volumes. For FCA 238 area, the processing rate for the existing VCEs essentially remained the same since the VCEs already set to operate at LOS E.

Paths can only operate in one direction, either up or down, and cannot actively overlap each other; consequently, the effect of a single person descending a staircase against a surge of ascending pedestrians cannot be simulated by using this method. In addition, the simulation may look unrealistic at times, for example, when an aisle is used to capacity, yet the one next to it is

[5] STEPS model terminology has been italicized.

empty because it is set in the reversed direction. The logical way would be to change the direction of the aisle to meet the demand; however, when there is only one staircase (two aisles) to connect the two levels at a location, it is necessary to keep one aisle for each direction to accommodate both directional flows.

Due to the shortcomings of this method, it was only used for creating escalators and staircases, which operate at or above capacity. For escalators, pedestrians already tend to form two aisles on a 40-inch-wide escalator, one for standing patrons and the other for walkers. Despite the fact that those who choose to walk on an escalator ascend/descend faster than those who decide to stand, the processing rate for each aisle is the same. That is, walking on a moving escalator does not significantly increase escalator capacity, but rather, its capacity is established at its throat or entrance. Also, a moving pedestrian actually occupies more physical space than do standees, creating a larger spacing between walking escalator users compared to standees. As for staircases, people in STEPS are not programmed to efficiently navigate around each other in crowded areas. Paths are needed to keep order and prevent blockages that can happen when people cannot seem to find their way around one another in tight spaces. In addition, based on field observations, people on crowded staircases naturally form aisles.

The <u>second method</u> of creating VCEs solves the shortcomings mentioned in the first method by allowing people to interact with each other. This method creates VCEs through the use of planes and exits. This essentially creates a plane (floor) that can rise and twist to look like a stair based on a centerline *shape*. Although there is no set aisle on this type of VCE, the same processing rate from the first method would still apply. The benefit of no defined aisle is that people can overtake each other, free to move linearly to avoid opposing flow. Pedestrians would enter and exit the stair through *exits* at the top and bottom. The only shortcoming of this method is that when the element gets crowded and requires too much interaction between pedestrians, they tend to freeze and eventually the element will break down. Therefore, this method was used for staircases that operate below capacity, for example, the grand staircases on both sides of GCT's Upper Concourse.

As noted previously, *exits* were created for pedestrian movements onto and off of VCEs, but they were also used for movements out of the terminal, and through turnstiles. For turnstiles, in general, a processing rate of 30 passengers per minute was used. However, as with the VCEs, modifications had to be made for the ones that are in high demand to realistically represent existing conditions.

Exits can be controlled by e*xit events* to adjust the time that a particular exit is open or closed to pedestrians and to assign or change the exit's *tag* (a tag number is used to group elements together when their purpose is identical). These specialized exit controls were used in the model to properly time the opening and closing of turnstiles changing demands, thereby better reflecting each turnstile's directional usage (i.e., inbound or outbound).

Table 1 summarized the assumed flow rates for VCEs, turnstiles, gates, and corridors in the model.

Table 1: Assumed Flow Rates in the Model

Facility	Flow Rate for LOS C/ D	Flow Rate for LOS E/ F (observation at FCA 238)[1]
Standard ESC (2 aisle)	*70 ppm*	*75 ppm*
Standard Staircases (2 aisles, 4 ft wide)	*40 ppm*	*70 ppm*
Turnstiles - Into paid area[2]	*30 ppm*	*40 ppm*
Turnstiles - out paid area[2]	*50 ppm*	*80 ppm*
Corridor Rate[3]	*see Note 3*	
Gates between track and GCT[2]	Bigger Gates (on Upper Concourse)	Smaller Gates (on Lower Concourse)
	3 pps	*2 pps*

Notes:
1. At FCA 238, VCE flow rates are adjusted to match field observations, which might be slightly higher than Fruin E/F.
2. Based on our counts in the field
3. Since a complete plane was created for the whole upper or lower concourse, there is no need to set up any exit/entrance rate for corridors (they are part of the whole plane). Instead, checkpoints were placed at the connection points based on the number of aisles of walking people on certain corridors observed in the field.

Development of Pedestrian Characteristics / Assignments

The creation of pedestrian movements within STEPS requires a specific sequence of model development procedures. These pedestrian building actions include: 1) the development of pedestrian characteristics, 2) the grouping and sizing of pedestrians events, 3) the frequency by which pedestrian groups are distributed into the model, and 4) the assignment of pedestrians through the model.

The first step within pedestrian development is establishing the *people types*; this includes the modeled person's physical dimensions, average walking speed, and patience level. Each people type is defined by a given width, depth and height that represent the overall size of people of the type. Patience factor influences the person's perception of queues at targets in the decision process. Impatient people types are less likely to choose an exit with a longer queuing time, even if moving to a less congested exit will eventually result in a longer traveling time.

Many people categories defined within the model for Grand Central Terminal, such as tourists and MNR commuters, and all other terminal users; however, the most important one is the commuters. The average body characteristics defined for commuters are a shoulder breadth or width of 0.7 m (27.6 in), a body depth of 0.4 m (15.7 in), and a height of 1.8 m (70.9 in). The patience level of commuters ranges from 0.25 to 0.50 (0.01 characterizes very impatient people, 0.99 typifies a very patient person); this range was based on field observations. Although average walking speeds could be defined when creating people types, in the GCT model, people's walking speed were defined within the plane they walk on instead. Based on field observations, an average walking speed of 1.0 m/s (3.3 fps) was assigned to the main terminal and 0.5 m/s (1.6 fps) was given to NYCT areas (these rates were similar to those used in the conduct of various support analyses for the FEIS). In the model, each type of origin has a different people type, for example, even though people arriving at the terminal by NYCT or MNR are commuters, they were defined as separate people type.

People Groups are used to group together people types and to define how many people in the group; however, since there are already many kinds of people types defined in the model, each people group is made up only one people type. The amount of people in a group depends on how many people are desired to appear in the model at once, for example, if 150 people are in a people group, then all of these people will enter the model together at once.

Once the people types and groups have been defined, *people events* need to be created to assign people groups from: 1) the appropriate starting location, 2) along the appropriate route, 3) at assumed frequencies to replicate observed pedestrian volumes (whether in large groups, such as in train surges, or individually), and 4) to a specific destination.

People groups were assigned to their respective origin/destination routes by either *routes* or *matrices*. Routes assign pedestrians through the model along a specific path identified by a series of *tag* numbers. Matrices are similar to routes in that they use tags to assign pedestrians through the model; however, instead of assigning pedestrians to a specific route, matrices guide pedestrians to the next target based on a weighted list of target options. The 47th Street Cross Passageway is the only portion of the model that was created using matrix because models built with STEPS tend to grow quickly in size and matrices are difficult to check when they grow too large. Routes and matrices can both be used in the same model; however, a specific route cannot consist of a combination of route and matrix assignments. Also, no more than one origin can be assigned to a matrix since there is no way to separate the decision matrix percentages for a specific tag among multiple origins.

Interim activities, such as people standing at certain locations, buying tickets, waiting for the trains, etc., are also shown in the simulation. The locations where people stand and the number of people were surveyed. The queue lengths and the waiting time at ticket machines, ATMs, and directories were also observed. These activities were then modeled based on the above information collected from the field. The following are some examples to show how the interim activities were created in our model:

1) Approximately 20 percent of the people originate from FCA 238 and 105 East 42nd Street entrance would pause at the train schedule kiosk in the corridor for an average time of five seconds, which created a “people blockage” around that kiosk to realistically represent the existing condition.
2) People queuing at the ticket windows on the southwest side of GCT’s Upper Concourse were modeled as six queue lines with ten persons on each line, which narrowed the walking space to only one aisle between the end of the most western ticket-window queue and the west stairs leading to Vanderbilt Avenue.
3) People who required direction or stand around the central information booth on the Upper Concourse were modeled as a blockage buffer around the clock area.
4) Around 50 percent of the MNR people would wait outside the track gates or under the information board before they enter their destination track gate. The waiting time was set up in a range from one to ten minutes.

Pedestrian Analysis Methodology

The procedures for estimating and evaluating pedestrian capacity and level of service (LOS) are based on criteria established by Fruin[6] and recommended within the Transportation Research Board's *Transit Capacity and Quality of Service Manual, 2nd Edition*. Pedestrian LOS thresholds related to walking are based on the freedom to select desired walking speeds and the ability to bypass slower-moving pedestrians.

Pedestrian level of service for walkways is based on average pedestrian space and average flow rate. For queuing and waiting areas, the primary measure for defining LOS is the average space available to each person.

On stairways, the capacity is largely affected by the stairway width. The width of a stairway determines both the number of distinct lines (lanes) of people who can traverse the stair and the side-to-side spacing between people. Consequently, meaningful increases in capacity are not directly proportional to the width, but in increments of about 30 inches (the width of a pedestrian walking lane).

[6] Fruin, John, J., *Pedestrian Planning and Design,* Revised Edition, Elevator World, Inc. Mobile, AL (1987).

APPENDIX D: Assessment of LOS in STEPS Model

In addition to visual evaluation, STEPS also provides information that can be printed to an *output* file (opened in Microsoft Excel) for post-processing. To create an *output* file, a *variable* must be defined to identify the element (such as *exit*, *location*, *plane*, etc) in the model for monitoring. This variable is called up when creating the output to specify the interval and frequency to be recorded.

For this project, to get the level of service of an area, a *location* (a defined region) was drawn on the *plane*. A *variable* was then created to monitor the amount of people on that *location*. Finally, the modeler created the *output* to record the number of people on the location at every second for 15 minutes. For each second, the number of people was divided by area of the location to get the density. The density was used to get the LOS based on Fruin's methodology (Table 1).

Table 1: Fruin's Levels of Service (Walkway)

Level of Service	Space per Person (ft^2/ped)	Density (ped/ft^2)
A	> 34.72	< 0.029
B	25.03 to 34.72	0.029 to 0.040
C	14.95 to 25.03	0.040 to 0.067
D	9.97 to 14.95	0.067 to 0.100
E	4.96 to 9.97	0.100 to 0.202
F	< 4.96	> 0.202

The weighted average was calculated by taking the average density of each level multiplied by the occurrence percentage. The following example shows how the existing PM weighted average was calculated for FCA 238 at location # 1:

- Levels-of-service A to C were counted as one group, the average density for this LOS A-C group would be $\frac{0.029+0.067}{2} = 0.048\, ped/ft^2$
- For LOS D, $\frac{0.067+0.100}{2} = 0.084\, ped/ft^2$
- For LOS E, $\frac{0.100+0.202}{2} = 0.151\, ped/ft^2$
- For LOS F, 0.202 *ped/ft*^{2} was used

Weighted Average = (0.048 × 49% of the peak 15-minute in LOS A) + (0.084 × 8%) + (0.202 × 29%) = 0.109 *ped/ft*^{2}, which is equivalent to LOS E.

APPENDIX E: Reference LOS Tables

Fare Control Area 238 AM Levels of Service

Example: "14" is the number of seconds in LOS E during the 1st minute

LOC # 1	Existing						2020 with Kenneth Cole Stairs at Fare Control Area 238																		2030 with Kenneth Cole Stairs at Fare Control Area 238																	
							2020 No Build (without ESA)						2020 Build (with ESA Current Design[1])						2020 Build (with ESA Alternative 2[2])						2030 No Build (without ESA)						2030 Build (with ESA Current Design)						2030 Build (with ESA Alternative 2)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	26	11	2	4	13	4	31	8	8	7	6		25	5	8	5	17		27	5	8	10	10		26	3	9	5	17		23	6	5	6	19	1	24	9	5	8	14	
2	27	6	5	5	8	9	30	9	11	5	5		29	10	4	5	12		30	5	6	5	14		32	7	3	2	16		25	7	10	11	7		31	7	9	7	6	
3	27	11	6	8	8		36	6	2	4	12		31	6	9	9	5		32	7	8	8	5		30	2	5	3	19	1	23	6	7	7	17		31	6	2	9	11	1
4	57		2	1			55	3	2				52	4	3	1			44	6	4	4	2		55	2	3				47	4	9				49	6	3	2		
5	17	5	2	1	6	29	11	6	6	4	20	13	12	6	6	1	11	24	18	2	9		10	21	13	7	5	2	6	27	14	2	7	6	7	24	15	4	3	3	13	22
6	17	2	3	2	4	32	45	1	5	7	2		32	4	3	2	14	5	30	1	6	3	13	7	36	1	1	3	13	6	23	3	3	3	6	22	22	9	3	1	7	18
7	28	4	5	5	10	8	36	7	13	4			35	5	9	8	3		24	7	9	3	17		31	4	6	3	16		25	5	15	5	10		25	11	14	4	6	
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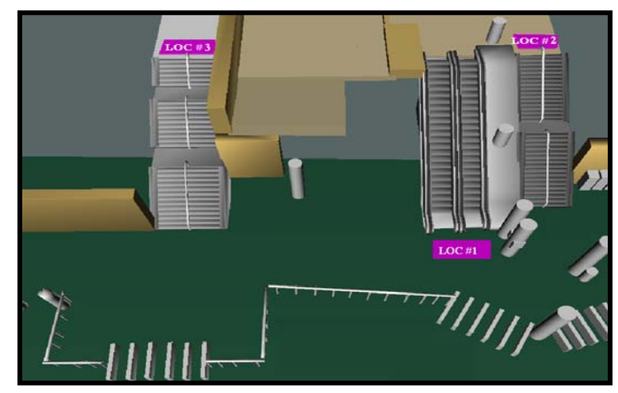
14	32	3	5		3	17	55	2	3				45	4	8	3			48	6	3		3		55	3	2				40		6	3	3	8	46	6	4	1	3	
15	29	4	4	5	9	9	33	8	8	4	7		34	4	4	7	11		35	9	12	3	1		28	8	6	4	12	2	22	5	13	8	12		26	8	9	9	8	
Total	408	73	55	38	99	227	505	66	78	56	103	92	447	68	87	60	126	112	451	69	107	66	101	106	464	58	64	37	156	121	364	62	106	80	125	163	401	107	72	67	121	132

LOC # 2	Existing						2020 with Kenneth Cole Stairs at Fare Control Area 238																		2030 with Kenneth Cole Stairs at Fare Control Area 238																	
							2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2020 Build (with ESA Alternative 2)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)						2030 Build (with ESA Alternative 2)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	45	14	1				55	2	3				33	8	13	6			57	3					49	3	8				13	7	16	11	13		42	5	13			
2	52	5	3				57	3					39	14	7				50	8	2				57		3				1	7	23	25	4		42	12	3	3		
3	53	5	2				59	1					38	10	6	6			32	10	15	3			53	2	5				20	11	17	11	1		51	5	4			
4	46	12	2				53	7					29	7	5	9	10		49	6	4	1			49	6	5				9	10	19	21	1		53	5	2			
5	52	7	1				41	10	9				38	10	12				49	7	4				41	8	10	1			29	14	9	8			49	11				
6	48	11	1				54	6					48	7	5				57	3					58	1	1				42	10	8				55	5				
7	44	14	2				51	8	1				28	1	10	8	13		48	7	5				43	7	10				14	5	14	22	5		39	5	2	9	5	
8	46	13	1				59	1					20	16	8	11	5		52	3	4	1			47	3	10							14	46		43	2	7	6	2	
9	48	12					55	4	1				35	10	9	6			46	12	2				50	1	9				7	8	10	20	15		51	5	4			
10	54	3	3				49	8	3				31	11	12	6			55	5					54		6				43	4	3	10			51	6	3			
11	44	9	7				45	11	4				41	14	5				54	4	2				50	1	9				36	7	9	7	1		40	14	4	2		
12	45	12	3				56	4					36	9	12	3			52	6	2				53	2	5				5	4	15	32	4		50	6	4			
13	50	7	3				51	7	2				37	13	10				49	9	2				49	3	8				6	9	14	28	3		50	8	1	1		
14	54	5	1				54	6					41	5	14				46	6	8				56	1	3					5	7	9	39		51	8	1			
15	46	10	4				45	14	1				28	8	7	12	5		54	5	1				48	5	6	1						5	55		46	10	4			
Total	727	139	34				784	92	24				522	143	135	67	33		750	94	51	5			757	43	98	2			225	101	164	223	187		713	107	52	21	7	

LOC # 3	2020 with Kenneth Cole Stairs at Fare Control Area 238																		2030 with Kenneth Cole Stairs at Fare Control Area 238																	
	2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2020 Build (with ESA Alternative 2)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)						2030 Build (with ESA Alternative 2)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	57	2	1				29	20	9	2			42	11	6	1			57	3					31	15	12	2			41	12	5	2		
2	60						33	12	14	1			40	15	4	1			60						30	17	12	1			40	11	7	2		
3	60						36	11	10	3			39	13	8				58	2					32	14	14				33	13	13	1		
4	60						42	13	5				47	10	2	1			54	3	3				41	13	5	1			51	5	4			
5	51	4	5				32	17	11				42	12	4	2			51	6	3				28	16	15	1			37	13	9	1		
6	60						19	17	20	4			34	12	14				59	1					19	16	21	4			32	12	14	2		
7	59	1					32	13	12	3			38	8	13	1			53	5	2				33	13	13	1			37	13	9	1		
8	60						36	14	8	2			41	10	8	1			57	3					31	13	16				36	11	8	5		
9	59	1					33	11	13	3			32	21	5	2			59	1					29	20	9	2			40	11	8	1		
10	57	3					37	11	11	1			33	13	11	3			60						25	10	20	5			29	19	10	2		
11	56	3	1				42	14	4				51	8	1				59	1					42	10	6	2			54	5	1			
12	60						28	17	14	1			38	13	9				58	2					29	15	16				35	11	10	4		
13	58	2					20	19	17	4			36	11	12	1			57	1	2				27	14	15	4			29	22	8	1		
14	60						43	11	6				51	6	3				59	1					46	11	3				46	13	1			
15	59		1				32	16	12				42	15	3				54	4	2				32	10	17	1			29	16	14	1		
Total	876	16	8				494	216	166	24			606	178	103	13			855	33	12				475	207	194	24			569	187	121	23		



Notes:

1. Current Design: without Biltmore escalators, without subway shortloop
2. Alternative 2: with Biltmore escalators, with subway shortloop

LIRR Concourse AM Levels of Service

Loc #1 / Time (min)	2020 Build (with ESA Current Design[1]) Level of Service						2020 Build (with ESA Alternative 2[2]) Level of Service						2030 Build (with ESA Current Design) Level of Service						2030 Build (with ESA Alternative 2) Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	37	11	12				43	11	6				30	21	9				36	14	10			
2	28	12	18	2			39	15	6				27	18	13	2			29	18	13			
3	35	16	8	1			44	13	3				34	18	8				53	5	2			
4	25	17	18				37	18	5				23	19	18				35	19	6			
5	27	16	14	3			41	11	8				31	18	11				36	18	5	1		
6	39	16	5				43	11	6				28	23	9				47	10	3			
7	19	21	15	5			40	14	5	1			20	20	18	2			35	15	8	2		
8	24	24	12				40	15	5				29	19	9	3			42	14	4			
9	31	19	10				46	8	5	1			20	15	22	3			28	18	13	1		
10	30	15	15				38	12	9	1			24	15	19	2			36	15	9			
11	38	12	10				44	11	5				34	16	8	2			41	11	8			
12	18	17	23	2			42	13	5				21	18	19	2			45	8	7			
13	36	19	5				48	8	4				41	13	6				51	8	1			
14	27	21	12				34	21	5				20	16	22	2			45	14	1			
15	21	21	14	4			39	11	9	1			31	20	9				31	15	11	3		
Total	435	257	191	17			618	192	86	4			413	269	200	18			590	202	101	7		

Loc #2 / Time (min)	2020 Build (with ESA Current Design) Level of Service						2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F
1	58	2					57	3				
2	54	6					53	7				
3	50	10					40	20				
4	60						59	1				
5	51	9					41	19				
6	41	19					47	11				
7	47	13					44	16	2			
8	59	1					48	12				
9	48	12					41	19				
10	58	2					59	1				
11	57	3					57	3				
12	44	16					44	16				
13	59	1					59	1				
14	51	9					44	16				
15	57	3					51	9				
Total	794	106					744	154	2			

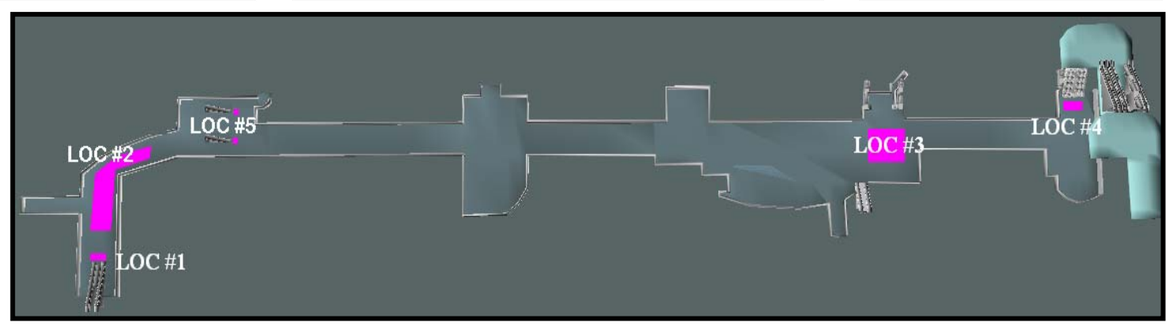
Loc #3 / Time (min)	2020 Build (with ESA Current Design) Level of Service						2020 Build (with ESA Alternative 1[3]) Level of Service						2030 Build (with ESA Current Design) Level of Service						2030 Build (with ESA Alternative 1) Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						60						60					
2	60						60						60						60					
3	60						60						60						60					
4	60						60						60						60					
5	60						60						60						60					
6	60						60						60						60					
7	60						60						60						60					
8	60						60						60						60					
9	60						60						60						60					
10	60						60						60						60					
11	60						60						60						60					
12	60						60						60						60					
13	60						60						60						60					
14	60						60						60						60					
15	60						60						60						60					
Total	900						900						900						900					

Loc #4 / Time (min)	2020 Build (with ESA Current Design) Level of Service						2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F
1	59	1					58	2				
2	58	2					59	1				
3	58	2					54	6				
4	60						60	0				
5	59	1					57	3				
6	60						58	2				
7	60						60	0				
8	58	2					56	4				
9	59	1					59	1				
10	57	2	1				59	1				
11	56	4					58	1	1			
12	60						60	0				
13	60						57	3				
14	59	1					59	1				
15	57	3					60	0				
Total	880	19	1				874	25	1			

Loc #5 / Time (min)	2020 / 2030 Build (with ESA Alternative 1) Level of Service					
	A	B	C	D	E	F
1	46	11	3			
2	44	16				
3	44	15	1			
4	45	15				
5	45	13	2			
6	45	14	1			
7	50	10				
8	44	15	1			
9	48	12				
10	44	16				
11	48	12				
12	47	12	1			
13	47	13				
14	48	12				
15	44	14	2			
Total	689	200	11			

Notes:

1. Current Design: without Biltmore escalators, without subway shortloop
2. Alternative 2: with Biltmore escalators, with subway shortloop
3. Alternative 1: with Biltmore escalators, without subway shortloop



47th Street Crosospassage AM Levels of Service

LOC # 1	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design[2])						2020 Build (with ESA Alternative 1[2])						2030 No Build (without ESA)						2030 Build (with ESA Current Design)						2030 Build (with ESA Alternative 1)					
Time (min)	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						41	9	10				60						60						36	16	8				60					
2	60						60						60						60						60						60						60					
3	60						60						60						60						60						60						60					
4	60						60						60						60						60						60						60					
5	60						60						59	1					60						60						60						60					
6	60						60						60						60						60						29	13	18				60					
7	60						60						60						60						60						60						60					
8	60						60						60						60						60						60						59	1				
9	60						60						56	4					60						60						60						60					
10	60						60						60						60						60						60						60					
11	60						60						41	3	16				60						60						45	11	4				60					
12	60						60						51	1	8				60						59	1					44	11	5				60					
13	60						60						60						60						60						51	6	3				60					
14	60						60						60						60						60						43	10	7				60					
15	60						60						59	1					60						60						57	2	1				60					
Total	900						900						847	19	34				900						899	1					785	69	46				899	1				

LOC # 2	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
Time (min)	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	56	1	3				26	13	21				32	15	9	4			25	7	27	1			1	7	35	14	3	
2	54	4	2				41	10	9				35	21	4				46	9	5				14	11	26	9		
3	55	3	2				53	3	4				46	11	3				55	4	1				38	10	11	1		
4	56	4					47	7	6				47	4	9				38	10	12				33	14	13			
5	44	6	10				32	8	18	2			6	10	38	6			33	15	12				12	14	20	12	2	
6	56	4					37	7	16				31	12	16	1			41	11	8				3		6	23	28	
7	52	2	6				54	2	4				34	10	16				36	12	12				21	12	11	12	4	
8	57	2	1				32	13	15				21	14	22	3			44	6	9	1				3	15	38	4	
9	57	3					54	4	2				51	4	5				41	10	9				42	7	10	1		
10	46	5	8	1			48	6	6				25	6	19	9	1		39	9	12				12	14	22	12		
11	45	11	4				31	16	13						18	32	10		30	11	18	1					7	24	29	
12	35	12	12	1			34	16	10				13	7	31	7	2		39	8	12	1				1	20	27	12	
13	50	8	2				25	10	21	4			1	1	14	30	14		30	11	15	4					9	38	13	
14	58	2					51	7	2				47	6	6	1			24	21	14	1			5	8	13	16	18	
15	54	4	2				31	5	20	4			30	13	17				11	13	26	10						2	58	
Total	775	71	52	2			596	127	167	10			419	134	227	93	27		532	157	192	19			181	101	218	229	171	

LOC # 3	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
Time (min)	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						27	14	16	3			54	3	3				29	12	12		7	
2	55	5					53	6	1				17	16	19	6	2		54	6					22	12	23	3		
3	47	12	1				49	8	3				23	14	17	6			50	6	4				18	11	12	12	7	
4	49	8	3				49	9	2				6	15	28	11			46	11	3				7	8	14	13	18	
5	46	12	2				50	9	1				10	13	19	12	6		52	8					2	3	16	24	15	
6	55	4	1				50	9	1				16	16	23	5			49	6	5				6	16	28	10		
7	51	8	1				49	8	3				12	16	22	8	2		45	9	6				15	9	24	10	2	
8	58	2					55	4	1				25	14	17	4			47	10	3				17	13	19	9	2	
9	51	8	1				45	12	3				17	9	26	8			34	13	12	1			2	4	7	13	34	
10	49	10	1				49	10	1				20	13	26	1			47	8	5				6	7	10	5	31	1
11	47	7	6				43	13	4				16	11	22	10	1		40	16	4				8	5	18	21	8	
12	29	17	12	2			30	18	9	3						3	44	13	23	22	15					1	4	16	39	
13	38	11	11				27	18	14	1						1	45	14	22	15	22	1							15	45
14	47	11	2				24	9	25	2				2	9	9	38	2	13	14	25	8								60
15	57	3					42	10	8				15	9	6	6	24		27	14	15	4			1	3	6	4	11	35
Total	739	118	41	2			675	143	76	6			204	162	250	93	162	29	603	161	122	14			133	104	193	140	189	141

LOC # 4	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
Time (min)	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						60						60						60					
2	60						60						59	1					60						59	1				
3	60						60						57	3					60						56	4				
4	60						60						59	1					60						57	3				
5	60						60						58	2					60						56	4				
6	60						60						59	1					60						57	3				
7	60						60						59	1					60						58	2				
8	60						60						57	2	1				60						55	4	1			
9	60						60						54	5	1				60						51	8	1			
10	60						60						58	1	1				60						55	5				
11	60						60						50	9	1				60						55	4	1			
12	60						60						49	8	3				60						47	12	1			
13	60						59	1					39	14	7				58	2					34	16	10			
14	60						60						57	3					60						44	8	8			
15	60						60						60						60						58	2				
Total	900						899	1					835	51	14				898	2					802	76	22			

LOC # 5	2020 Build (with ESA Current Design)						2030 Build (with ESA Current Design)					
Time (min)	Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F
1	57	3					60					
2	52	4	4				58	2				
3	42	12	6				44	9	6	1		
4	54	3	3				55	4	1			
5	54	4	2				52	4	4			
6	47	5	6	2			50	7	3			
7	44	10	4	2			53	5	1	1		
8	56	3	1				43	9	6	2		
9	53	4	3				45	9	5	1		
10	50	8	2				51	6	2	1		
11	52	4	4				53	6	1			
12	34	12	14				22	12	23	2	1	
13			31	26	3		11	10	18	20	1	
14	24	3	15	15	3		6	4	13	30	7	
15	58	2					48	6	6			
Total	677	77	95	45	6		651	93	89	58	9	

LOC # 6	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
Time (min)	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						14	28	18				60						11	25	24			
2	60						60						35	21	4				60						26	23	11			
3	60						60						7	41	12				60						14	30	16			
4	60						60						4	14	42				52	8					2	11	46	1		
5	59	1					45	15					6	11	43				54	6					9	25	26			
6	60						55	5					1	10	49				51	9					3	5	51	1		
7	60						52	8					11	10	37	2			49	10	1				2	11	46	1		
8	60						60						15	30	15				51	9					4	29	27			
9	60						59	1					12	29	19				60						1	24	35			
10	60						59	1					17	26	17				58	2					19	29	12			
11	60						60						11	25	24				60						3	24	33			
12	60						57	3					10	25	25				60						12	30	18			
13	60						60						9	23	27	1			60						11	13	36			
14	60						56	4					6	15	38	1			50	10					1	14	40	5		
15	60						57	3					19	24	17				60						18	16	26			
Total	899	1					860	40					177	332	387	4			845	54	1				136	309	447	8		

LOC # 7	2020 / 2030 Build (with ESA Current Design)					
Time (min)	Level of Service					
	A	B	C	D	E	F
1	30	15	13	2		
2	36	13	10	1		
3	40	14	5	1		
4	26	19	14	1		
5	37	12	8	3		
6	28	18	13	1		
7	41	15	4			
8	33	12	14	1		
9	34	13	13			
10	42	9	9			
11	25	9	26			
12	37	7	14	2		
13	27	20	12	1		
14	34	16	9	1		
15	38	15	6	1		
Total	508	207	170	15		

Notes:

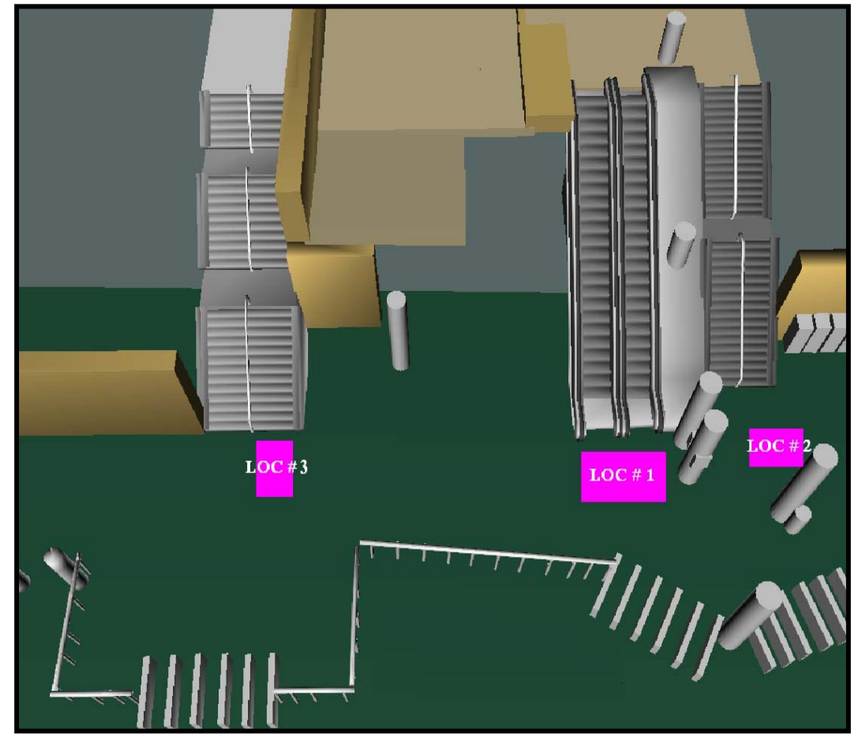
1. Current Design: without Biltmore escalators, without subway shortloop
2. Alternative 1: with Biltmore escalators, without subway shortloop

Fare Control Area 238 PM Levels of Service

LOC #1 / Time (min)	Existing						2020 with Kenneth Cole Stairs at Fare Control Area 238												2030 with Kenneth Cole Stairs at Fare Control Area 238											
							2020 No Build (without ESA)						2020 Build (with ESA Current Design[1])						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	7	12	9	6	14	12	6	9	18	10	16	1	5	8	15	16	15	1	11	13	17	9	10		13	5	6	12	15	9
2	13	8	9	9	10	11	13	10	9	8	20		8	7	16	7	14	8	14	8	13	11	13	1	5	11	6	19	15	4
3	12	5	12	3	12	16	13	6	13	16	12		6	5	17	14	18		13	13	16	12	6		7	7	7	16	23	
4	28	14	16	2			28	14	14	4			18	21	21				28	15	13	4			42	7		11		
5	6	5	3		7	39	13	4	8	3	5	27	5	4	8	3	10	30	13	3	11	3	3	27	7	5	3	6	7	32
6		1	4	8	6	41	9	2	9	10	12	18	2	3	4	3	12	36	10	4	11	7	8	20					13	47
7	5	14	12	6	18	5	14	9	15	13	9		7	10	9	11	23		15	8	13	8	16		2	1	8	15	33	1
8	9	12	8	4	18	9	14	12	16	9	9		8	4	16	8	24		12	14	11	13	10		16	7	3	13	21	
9	9	6	8	8	14	15	14	12	26	7	1		4	5	17	23	11		15	11	11	8	15		13	13	15	13	6	
10	9	12	14	7	15	3	14	11	16	13	6		4	8	10	7	31		16	8	12	12	12		1	5	3	11	18	22
11	15	15	19	8	3		30	22	8				25	14	11	9	1		24	12	19	5			38	7	3	10	2	
12	7	3	2	1	6	41	5	3	6	5	8	33	4	1	9		5	41	4	8	6	4	4	34	7	5	1	4	9	34
13						60					6	54						60						60						60
14	16	14	10	4	6	10	23	14	10	1	12						9	51	19	12	14		4	11			1	1	11	47
15	30	13	15	2			34	18	8				1	3	7	12	28	9	30	13	12	4	1		13	10	9	21	7	
Total	166	134	141	68	129	262	230	146	176	99	116	133	97	93	160	113	201	236	224	142	179	100	102	153	164	83	65	152	180	256

LOC # 2 / Time (min)	Existing						2020 with Kenneth Cole Stairs at Fare Control Area 238												2030 with Kenneth Cole Stairs at Fare Control Area 238											
							2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	15	14		17	14		20	12		13	15		27	15		12	6		24	16		13	7		21	25		12	2	
2	16	15		4	18	7	22	18		10	10		22	12		10	15	1	20	25		9	6		18	19		12	11	
3	13	20		12	13	2	23	19		13	5		20	18		13	9		23	24		9	3	1	11	18		15	16	
4	30	20		6	4		31	24		4	1		30	23		6	1		32	21		6	1		29	27		3	1	
5	5	5		6	6	38	14	12		3	27	4	7	17		4	2	30	16	6		8	11	19	10	12		4		34
6	11	9		10	10	20	37	17		5	1		16	13		7	9	15	26	18		8	5	3					7	53
7	11	12		12	20	5	26	16		16	2		21	15		6	18		19	25		9	7		4	5		3	38	10
8	12	15		12	14	7	27	22		6	5		22	24		11	3		23	22		8	7		16	14		11	14	5
9	16	18		8	16	2	23	20		11	6		18	21		7	13	1	28	17		9	6		23	21		11	5	
10	16	17		9	15	3	28	16		10	6		18	20		6	16		24	19		8	8	1	8	13		9	25	5
11	29	24		5	2		35	21		4			32	17		11			33	21		5	1		31	14		7	8	
12	7	2		1	4	46	7	14		5	8	26	6	9		4	7	34	10	8		3	9	30	8	7		2	6	37
13					3	57	4	7		6	22	21					3	57		1		3	15	41						60
14	17	16		12	12	3	43	14		3			24	20		3	10	3	35	19		6							5	55
15	20	25		12	3		44	10		5	1		32	23		4	1		45	11		4			28	13		5	10	4
Total	218	212		126	154	190	384	242		114	109	51	295	247		104	113	141	358	253		108	86	95	207	188		94	148	263

LOC # 3 / Time (min)	2020 with Kenneth Cole Stairs at Fare Control Area 238												2030 with Kenneth Cole Stairs at Fare Control Area 238											
	2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	48	10	2				22	19	15	4			22	20	18				11	7	9	5	17	11
2	45	5	10				14	10	16	6	14		29	14	13	3	1		16	7	7	13	17	
3	46	9	4	1			7	8	17	6	22		24	14	17	5			13	11	7	19	10	
4	54	4	2				27	20	11	2			31	18	9	2			17	25	8	6	4	
5	21	8	9	2	20		9	6	3	3	9	30	11	8	8	10	19	4	7	4	4	8	5	32
6	22	5	4	2	11	16	14	6	4	8	11	17	11	7	9	3	8	22	1	1	2	10	19	27
7	43	9	8				15	7	13	9	16		29	14	14	3			4	11	6	11	24	4
8	46	6	6	1	1		12	15	12	10	11		20	17	17	5	1		4	9	8	14	25	
9	47	6	6	1			18	14	14	6	8		19	19	17	5			12	11	6	14	17	
10	39	4	14	2	1		14	12	24	9	1		26	17	12	5			14	6	15	15	9	1
11	55	4	1				23	26	11				35	16	9				23	26	6	5		
12	17	7	12	7	17		11	2	6		12	29	11	3	7	9	29	1	10	2	3		6	39
13	21	3	6	19	11						2	58	6	4	7	2	30	11						60
14	48	7	5				6	10	14	11	14	5	34	14	12				13	14	10	8	8	7
15	51	4	5				25	17	17	1			32	15	13				28	12	8	10	2	
Total	603	91	94	35	61	16	217	172	177	75	120	139	340	200	182	52	88	38	173	146	99	138	163	181



Notes:

1. Current design: without biltmore room, without subway short loop

LIRR Concourse PM Levels of Service

LOC # 1 / Time (min)	2020 / 2030 Build (with ESA Current Design[1]) Level of Service					
	A	B	C	D	E	F
1	48	12				
2	32	18	10			
3	35	19	6			
4	33	8	15	4		
5	39	17	4			
6	39	11	8	2		
7	50	4	6			
8	50	10				
9	57	2	1			
10	57	3				
11	58	2				
12	55	3	2			
13	57	3				
14	57	3				
15	59	1				
Total	726	116	52	6		

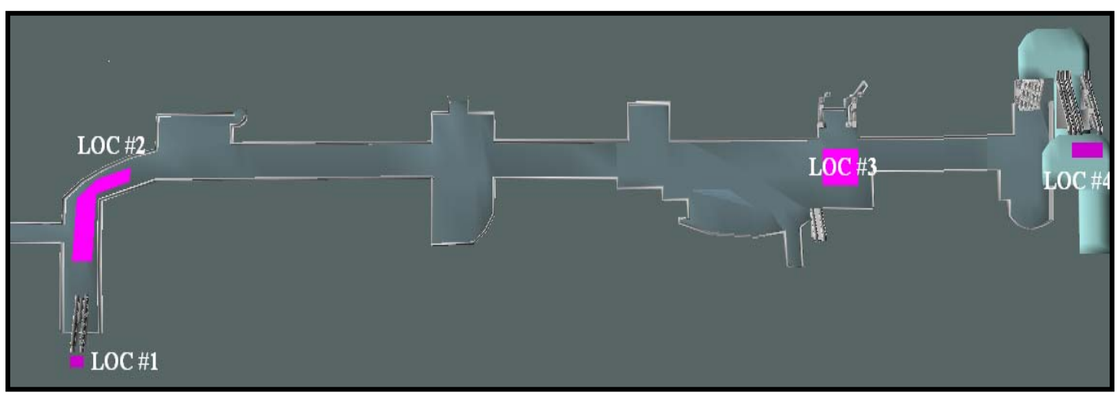
LOC # 2 / Time (min)	2020 / 2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F
1	34	26				
2	28	29	3			
3	31	23	6			
4	7	41	12			
5	33	24	3			
6	17	29	14			
7	45	15				
8	56	4				
9	44	15	1			
10	58	2		1		
11	52	8				
12	54	6				
13	60					
14	52	8				
15	55	5				
Total	626	235	39			

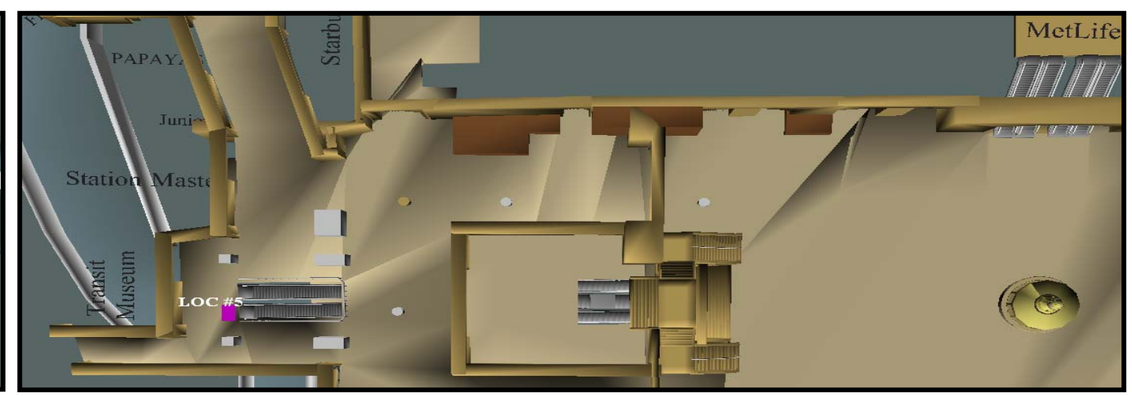
LOC # 3 / Time (min)	2020 / 2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F
1	60					
2	60					
3	60					
4	60					
5	60					
6	60					
7	60					
8	60					
9	60					
10	60					
11	60					
12	60					
13	60					
14	60					
15	60					
Total	900					

LOC # 4 / Time (min)	2020 / 2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F
1	60					
2	59	1				
3	59	1				
4	58	2				
5	58	2				
6	60					
7	60					
8	57	3				
9	60					
10	59	1				
11	59	1				
12	58	2				
13	59	1				
14	60					
15	59	1				
Total	885	15				

LOC # 5 / Time (min)	Existing Level of Service						2020 No Build (without ESA) Level of Service						2020 Build (with ESA Current Design) Level of Service						2030 No Build (without ESA) Level of Service						2030 Build (with ESA Current Design) Level of Service					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	56	4					55	4	1				51	9					51	9					52	7	1			
2	55	5					53	6	1				53	7					55	5					51	9				
3	55	5					56	4					53	7					57	3					55	5				
4	56	4					54	6					56	4					54	6					53	7				
5	56	4					56	4					53	7					54	6					52	8				
6	55	5					53	7					40	17	3				55	5					38	10	8	4		
7	55	5					52	8					25	10	12	8	5		56	4					22	10	10	13	5	
8	56	4					56	3	1				55	5					53	7					52	7	1			
9	55	5					54	6					53	7					52	8					53	7				
10	56	4					55	5					54	6					54	4	1	1			54	6				
11	53	7					53	7					52	8					52	6	1	1			54	6				
12	58	2					56	4					54	6					55	5					57	3				
13	56	4					53	7					53	5	2				56	4					51	9				
14	54	6					54	6					56	4					56	4					56	4				
15	55	5					56	4					53	7					54	6					52	8				
Total	831	69					816	81	3				761	109	17	8	5		814	82	2	2			752	106	20	17	5	

Note:
1. Current design: without biltmore room, without subway short loop





47th Street Crosspassage PM Levels of Service

LOC # 1	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design[1])						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						57	3					60						58	2				
2	60						60						60						60						59	1				
3	60						60						59	1					60						56	4				
4	60						60						60						60						60					
5	60						60						58	2					60						58	2				
6	60						60						57	3					60						60					
7	60						60						59	1					60						57	3				
8	60						60						58	2					60						56	3	1			
9	60						60						58	1	1				60						59	1				
10	60						60						57	3					60						56	4				
11	60						60						58	2					60						56	3	1			
12	60						60						59	1					60						56	3	1			
13	60						60						59	1					60						60					
14	60						60						59	1					60						58	2				
15	60						60						60						60						57	3				
Total	900						900						878	21	1				900						866	31	3			

LOC # 2	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	59	1					58	2					47	2	11				49	11					39	18	2	1		
2	60						55	5					37	12	10	1			55	5					42	14	3	1		
3	60						60						52	8					49	10	1				39	12	8	1		
4	59	1					60						43	13	4				50	9	1				36	16	5	3		
5	59	1					58	2					35	10	13	2			53	7					33	17	8	2		
6	60						57	3					55	5					48	11	1				44	14	1	1		
7	60						60						47	9	3	1			52	8					44	10	6			
8	60						57	3					32	17	11				53	7					40	15	3	2		
9	60						60						47	8	5				55	5					36	17	7			
10	60						59	1					36	13	11				52	8					38	14	6	2		
11	60						59	1					18	17	20	5			56	4					40	11	7	2		
12	60						57	3					28	10	16	6			56	4					35	17	6	2		
13	60						58	2					36	15	9				53	7					38	15	3	4		
14	58	2					57	3					32	14	14				53	6	1				39	11	8	2		
15	59	1					59	1					51	5	4				55	5					41	11	6	2		
Total	894	6					874	26					596	158	131	15			789	107	4				584	212	79	25		

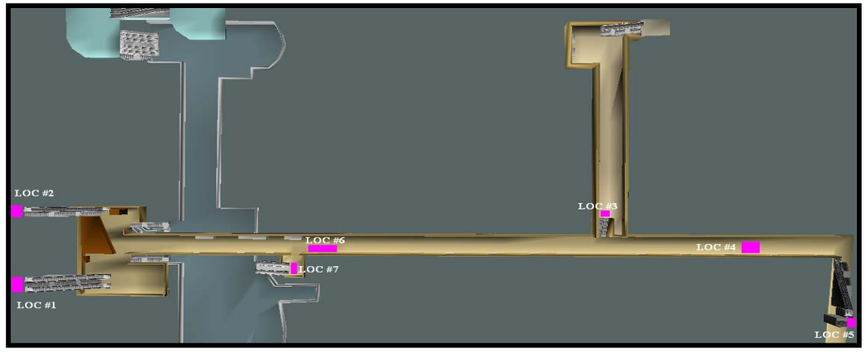
LOC # 3	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	51	9					48	11	1				16		19	7	18		54		6				19		26	10	5	
2	54	6					47	13					7		29	12	12		53		6	1			26		25	6	3	
3	54	6					45	14	1				19		29	7	5		52		8				5		15	9	31	
4	52	8					48	11	1				20		32	7	1		50		9	1			9		23	7	21	
5	54	6					51	9					20		25	5	10		51		9				10		21	7	20	2
6	51	9					52	8					17		30	7	6		51		9						12	14	34	
7	47	11	2				44	13	2				13		35	4	8		45		15				3		24	12	21	
8	52	8					49	9	2				8		26	11	15		52		7	1			14		27	13	6	
9	52	8					47	13					30		22	4	4		49		10		1		17		26	8	9	
10	50	9	1				42	12	3	3			15		28	12	5		49		11				17		28	11	3	1
11	52	8					43	15	1	1			12		28	8	12		51		7	1	1		14		29	6	9	2
12	44	16					50	10					17		21	10	12		49		11				11		29	9	11	
13	48	12					44	15	1				11		28	6	13	2	47		13				12		24	11	13	
14	51	9					45	15					26		24	3	7		53		7				30		23	4	3	
15	47	13					49	11					13		29	9	9		52		7	1			12		22	9	17	
Total	759	138	3				704	179	12	5			244		405	112	137	2	758		135	5	2		199		354	136	206	5

LOC # 4	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						60						59	1					60						58	2				
2	60						60						59	1					60						58	2				
3	60						60						59	1					60						56	4				
4	60						60						59	1					60						59	1				
5	60						60						60						60						58	2				
6	60						60						59	1					60						59	1				
7	60						60						58	2					60						56	4				
8	60						60						59	1					60						57	3				
9	60						60						59	1					60						60					
10	60						60						59	1					60						58	1	1			
11	60						60						58	2					60						59		1			
12	60						60						58	2					60						58	2				
13	60						60						58	2					60						59	1				
14	60						60						59	1					60						59	1				
15	60						60						58	2					60						60					
Total	900						900						881	19					900						874	24	2			

LOC #5	2020 / 2030 Build (with ESA Current Design)					
	Level of Service					
Time (min)	A	B	C	D	E	F
1	54	3	3			
2	53	7				
3	56	3	1			
4	57	3				
5	51	8	1			
6	52	6	2			
7	48	7	5			
8	57	3				
9	51	3	6			
10	35	15	10			
11	38	11	8	3		
12	28	16	15	1		
13	39	10	9	2		
14	39	11	10			
15	43	10	7			
Total	701	116	78	6		

LOC # 6	Existing						2020 No Build (without ESA)						2020 Build (with ESA Current Design)						2030 No Build (without ESA)						2030 Build (with ESA Current Design)					
	Level of Service						Level of Service						Level of Service						Level of Service						Level of Service					
Time (min)	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
1	60						55	5					13	15	31	1			47	13					3	20	35	2		
2	57	3					52	8					9	27	23	1			55	5					10	15	35			
3	59	1					56	4					8	27	25				56	4					6	18	36			
4	57	3					52	8					6	20	34				49	11					10	19	30	1		
5	60						55	5					4	27	29				48	12					9	9	42			
6	54	6					55	5					11	22	26	1			50	10					9	23	27	1		
7	58	2					60						5	18	36	1			53	6	1				5	14	40	1		
8	60						57	3					15	21	23	1			55	5					5	24	27	4		
9	60						59	1					17	11	29	3			48	11	1				6	17	37			
10	54	6					55	5					4	20	31	5			48	6	6				7	21	30	2		
11	60						51	9					15	22	23				41	16	3				10	23	27			
12	60						57	3					8	22	30				53	7					6	22	31	1		
13	56	4					48	11	1				10	11	38	1			54	6					7	17	34	2		
14	59	1					56	4					12	20	26	2			56	4					6	12	36	6		
15	58	2					58	2					8	26	26				46	14					4	23	33			
Total	872	28					826	73	1				145	309	430	16			759	130	11				103	277	500	20		

LOC # 7	2020 / 2030 Build (with ESA Current Design)					
	Level of Service					
Time (min)	A	B	C	D	E	F
1	44		16			
2	46		13	1		
3	34		22	4		
4	43		14	3		
5	43		11	6		
6	45		11	4		
7	50		9	1		
8	40		17	3		
9	20		30	10		
10	50		10			
11	58		2			
12	53		6	1		
13	30		22	8		
14	27		28	5		
15	36		20	4		
Total	619		231	50		



Notes:

1. Current design: without biltmore room, without subway short loop

APPENDIX F: Assessment of Number of Pedestrians (per minute) Through Major Connections and Exits

Assessment for number of pedestrians per minute increment was conducted in 2020 Build Scenario. The first step was to select representative locations or exits for monitor. Figures 1, 2, and 3 show the selected locations or exits on the map of GCT Upper Concourse, 47th Street Crosspassage, and LIRR Concourse, respectively. As shown in the figures, the red ellipses label the locations in corridors or connections between corridors, of which the output volume includes crossing people from both or even more than two directions. The red rectangles label the exits and entrances between model planes or between a plane and VCEs, of which the volumes of each direction (up/down or exit/entrance) could be distinguished and thus are presented separately.

The volumes of these locations were then output in time steps of 60 seconds while the model was running for 30 minutes. Note that only the last 15 minutes volumes were used, while the first 15-minute run was just used to fully populate the model. The results are summarized in Tables 1, 2, and 3; each table is accompanied by a corresponding figure (i.e., Figure 1, 2, and 3) which illustrates analysis locations. Note that the total volume output in the last row may not be exactly equal to the volume input as shown in figures, due to the random seeds for the simulation model.

Figure 1: Location Labels on GCT Upper Concourse

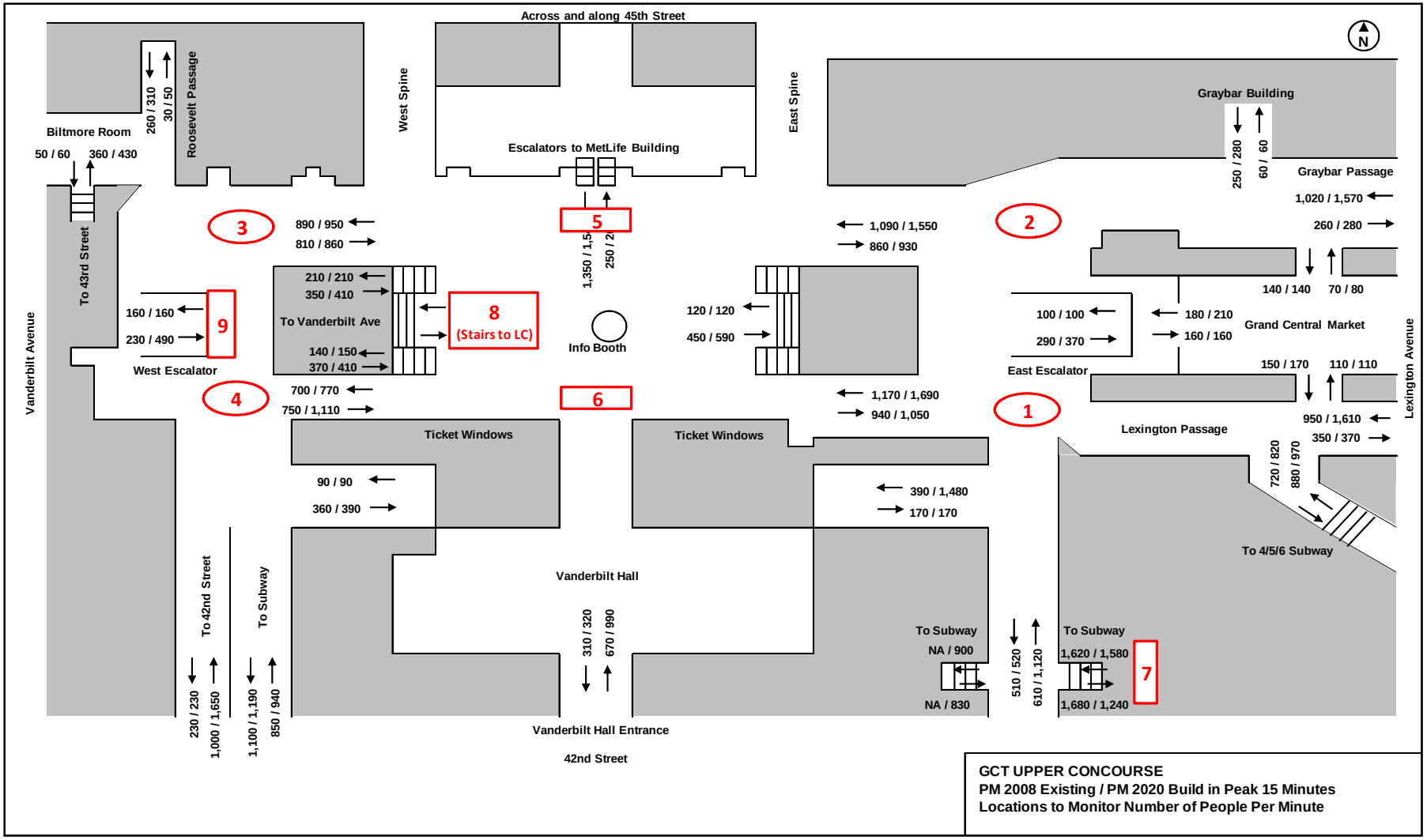


Table 1: Number of Pedestrians (per minute) Through Major Connections and Exits on GCT Upper Concourse (2020 Build PM)

Minutes	Main Concourse																		
	Location																		
	1	2	3	4	5				6		7						8		9
	GCT - Lexington Passage	GCT-Graybar Passage	GCT - Roosvelt	GCT-Shuttle Passage	To MetLife	From MetLife-Esc1	From MetLife-Esc2	From MetLife-Esc3	From GCT to Vanderbilt	From Vanderbilt to GCT	KCS-up	KCS-down	ESC-up	ESC-down	Stair-up	Stair-down	Down to DC	Up from DC	Down to Transit Musem ESC
1	327	161	210	114	42	31	27	44	52	64	49	54	63	42	39	29	114	4	33
2	351	179	207	247	60	34	26	43	55	65	57	60	63	43	40	41	114	4	34
3	357	172	178	107	23	32	29	44	15	66	61	65	67	42	42	35	102	26	34
4	365	244	172	178	11	24	26	51	16	60	26	54	48	44	18	38	103	4	37
5	332	219	177	124	10	32	27	44	12	69	58	64	72	72	68	65	108	4	32
6	370	244	298	179	12	35	29	39	19	64	53	56	71	46	70	28	102	4	42
7	372	193	555	194	16	29	27	46	17	68	52	58	65	43	42	38	118	1	64
8	344	172	211	254	13	27	33	39	18	60	53	59	68	46	40	36	96	11	38
9	366	230	197	141	23	28	32	41	37	68	45	67	65	41	47	33	112	20	32
10	383	214	203	185	17	31	25	42	12	63	72	75	63	46	47	50	102	3	39
11	349	154	174	108	8	32	29	37	16	68	25	53	38	42	19	35	108	3	29
12	312	154	185	162	11	35	25	39	12	65	64	40	74	56	61	31	102	5	37
13	348	158	165	115	9	31	24	42	14	67	68	57	60	17	59	35	108	2	33
14	376	171	156	194	11	34	25	40	18	66	39	45	55	40	59	36	95	4	36
15	330	159	159	116	10	28	25	47	13	58	36	58	57	70	39	32	109	3	35
Total Volume	5,282	2,824	3,247	2,418	276	463	409	638	326	971	758	865	929	690	690	562	1,593	98	555

Figure 2: Location Labels on 47th Street Crosspassage

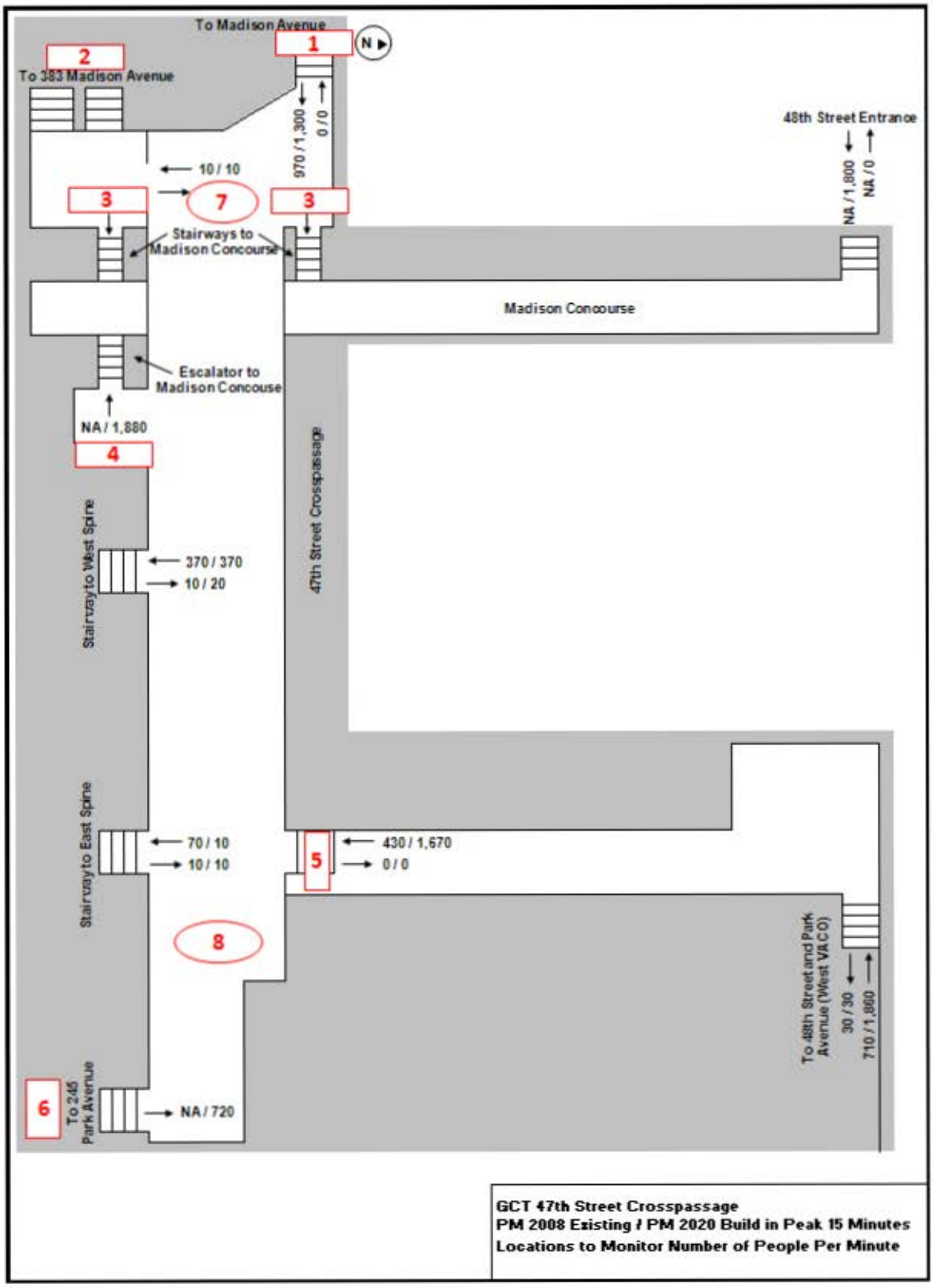


Table 2: Number of Pedestrians (per minute) Through Major Connections and Exits on 47 Crosspassage (2020 Build PM)

Minutes	47th Street Crosspassage														
	Location														
	1		2			3		4		5		6		7	8
	47st to Chase-stair	47st to Chase-esc	47st to JP-stair	47st to JP-esc1	47st to JP-esc2	47xpw to MadStair1	47xpw to MadStair2	47xpw to MadESC1	47xpw to MadESC2	47xpw-eastspine-stair	47xpw-eastspine-esc	47xpw-248park-esc2	47xpw-248park-stair	North End	South End
1	22	62	11	23	24	23	33	56	65	41	72	27	21	85	51
2	27	61	13	21	23	33	30	52	60	28	67	28	21	76	51
3	23	65	11	22	24	30	27	57	64	30	67	29	19	84	54
4	22	62	10	24	24	31	30	55	60	24	68	32	17	87	60
5	25	61	9	25	23	30	29	59	61	32	64	30	17	77	57
6	24	64	9	25	24	28	29	57	68	32	66	30	19	87	50
7	25	62	9	24	25	39	25	50	61	41	71	32	16	76	55
8	22	62	12	21	25	24	31	48	60	30	66	26	19	87	53
9	26	62	9	20	28	33	31	51	64	32	65	28	23	92	49
10	25	58	9	23	24	28	32	56	64	27	66	28	18	81	57
11	27	61	10	26	22	23	34	55	61	34	67	33	17	87	49
12	24	62	7	27	24	31	30	54	64	36	66	30	15	92	55
13	25	61	11	21	25	29	28	54	62	24	67	31	19	81	58
14	26	59	11	20	26	33	31	48	60	34	69	27	19	84	50
15	22	64	9	27	23	29	29	59	61	21	66	37	12	85	56
Total Volume	365	926	150	349	364	444	449	811	935	466	1,007	448	272	1,261	805

Figure 3: Location Labels on LIRR Concourse

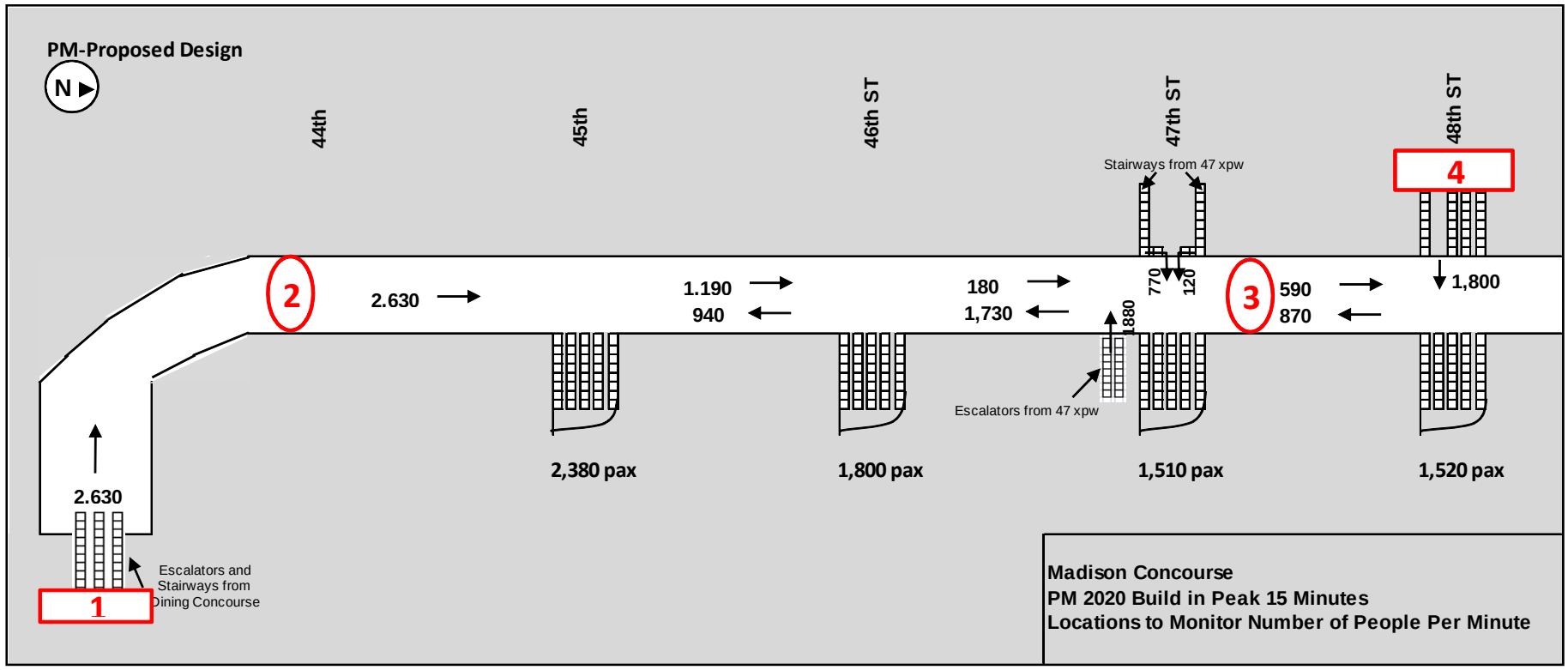


Table 3: Number of Pedestrians (per minute) Through Major Connections and Exits on LIRR Concourse (2020 Build PM)

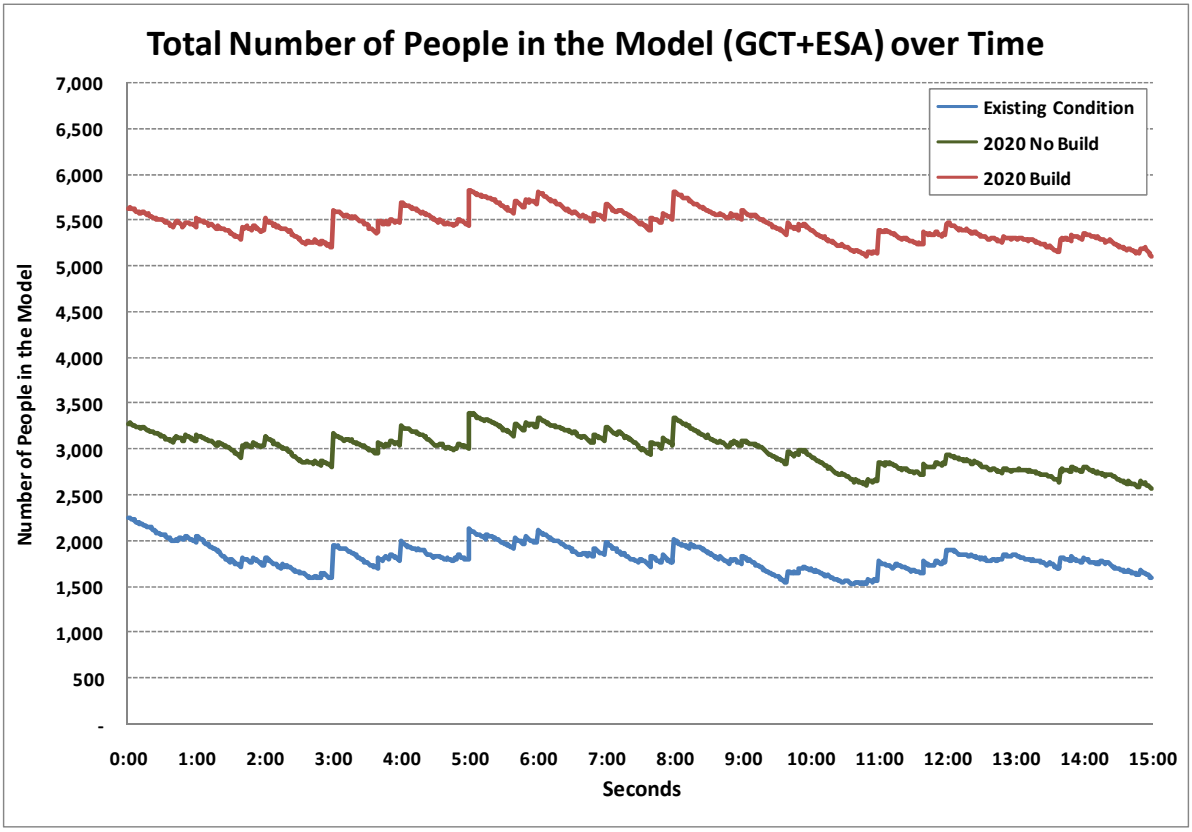
Minutes	Madison Concourse								
	Location								
	1			2	3	4			
	LIRR-stair	LIRR-esc1	LIRR-esc2	West-end	East-end	48st-stair	48st-esc1	48st-esc2	48st-esc3
1	43	65	57	184	95	16	52	49	6
2	42	70	55	160	96	25	45	41	8
3	43	70	61	173	96	15	46	51	10
4	43	71	61	165	98	18	48	47	5
5	41	70	71	182	96	17	49	46	6
6	36	59	57	186	96	25	45	40	12
7	38	65	58	156	92	26	47	43	5
8	44	59	65	161	104	24	47	43	5
9	41	65	71	166	87	20	42	47	8
10	43	69	63	181	98	24	47	46	7
11	46	64	65	180	96	16	44	42	14
12	50	74	65	176	98	16	50	50	5
13	35	56	51	184	94	24	46	42	8
14	40	63	62	145	99	18	47	47	7
15	43	61	63	160	90	19	46	50	5
Total Volume	628	1,306	925	2,559	1,435	303	701	684	111

APPENDIX G: Assessment of Total Number of Pedestrians in the Model over Time

Total number of people in the entire model was output from STEPS second by second for 30 minutes in each PM scenario (existing, 2020 No Build, and 2020 Build). Note that the first 15-minute run is only for the model to be fully populated and the outputs from the last 15-minute run were used for the results representation in Figure 1 below.

As shown in Figure 1, the blue line represents the existing condition, indicating that the total number of people is in a range of 1,500 to 2,300. The green line gives the total number of people in 2020 No Build model, which is in a range of 2,500 to 3,500. The red line shows that the total number of people in the 2020 Build model would increase to the maximum of 5,800 after the LIRR riders were introduced into the model. Note that the people counted include pedestrians in the entire model, including GCT, FCA 238, 47th Street Crosspassage, LIRR Concourse, etc.

Figure 1: Total Number of Pedestrians in the Model over Time



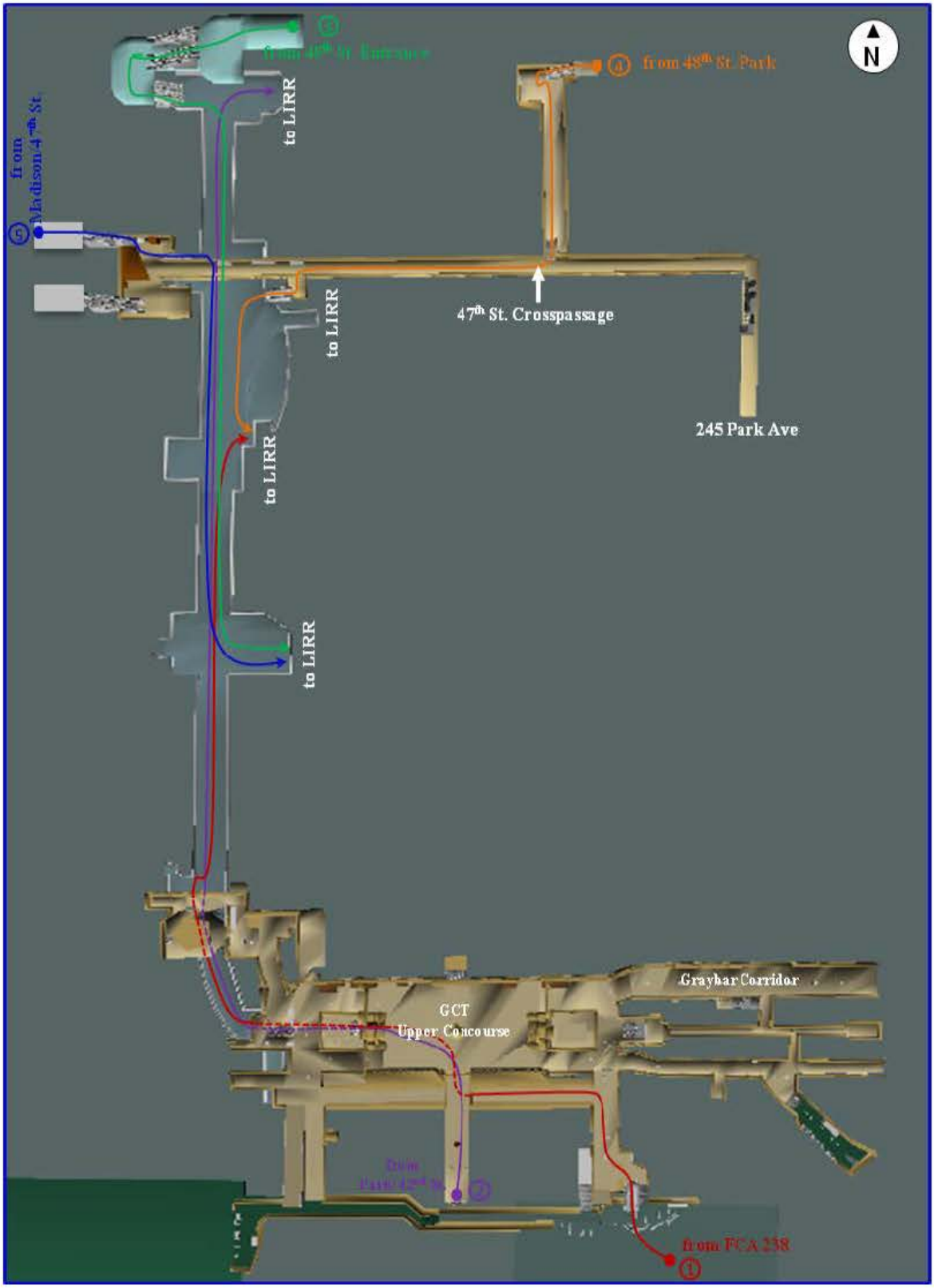
APPENDIX H: Assessment of Journey Time

First, major routes were selected to assess the journey time, as shown in Figure 1. Lines with different colors and numbers represent different routes, including,

1) From Park Avenue/42nd Street to LIRR Concourse LIRR (48th Street)
2) From FCA 238 to LIRR Concourse LIRR (46th Street)
3) From 48th street entrance to LIRR Concourse LIRR (46th Street)
4) From 48th Street/Park Avenue to LIRR Concourse LIRR (45th Street)
5) From Madison Avenue/47th Street to LIRR Concourse LIRR (45th Street)

Then a "sample person" was assigned for each route in the model. The journey time for each person to finish its route was monitored and output while running the simulation. Note that the simulation was run for at least three times to overcome the randomness. Finally, the average of the journey time in each run was calculated for each route. Table 1 summarized the results of the journey time for each selected route.

Figure 1: Selected Routes for Journey Time Assessment (Proposed Design)



Note: The dash line indicates that part of the route is under the displayed scene, such as in Lower Concourse, Oyster Bar, Madison Concourse, etc.

Table 1: Journey Time Results

Routes	1	2	3	4	5
	Park Ave/42nd St. - LIRR (48th St.)	**FCA 238 - LIRR (46th St.)**	**48th St. Entrance - LIRR (46th St.)**	**48th St./Park Ave - LIRR (45th St.)**	**Madison/47th St. - LIRR (46th St.)**
Journey Time	*7:30 min*	*6:45 min*	*4:30 min*	*6:30 min*	*3:05 min*

ADDENDUM TO TECHNICAL MEMO NO.4
37TH STREET VENTILATION PLANT CONSTRUCTION ACTIVITIES

V. PROPOSED MODIFICATIONS TO CONSTRUCTION ACTIVITIES AT 37TH STREET VENTILATION PLENUM

Two construction activities are now proposed to occur in the area of the 37th Street ventilation plenum at Park Avenue that were not anticipated in the earlier analyses conducted for the East Side Access Project. These activities are: the use of the ventilation plenum for construction access to the train tunnels, and blasting in the tunnels near 38th Street to complete the installation of fans there. These new activities would extend the construction period at 37th Street and Park Avenue by about two years.

Description of Proposed Construction Activities

Previously Approved Design

The FEIS design did not include tail tracks south of GCT or its associated ventilation. Technical Memorandum No. 2, prepared in February 2002, analyzed the design modification that added four tail tracks south of GCT and anticipated a ventilation plenum and street-level gratings at a location between East 37th and East 40th Street. Construction activities at 37th Street and Park Avenue were evaluated in Technical Memorandum No. 3: Tail Tracks Ventilation Plenum and Grate, prepared in February 2008. That memorandum evaluated the addition of ventilation gratings in the sidewalk along the west side of Park Avenue just south of East 37th Street (i.e., between East 36th and East 37th Streets).

Technical Memorandum No. 3 described and evaluated construction activities required for the ventilation plenum at 37th Street and Park Avenue. The activities evaluated included removal of street trees, relocation of utilities, and the mining of three ventilation shafts using the raise bore technique on the western sidewalk at Park Avenue between 36th and 37th Streets. An eight-month construction period was anticipated.

Following approval by the FTA of the 37th Street ventilation plenum, construction was undertaken. Construction of the 37th Street plenum and shafts was mostly completed in December 2009. Three shafts are now present, extending from the tunnels up to the sidewalk. The shafts are located at the southwest corner of East 37th Street and Park Avenue, in front of the Union League Club. These shafts will be covered with a sidewalk grate once all activities at the site are complete.

Proposed Tunnel Access from 37th Street

The temporary use of the completed plenums at 37th Street and Park Avenue for tunnel access is proposed to facilitate the overall construction of the East Side Access Project. The proposal includes use of the ventilation shafts for delivery of concrete, delivery of other materials, and access by tunnel construction personnel:

- **Concrete Deliveries:** The southernmost shaft would be used for concrete and shotcrete deliveries. Between 10 and 30 concrete trucks per day (depending on the pour size) would supply concrete to the tunnels via a concrete pump located within the air plenum beneath the sidewalk or in the tunnel, approximately 140 feet below the sidewalk. These deliveries would be made between 8 AM and 7 PM on weekdays, on average about three days per week. A maximum of four concrete mixer trucks would be in the 37th Street vicinity at the same time. Two would be in the west curb lane of Park Avenue to the south of 37th Street—one delivering concrete and one having its concrete chute washed out after completing its delivery. The other two trucks would be in the west curb lane of Park Avenue north of 37th Street, waiting to make their deliveries. Concrete-related deliveries are anticipated to be needed for about 16 months over a 20-month period.

- **Deliveries of Other Construction Materials:** The southernmost shaft would also be used for deliveries of construction materials (formwork, rebar, etc) to support the concrete operations in the tunnels, requiring a mobile crane to be stationed adjacent to the plenum. Materials would be lowered into the tunnels via the crane. Concrete and materials deliveries would be coordinated and would not occur at the same time. Every effort would be made to locate the crane in the parking lane and not on the sidewalk, to minimize noise levels at adjacent properties during its operation. The crane would be on site daily during an initial six- to eight-week mobilization period and, thereafter, two to three times per week for a 22-month period. Deliveries would be made on weekdays between the hours of 8 AM and 7 PM.

- **Personnel Access:** The northern shaft would be use for personnel access for about a 22-month period. Approximately 30 workers per shift, three shifts per day Monday thru Friday, would use this access route into the tunnels. A small guard booth would be located on the sidewalk above the middle plenum and a stairway would be installed leading to the base of the plenum. Workers would walk to the northern shaft where an elevator (also referred to as an Alimak) would be installed for tunnel access. A guard would be at the site during all working hours.

After the 22-month construction access period, the sidewalk grates will be installed and the site will be restored over a two-month period.

During preparation of the FEIS, the EA, and Technical Memorandum No. 3, it was anticipated that concrete would be delivered to the tunnels from three access points: the Northern Boulevard shaft in Queens, and the 50th Street Facility site and the 44th Street Facility site in Manhattan. Due to the delay in the awards of the contracts for both the 44th and 50th Street Facilities, tunnel shafts at these locations have not been constructed and access to the southern end of the tunnels is difficult and time consuming. Furthermore, the Manhattan Tunnels contract was expanded to include construction of the ventilation fan chambers located in the tunnels beneath Park Avenue at about 38th Street. The advancement of this work provides for better ventilation during the ESA

construction period. As a result, concrete pours will be needed sooner than anticipated at the southern end of the tunnels. Tunnel access at 37th Street would enable discrete work locations for the different contractor activities that will be occurring simultaneously in the tunnels. Discrete access for different contractor work locations reduces the potential for construction hazards/risks as well as the potential for delay claims.

Proposed Blasting to Complete Excavation of Fan Chambers

To complete the installation of fans in the 37th Street ventilation plenum, controlled drill and blast activities is required. As noted earlier, blasting was not evaluated in Technical Memorandum No. 3 for construction of the 37th Street ventilation plenum.

Approximately 12 months of controlled drill-and-blast activities would occur over a period of 18 months. During that time, on days when blasting would occur, one or two blasts would be discharged between the hours of 9AM to 10 PM on weekdays only. Blasting would be conducted in coordination with the New York City Fire Department (FDNY). Residents of the immediate area would be notified prior to any blasting activities.

Previous Analyses Related to 37th Street Ventilation Plenum

Technical Memorandum No. 3 included analysis of the anticipated construction impacts associated with East Side Access Project activities at the 37th Street ventilation plenum site. The memo concluded that these activities might be disruptive, but given their short duration and limited scope, they would not result in significant adverse impacts at that site.

Technical Memorandum No. 3 identified one historic resource within the Area of Potential Effect (APE) for the 37th Street ventilation plenum: the Union League Club, which is immediately adjacent to the ventilation site. The East Side Access Project's Construction Protection and Advance Field Testing Plan sets forth procedures to protect historic structures from accidental damage during construction. This plan was developed in accordance with the project's Programmatic Agreement, as amended, among the Federal Transit Administration, the New York State Historic Preservation Officer (SHPO), and the Metropolitan Transportation Authority (MTA), with the New York City Landmarks Preservation Commission (LPC) as a consulting party. The Construction Protection and Advance Field Testing Plan was reviewed and approved by SHPO and LPC.[1] Technical Memorandum No. 3 indicated that the procedures set forth in the Construction Protection Plan would be followed to protect the Union League Club from accidental damage during construction of the nearby underground ventilation structure.

[1] Approval from SHPO was in a letter dated November 9, 2007; approval from LPC was in a letter dated October 5, 2007.

Assessment of Effects of the Proposed Changes

For most of the analysis areas considered in the FEIS and Technical Memorandum No. 3, the proposed additional construction activities at the 37th Street site and the corresponding extension of the construction schedule at that site would not change the overall conclusions of the FEIS and Technical Memorandum No. 3. The construction activities proposed at 37th Street and Park Avenue would be temporary (an estimated 2 years) and, during that time, would be sometimes be disruptive to surrounding land uses. Technical Memorandum No. 3 already described the effects of short-term construction activities on the surrounding area, and for most areas these effects would be the same with the longer construction schedule.

The proposed modifications to the construction activities at 37th Street do not require acquisition of property and would not affect or disturb areas outside the initial 37th Street construction zone. Specifically, no significant adverse impacts would occur in the following categories:

- Land Use, Zoning, Socioeconomic Impacts, since the proposed modifications would not cause significant adverse impacts and the construction zone is smaller than the initial one analyzed in Tech Memo No.3;
- Parkland, since no parkland is in the area;
- Archaeology or Hazardous Materials, since no excavation is proposed;
- Utilities, since no additional utilities at 37th Street would be disturbed;
- Natural, Water Resources/Coastal Zone/Waterfront Revitalization, since none exist in the area.

This technical memorandum considers the construction effects for four areas where effects could differ from those previously considered: historic resources, transportation, air quality, and noise.

Historic Built Properties

As noted in Technical Memorandum No. 3, one historic resource, the Union League Club is located within the APE for the proposed construction site. The procedures set forth in the East Side Access Project's Construction Protection and Advance Field Testing Plan would be followed to protect this building from accidental damage during construction activities, including the tunnel access activities and the blasting.

Transportation

With the proposed use of the 37th Street ventilation plenum for tunnel access, concrete deliveries to the site would take place intermittently over a period of 20 months. No deliveries would occur during the New York City Department of Transportation's (NYCDOT) embargo period for street disruptions, which is between Thanksgiving and New Year's Day. During operations, the deliveries would be made between 8 AM and 7 PM for an average of three weekdays per week. Depending on the size of the concrete pour, there could be up to 30 deliveries on a given day.

All activities would take place along the southbound side of Park Avenue. After delivering concrete, the concrete chute of each truck would be washed out at the construction site. At the same time, up to two other trucks would be queued along the west curb north of East 37th Street. No more than four concrete trucks would be present in the vicinity of the construction site at the same time, because of the time constraints for concrete transport. Also, given that there would be no more than 30 deliveries on a given day, there would not be a large number of hourly truck arrivals and departures at the site. According to the *CEQR Technical Manual*, an action that generates more than 50 vehicle trips in a peak hour could warrant a detailed traffic analysis. Since the proposed concrete deliveries would not yield peak hour trips that exceed the CEQR threshold, no further detailed traffic analysis is required and the operations are not expected to result in any significant adverse traffic impacts.

With regard to the maintenance and protection of traffic, permit approvals would be obtained from NYCDOT to ensure that all requirements are met, including the protection of pedestrian flow. All operations would be limited to the site on the west sidewalk between 36th and 38th Streets and along the associated curb lane of southbound Park Avenue. Unlike the previous construction activities at the site, for the proposed tunnel access activities, pedestrian access on the sidewalk would be maintained, with a minimum of a 5-foot-wide sidewalk maintained alongside the 37th Street ventilation plenum shafts. Concrete delivery trucks would use the curb lane (i.e., parking lane), and no moving traffic lanes would be closed.

Prior to commencement of construction of the ventilation plenum at 37th Street, a bus stop for the southbound M1 bus was located at the construction site. As described in Technical Memorandum No. 3 (February 2008), the bus stop was temporarily relocated TO WHERE? to accommodate the East Side Access construction activities for the 37th Street ventilation plenum. To use this site for tunnel access, the period of bus stop relocation would be extended for the additional construction period. Temporary bus stop relocation is typical in New York City during utility work, roadway repairs, and other construction efforts. North of East 37th Street, prior to the beginning of East Side Access construction activities on the block to the south, the curb lane on southbound Park Avenue approaching East 37th Street is used for daytime deliveries and nighttime parking, which would be displaced for the construction activities. An estimated four to five parking spaces would be displaced.

As was done for the previous construction at East 37th Street, all travel lanes would be maintained on Park Avenue. In addition, unlike the previous work conducted for the ventilation plenum construction, the concrete deliveries would not require staging on the north side of East 37th Street between Park and Madison Avenues. The north curb lane, which has weekday daytime No Standing regulations, would be available for moving traffic, thereby creating a more favorable condition than experienced during the prior construction activities on this Thru-Street. Finally, in accordance with NYCDOT stipulations made as part of the permit approval process, MTA will engage NYPD to

provide traffic agents to manage traffic flow during concrete deliveries and other construction activities at the site.

Air Quality

The equipment used at the 37th Street construction site for tunnel access would generate pollutant emissions in the immediate area around the construction site, however, the proposed construction activities are not expected to result in any significant adverse air quality impacts. At the construction site, these emissions would be very low when compared to emissions for typical New York City construction projects, which involve other types of activities that generate air emissions in addition to concrete pours, such as demolition, excavation, soil dumping, grading, foundation and structural tasks, and erecting building facades.

The primary pollutant of concern for the proposed construction activities is particulate matter (PM) specifically, fine particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}) and fine particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$). New York City (and much of the surrounding metropolitan area) is classified as non-attainment for the $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) of 35 $\mu g/m^3$ on a 24-hour average basis and 15 $\mu g/m^3$ on an annual average basis. For PM10, current ambient levels monitored in New York City are well below the current standard of 150 micrograms per cubic meter ($\mu g/m^3$) which is based on a 24-hour average.

New York City's $PM_{2.5}$ guidance requires a quantified analysis to determine the maximum increases in concentrations if the number of heavy-duty trucks is projected to be greater than 19 during any one hour. The proposed project would generate approximately 10 to 30 concrete truck deliveries over an 11-hour operating day, resulting in a maximum average of three per hour, or, at most four per hour, well below the City threshold. Consequently, no analysis of traffic-related $PM_{2.5}$ impacts is required.

The crane and concrete pump to be used for the proposed construction activities would incorporate the latest air emissions reduction technology, including diesel particulate filters (DPFs) for the control of PM emissions. In general, DPFs reduce $PM_{2.5}$ emissions by 90 percent or greater, and are considered Best Available Technology (BAT). Additionally, all construction equipment and trucks would use Ultra Low Sulfur Diesel Fuel, as required by law.

Emissions and impacts of $PM_{2.5}$ from construction-related activities (engine emissions from truck queuing and concrete pumping, and fugitive emission from truck cleanout) would be extremely low when factoring in the level of construction activities over a longer term (annual) basis.

Similarly, emissions of PM_{10} from the proposed construction activities are not expected to result in any exceedance of the NAAQS. The levels of PM_{10} produced by these activities would be well below the NAAQS and background concentrations, based on the

maximum number of concrete trucks operating during a 24- hour period and the duration of concrete pumping activities.

Noise

A screening assessment for construction noise was performed in accordance FTA's guidance document, *Transit Noise and Vibration Impact Assessment*, May 2006 to determine whether a more detailed noise assessment would be required.

The FTA screening methodology specifies guideline values, shown in Table 1, to be used for evaluating the potential for construction noise impacts. When the General Assessment indicates that construction noise levels (based on an evaluation of the two noisiest pieces of equipment operating simultaneously) would be lower than the values shown in the table, no detailed analysis is warranted.

Table 1
FTA Construction Noise Criteria:
General Assessment

Land Use	$L_{eq(1)}$ (dBA)	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

For the tunnel access construction activities, the noisiest pieces of equipment are the concrete mixer trucks and the mobile crane. Based on the proposed construction phasing, the mobile crane would not be operated at the same time as the concrete mixer trucks. It is assumed that the contractor would use concrete mixer trucks that each generate an L_{max} of 79 dBA or less at a distance of 50 feet, and a mobile crane that generates an L_{max} of 79 dBA or less at 50 feet. The only other piece of construction equipment at the construction site would be located below grade in the tunnel and therefore would be shielded from the adjacent residential buildings.

As shown in Table 2, in all cases the analysis results are below the FTA guideline levels. Accordingly, the proposed construction activities would not result in any significant adverse noise impacts, and no further analysis is required.

Table 2
General Assesment Analysis Results

Case	$L_{eq(1)}$ (dBA)
1: Impact of two concrete mixer trucks at 50 Park Avenue	87 dBA
2: Impact of two concrete mixer trucks at Union League Club	83 dBA
3: Impact of mobile crane at Union League Club	81 dBA
4: Impact of mobile crane at 40 Park Avenue	89
5: Impact of two concrete mixer trucks at 40 Park Avenue	87

Controlled blasting activities that are proposed at the 37th Street site would also result in additional noise and vibration, it would occur intermittently and over very short periods

of time, i.e., 4-5 seconds once or twice within a 24-hour period. The blasting would adhere to the requirements of the East Side Access Project's noise and vibration control specifications, and all efforts would be made to notify nearby building occupants in advance. Based on the implementation of these measures, the proposed blasting activities would not result in any significant adverse noise or vibration impacts.

Public Outreach

MTA has been conducting ongoing public outreach related to the East Side Access Project, including specific outreach meetings with representatives of the neighborhood surrounding the project site for the ventilation shaft, plenum, and grates at East 37th Street and Park Avenue. The outreach related to the 37th Street ventilation plenum began in 2006, prior to selection of the final location of the ventilation plenum and sidewalk grates, and continued into 2008 and 2009 as Technical Memorandum No. 3 was prepared and the final location was approved by FTA and incorporated into the East Side Access Project.

Since then, outreach has continued as construction has been under way at 37th Street. More recently, public outreach has included specific discussions of the proposed construction activities at 37th Street and Park Avenue, including a presentation to Community Board 6 in December 2009. Table 3 lists the various outreach activities conducted related to the 37th Street ventilation plenum and other East Side Access construction activities at this site.

Table 3
Public Outreach Related to East Side Access Project Activities at 37th Street and Park Avenue

Date of meeting	Individuals/Groups Present
Presentation of prior locations for ventilation plenum	
Sept 7th 2006	Community Board 6 - Transportation Committee
October 10th 2006	CB6 Transportation Committee, Murray Hill Board of Trustees, Kitano Hotel representatives, American-Scandinavian House representatives
Presentation of current sidewalk configuration	
August 15th 2007	Union League Club
October 1st 2007	CB6 – Transportation Committee
February 2008	Union League Club
May 15th 2008	El Salvadorian Mission and Consulate
June 2nd 2008	Union League Club
August 20th 2008	Kitano Hotel
August 26th 2008	American-Scandinavian House
September 10th 2008	CB6 – Full Board
September 18th 2008	Rudin Management – 40 Park Avenue
September 2008	50 Park Avenue
October 9th 2008	Kitano Hotel

October 20th 2008	Union League Club
December 12th 2008	CB6, local elected officials representatives, property representatives
December 23rd 2008	Rudin Management – 40 Park Avenue
January 9th 2009	El Salvadorian Mission and Consulate
March 27th 2009	CB6 – Full Board
Current proposal for construction activities	
October 20th 2009	CB6 – District Manager and small number of representatives
October 30th 2009	50 Park Avenue
November 11th 2009	CB6 – District Manager and small number of representatives
December 9th 2009	CB6 – Full Board
December 14th 2009	CB6 District Manager and small number of representatives, NYCDDC

Since construction began, there have been many informal meetings with property representatives that have occurred as East Side Access Project representatives stopped at nearby buildings to discuss upcoming work or address concerns. Numerous e-mails have been distributed to provide updates and notifications. A community update that provides a description of construction work under way and what to expect related to construction impacts is distributed approximately every three months.

The current proposal for additional construction activities at the 37th Street site related to tunnel access was first raised at a meeting with District Manager of Community Board 6 and small number of district representatives on October 20th 2009. The Community Board was advised that 44th Street Vent Facility was not a viable an option for concrete drop activity because that contract was awarded behind schedule.

Concerns that were raised included the following:

- Construction noise and dust
- Expanding construction footprint
- Construction activities continuing outside of work hours
- Insufficient information provided on construction progress
- Project time-line extended.

Several meetings followed where other alternatives to the 37th Street location were reviewed. On December 14th 2009, East Side Access Project representatives presented the current proposal to use the southbound curb lane on Park Avenue north and south of 37th Street. Other alternatives that were also reviewed were:

- Pershing Square (near East 42nd Street), which was deemed technically infeasible, because New York City Transit facilities and a number of major utilities are located close to the surface below street level.
- 38th Street, which was suggested by the Community Board to avoid impacts to 37th Street while another street construction project is under way. The Community Board determined that the 38th Street option was not necessary, since the other construction project would not have the impact originally anticipated.

Chung, Nina (FTA)

From: Heffernan, Audrey [AHeffernan@mtacc.info]
Sent: Friday, August 28, 2009 12:00 PM
To: Chung, Nina (FTA)
Subject: RE: Tech Memo No. 4

Hi Nina – sorry for the delay in getting back to you but I took a couple of beach days. The Bank of America was opposed to an entrance when they were contacted eight or more years ago. They are not expecting an entrance at this point. MTA did know of construction difficulties at 347 Madison at the time of the FEIS although not to the full extent due to the level of engineering performed at that time. At the time of the FEIS, there was no talk of redeveloping the site – that came years later.

Audrey Heffernan, LEED AP
Chief Environmental Officer
MTA Capital Construction
(646) 252-4398
aheffernan@mtacc.info

Please consider the environment before printing this email.

From: Nina.Chung@dot.gov [mailto:Nina.Chung@dot.gov]
Sent: Wednesday, August 26, 2009 2:38 PM
To: Heffernan, Audrey
Subject: Tech Memo No. 4

Hi Audrey,
I have a few preliminary questions regarding the MTA LIRR East Side Access Technical Memorandum Assessing Design Changes: LIRR Concourse and Street Entrances (what we are referring to as Technical Memorandum No. 4).

1. 44th Street Entrance at 335 Madison Avenue: Has there been any outreach to the Bank of America building at 335 Madison Avenue regarding the proposed elimination of the 44th Street entrance? Aren't they expecting an entrance?

2. Regarding the 45th Street entrance at the MTA building at 347 Madison Avenue – the justification provided for deferring this FEIS entrance is because of construction difficulty and potential plans for redevelopment of the site. Why didn't MTA know about the construction difficulties at the time of the FEIS? It seems that access to conduct investigations would have been available. What is the status of the plans for redeveloping 347 Madison Avenue?

NINA CHUNG, COMMUNITY PLANNER
FEDERAL TRANSIT ADMINISTRATION, REGION 02/NY METRO OFFICE
ONE BOWLING GREEN, RM 429
NEW YORK, NY 10004
212.668-2180

Chung, Nina (FTA)

From: Heffernan, Audrey [AHeffernan@mtacc.info]
Sent: Thursday, October 22, 2009 2:47 PM
To: Chung, Nina (FTA)
Cc: Petrocelli, Joseph
Subject: RE: Tech Memo No 4 - further questions

Hi Nina. Attached are responses to your comments on Tech Memo 4 with two concourse drawings that will hopefully make things clearer. Please let me know if you have any more questions.

From: Nina.Chung@dot.gov [mailto:Nina.Chung@dot.gov]
Sent: Wednesday, September 30, 2009 1:54 PM
To: Heffernan, Audrey; McClain, Judith
Subject: FW: Tech Memo No 4 - further questions

Sorry- sent it to the wrong person- should have gone to Audrey.

From: Chung, Nina (FTA)
Sent: Wednesday, September 30, 2009 1:47 PM
To: 'McClain, Judith'
Cc: 'Sarah Rios'; Danzig, Nancy (FTA)
Subject: Tech Memo No 4 - further questions

We have additional questions regarding the ESA Technical Memorandum No. 4.
Please call or email me if you have any questions.

1. 50th Street Ventilation Facility
As described in the Revised Supplemental EA for ESA, there would be 2 loading bays for deliveries and 1 loading by for trash dumpster/compacter. Page 3 of the Tech Memo No. 4 indicates that the loading docks at 50th Street will still be used for deliveries, but that with the new trash/recycling facility in GCT, the loading bay at 50th Street would be used as a "fall back facility for trash and recyclables". Please clarify this statement. How would the new GCT trash/recycling facility be independent of ESA if this is the case? Although the design of 50th Street is not proposed to change, one of the purposes of the facility will change. Two things need to be clarified: 1. as a result of the TM4 proposed refinements, the purpose and use of the one loading bay that is part of the 50th Street facility and (2) relationship of the new trash/recycling facility to the ESA project.

2. Bottom of page 2-14, page 2-15, and Figure 2-8 provide information regarding the preferred alternative for the new LIRR concourse.

> -Please confirm that this information is the most detailed/specific information on the space allocation and program of the new concourse provided in the FEIS?
> -How will any of the narrative information (page 2-14, 2-15) change as a result of Tech Memo No. 4 refinements?
> -Although Figure 2-8 is conceptual, it does have a scale. How will the space allocation or the program of the space, as presented in the figure, change as a result of Tech Memo No. 4?

3. The Tech Memo "Space Allocation in LIRR Concourse" table provides 2005 and 2009 design information. Do we have this specific information for the FEIS design? If not, what type of similar information do we have at the time of the FEIS?

4. Please complete and confirm the following: The FEIS contemplated XX number of ESA trains per day, XX AM to XX PM (if the FEIS did not provide timeframe for ESA service, please indicate so). As a result of Tech Memo No 4, there will be no change to the number of ESA trains or service hours since the FEIS.

5. for the 44th Street entrance, was the relocation of retail and property acquisition anticipated in the FEIS? There was most likely a general statement regarding property acquisitions for station entrances – please provide page number.

6. for the 45th Street entrance (347 Madison Avenue), what was the level of engineering at the time of the FEIS? Why was engineering not advanced enough to determine impacts? (for any environmental document, we require the grantee to conduct up to 30% design or enough design to determine impacts; therefore, we need more specific information why this entrance will be deferred. The reason that the site may be redeveloped is not enough since we do not have any commitment or dates for site redevelopment)

NINA CHUNG, COMMUNITY PLANNER
FEDERAL TRANSIT ADMINISTRATION, REGION 02/NY METRO OFFICE
ONE BOWLING GREEN, RM 429
NEW YORK, NY 10004
212.668-2180

ATTACHMENT TO OCTOBER 22, 2009 EMAIL FROM AUDREY HEFFERNAN TO NINA CHUNG RE: TECH MEMO NO. 4 – FURTHER QUESTIONS

1. 50th Street Ventilation Facility

As described in the Revised Supplemental EA for ESA, there would be 2 loading bays for deliveries and 1 loading bay for trash dumpster/compacter. Page 3 of the Tech Memo No. 4 indicates that the loading docks at 50th Street will still be used for deliveries, but that with the new trash/recycling facility in GCT, the loading bay at 50th Street would be used as a "fall back facility for trash and recyclables". Please clarify this statement. How would the new GCT trash/recycling facility be independent of ESA if this is the case? Although the design of 50th Street is not proposed to change, one of the purposes of the facility will change. Two things need to be clarified: 1. as a result of the TM4 proposed refinements, the purpose and use of the one loading bay that is part of the 50th Street facility and (2) relationship of the new trash/recycling facility to the ESA project.

Please refer to Figure 2-11 in the EA for a plan view of the Preferred Alternative. The Through-Drive loading dock in this alternative does not have loading bays, but permits two trucks at the same time to off-load sideways onto the platform. The trash compactor is located at one end of the same platform.

The 50th Street Facility would be used as a "fall back" facility in the event of an emergency outage in the GCT approach tunnels that prohibited trash train operations. Use of the 50th Street Facility in an emergency situation does not negate the independent utility of the proposed GCT Recycling Facility, which will enable the recycling of Metals, Glass and Plastic (MGP) waste and handle Metro-North's waste as well. The 50th Street Facility was not designed to handle MNR waste or the separation of MGP waste and cannot serve as a recycling facility for GCT. Similarly, space constraints at the Depew Place loading dock and elsewhere within GCT prohibit maximizing recycling efforts at GCT.

The loading dock at the 50th Street Facility was designed to handle periods of peak activity (based on observed operations at Depew Place, see for example page 7-7 in the EA). Periods of peak activity occur in the morning hours as trucks compete for space at the dock to make deliveries.

The proposed changes do not alter the original purpose and need for the 50th Street Facility as presented in the EA, or affect its design in any way. The removal of a garbage compactor on one end of the loading platform and the elimination of the need for a nightly garbage truck pick-up constitute the only effects of the changes which are insignificant from a NEPA perspective.

2. Bottom of page 2-14, page 2-15, and Figure 2-8 provide information regarding the preferred alternative for the new LIRR concourse.

-Please confirm that this information is the most detailed/specific information on the space allocation and program of the new concourse provided in the FEIS?

-How will any of the narrative information (page 2-14, 2-15) change as a result of Tech Memo No. 4 refinements?
-Although Figure 2-8 is conceptual, it does have a scale. How will the space allocation or the program of the space, as presented in the figure, change as a result of Tech Memo No. 4?

The description provided in the Technical Memo from pages 2-14 and 2-15, along with Figure 2-8, which provides a conceptual drawing of the LIRR Concourse, are the most detailed and relevant information contained in the FEIS that relate to the proposed changes. The narrative information contained on these pages and in the rest of the FEIS would not change as a result of the Tech Memo 4 refinements.

The FEIS did not contain a space allocation program for the new LIRR concourse. The primary focus at the time of the FEIS for Option 2 (the deep option) was determining the size and configuration of the terminal (eight tracks in a stacked configuration vs 10 tracks in a flat configuration). To understand the differences between the FEIS's Figure 2-8 and the current Concourse design, please see attached drawing.

3. The Tech Memo "Space Allocation in LIRR Concourse" table provides 2005 and 2009 design information. Do we have this specific information for the FEIS design? If not, what type of similar information do we have at the time of the FEIS?

As indicated above, no specific information on space allocation was developed for the FEIS. The Preliminary Engineering Report, dated May 2002, approximately one year after the FEIS, contained a space allocation program somewhat similar to the 2005 design. The most significant change in the space program from 2002 to today is the amount of space allocated to the MTA Police, which grew from 4,000 square feet to over 11,000 square feet as a result of a re-evaluations after the events of 9-11.

4. Please complete and confirm the following: The FEIS contemplated XX number of ESA trains per day, XX AM to XX PM (if the FEIS did not provide timeframe for ESA service, please indicate so). As a result of Tech Memo No 4, there will be no change to the number of ESA trains or service hours since the FEIS.

There was no daily service plan developed for the new service at the time of the FEIS. The operational aspects of ESA are described on pages 2-25 and 2-26 of the FEIS. The FEIS contemplated 24 trains in the AM Peak Hour. Impacts in the FEIS were mostly described for the AM Peak Hour (worst-case), or the peak 15-minutes within the AM Peak Hour, and factors based on the AM Peak Hour were used to generate daily ridership numbers. As a result of Tech Memo No. 4, there will be no change to the number of ESA trains assumed in the peak hour. 24-trains per hour (at 2.5 minute headways) is the maximum design capacity for the four platform, eight-track ESA terminal.

5. for the 44th Street entrance, was the relocation of retail and property acquisition anticipated in the FEIS? There was most likely a general statement regarding property acquisitions for station entrances - please provide page number.

Required property acquisitions and displaced business in Manhattan are listed in Table 5-12 and the 335 Madison Entrance (44th Street) requirements are described on page 5-29..."Option 2 would require the use of space in the 26-story office building at 335 Madison Avenue between 43rd and 44ths Streets for a pedestrian entrance. The space affected is at the corner of Madison Avenue and 44th Street and is currently occupied by Daffy's a regional chain clothing retailer. Daffy's is located on both the ground and basement floors, occupies a total of 10,000 square feet, and is estimated to employ approximately 34 people at this location. Option 2 would also require use of a small portion of an underground garage at 335 Madison Avenue.

6. for the 45th Street entrance (347 Madison Avenue), what was the level of engineering at the time of the FEIS? Why was engineering not advanced enough to determine impacts? (for any environmental document, we require the grantee to conduct up to 30% design or enough design to determine impacts; therefore, we need more specific information why this entrance will be deferred. The reason that the site may be redeveloped is not enough since we do not have any commitment or dates for site redevelopment).

The designs of the entrances were advanced far enough to determine whether any significant adverse impacts would occur as a result of their construction and operation, as required by NEPA. The FEIS discloses approximate entrance space requirements, the need to displace tenants (if any), and describes the temporary effects of construction activities. The difficulties related to construction within 347 Madison would not have been disclosed in the FEIS even if the information had been available at that time. The post-EIS revelations related to constructing the entrance at 347 Madison are beyond the scope of unrelated to) NEPA disclosure requirements.

The desire to defer construction of this entrance is partly due to the difficulties constructing the entrance in an old narrow building, which sits on a larger underdeveloped lot (ripe for redevelopment) owned by MTA. An expenditure of the public funds needed to build this entrance seems wasteful, not only because the construction difficulties add to the reasonable cost of the entrance, but because the life cycle expectancy will be greatly shortened. Given that the pedestrian flow analyses do not demonstrate the need for this entrance in the foreseeable future, and the design of ESA does not preclude its future construction, deferring the construction of this entrance seems prudent.

ENVIRONMENTAL RE-EVALUATION CONSULTATION

Note: The purpose of this worksheet is to assist sponsoring agencies in gathering and organizing materials for re-evaluations required under the National Environmental Policy Act (NEPA). Submission of the worksheet by itself does not meet NEPA requirements. FTA must concur in writing with its determination and/or the sponsoring agency's NEPA recommendation. Contact the FTA Region 2 office at (212) 668-2170 if you have any questions regarding this worksheet. We strongly encourage you to contact us to discuss your project changes before you fill out this worksheet.

For Agency Use *Date Received:* _____	
Recommendation by Planner or Engineer: ☐ *Accept* ☐ *Return for Revisions* ☐ *Not Eligible*	*Reviewed By:* __ _____ *Date:* _____
Comments:	
Concurrence by Director of Planning & Program Development ☐ *Accept Recommendation* ☐ *Return with Comments*	*Reviewed By:* __ _____ *Date:* _____
Comments:	
Concurrence by Regional Counsel: ☐ *Accept Recommendation* ☐ *Return with Comments*	*Reviewed By:* __ _____ *Date:* _____
Comments:	
Concurrence by Approving Official: _____	*Date:* _____

Please answer the following questions, fill out the impact chart and attach project area and site maps. Using a site map from the previously approved NEPA document, show project changes using a different color. Include additional site maps to help reviewer understand project changes.

PROJECT TITLE
MTA Long Island Rail Road East Side Access Technical Memorandum No. 5 – 48th Street Entrance Design

LIST CURRENT, APPROVED ENVIRONMENTAL DOCUMENTS (e.g. EIS/ROD, EA/FONSI, BA, RE-EVALUATION, etc.) If Re-evaluation, briefly describe.

Title: FEIS	**Date:** Mar. 2001 **Type and Date of Last Federal Action** – ROD 5/01
Title: TM#1	**Date:** Feb. 2001 **Type and Date of Last Federal Action** – FTA concurred with an assessment that showed no new adverse impacts would result from extending tail tracks south of Grand Central Terminal, a redesign of the 50th Street vent plant and a new truck dock, loop track modifications at Sunnyside Yard, or a new entrance at the Roosevelt Hotel.
Title: TM#2	**Date:** Apr. 2006 **Type and Date of Last Federal Action** – FTA concurred with assessment that showed no new adverse impacts would result from Design Changes in Queens Revision 14-4M in Sunnyside Yard involving the Harold Interlocking and to meet new 2003 National Fire Protection Association (NFPA) standards for ventilation systems design.
Title: Supplemental EA	**Date:** Jul. 2007 **Type and Date of Last Federal Action** – FONSI 7/06 – Redesign of the 50th Street Facility.
Title: TM#3	**Date:** Jul. 2007 **Type and Date of Last Federal Action** – FTA concurred with assessment that showed no new adverse impacts would result from the 37th Street sidewalk grates and vent plenum.
Title: TM#4	**Date:** Mar. 2010 **Type and Date of Last Federal Action** – FTA concurred with an assessment that showed no new adverse impacts would result from GCT design changes and entrance configuration.

HAS THE MOST CURRENT AND OTHER PERTINENT APPROVED ENVIRONMENTAL DOCUMENTS BEEN *RE-READ* TO COMPARE PROPOSED PROJECT CHANGES?

☐ **NO (STOP! The most current approved environmental document MUST be re-read prior to completing a re-evaluation.)**

X YES NAME: Audrey Heffernan DATE: 4/13/11

IS THE PROJECT CURRENTLY UNDER X DESIGN OR ☐ CONSTRUCTION?

REASON FOR RE-EVALUATION

A design change is proposed to address potential risks and schedule delays associated with the construction of the 48th Street Entrance (analyzed in Technical Memorandum No. 4) at 280 Park Avenue (see Figure 1). The current design includes four escalators and one stair, with access to the LIRR terminal escalators within 280 Park Avenue (and extending into 415 Madison Avenue) from the existing plaza on 48th Street. Temporary and permanent easements in both 415 Madison Avenue and 280 Park Avenue would be required.

The current design scheme has a high degree of construction and schedule risk. Construction would require a significant amount of rock excavation beneath 415 Madison Avenue and the underpinning of columns and walls in both buildings, transferring loads onto new columns and beams including significant reframing. This type of construction is considered very high risk due to the size of the two high-rise commercial buildings (415 Madison Avenue and 280 Park Avenue are 28 and 44 stories tall, respectively) that would need to be supported/underpinned. Moreover, prior to the start of construction, the easement areas must be cleared and the utilities removed and relocated – while building services are maintained - work that others (Con Edison and 415 Madison Avenue owner - - Rudin Management) would complete. This requires agreements in place between MTA and three parties (280 Park Avenue owner, Con Edison, and Rudin Management).

The construction schedule (61 months) for this package of work is close to the critical path and some of the work is not under MTA control. As a result of these issues, the project team has explored options to reduce the construction and schedule risk.

DESCRIPTION OF PROJECT CHANGES OR NEW INFORMATION

The proposed design shifts the entrance from a mid-block location in 280 Park Avenue into 415 Madison Avenue, where customers could enter from the 48th Street sidewalk or plaza area outside of 280 Park Avenue (see Figure 2). The distance between the street-level entrance door in 280 Park Avenue and the proposed east-facing door is about 100 feet, and about 130 feet to the proposed south-facing door in 415 Madison Avenue. The pedestrian flow capacity of the entrance remains unchanged. It includes four escalators and one stair from the new LIRR terminal (same as the current design) but significantly reduces construction and schedule risk compared to the current design. While some rock excavation below the building's basement level and column underpinning would be required, construction risk would be significantly reduced compared to the current design.

No utilities in the street or Con-Ed vaults would be affected but some building service relocations would still be needed.

About 50 percent of the street level retail space would be required, displacing the current tenant (HSBC Bank) but preserving the remainder of the Madison Avenue street frontage for future retail use by 415 Madison Avenue or their tenants. The tenant (Haru Restaurant) in 280 Park Avenue, displaced in the current design, would be able to remain.

Both the proposed and current design for the entrance include provision of an ADA elevator in the plaza of 280 Park Avenue, requiring acquisition of a small (less than 100 square foot) property easement. In addition, a small easement may be required within the service entrance of 280 Park Avenue in order to mitigate potential conflicts between LIRR customers and service deliveries to 415 Madison Avenue.

It is anticipated that this design scheme could be constructed within 24 months.

HAVE ANY NEW OR REVISED LAWS OR REGULATIONS BEEN ISSUED SINCE APPROVAL OF THE LAST ENVIRONMENTAL DOCUMENT THAT AFFECTS THIS PROJECT? If yes, please explain.

X NO
☐ YES

IS THE LIST OF THREATENED AND ENDANGERED SPECIES (NMFS AND USFWS) MORE THAN 6 MONTHS OLD?

Not Applicable - The project is on 48th Street and Madison Avenue, a dense urban environment, in New York City.

WILL THE NEW INFORMATION HAVE THE POTENTIAL TO CAUSE A CHANGE IN THE DETERMINATION OF IMPACTS FROM WHAT WAS DESCRIBED IN THE ORIGINAL ENVIRONMENTAL DOCUMENT FOR ANY OF THE AREAS LISTED BELOW? For each impact category, please indicate whether there will be a change in impacts. For all categories with a change, continue to the table at the end of this worksheet and provide detailed descriptions of the impacts as initially disclosed, new impacts and a discussion of the changes. The change in impact may be beneficial or adverse.

Transportation	☐ **Yes**	x **No**
Land Use and Economics	☐ **Yes**	x **No**
Acquisitions, Displacements, & Relocations	☐ **Yes**	x **No**
Neighborhoods & Populations (Social)	☐ **Yes**	x **No**
Visual Resources & Aesthetics	☐ **Yes**	x **No**
Air Quality	☐ **Yes**	x **No**
Noise & Vibration	☐ **Yes**	x **No**
Ecosystems (Vegetation & Wildlife)	☐ **Yes**	x **No**
Water Resources	☐ **Yes**	x **No**
Energy & Natural Resources	☐ **Yes**	x **No**
Geology & Soils	☐ **Yes**	x **No**
Hazardous Materials	☐ **Yes**	x **No**
Public Services	☐ **Yes**	x **No**
Utilities	☐ **Yes**	x **No**
Historic, Cultural & Archaeological Resources	☐ **Yes**	x **No**

Parklands & Recreation	☐ **Yes**	x **No**
Construction	☐ **Yes**	x **No**
Secondary and Cumulative	☐ **Yes**	x **No**

Will the changed conditions or new information result in revised documentation or determination under the following federal regulations?

Endangered Species Act	☐ **Yes**	x **No**
Magnuson-Stevens Act	☐ **Yes**	x **No**
Farmland Preservation Act	☐ **Yes**	x **No**
Section 404-Clean Water Act	☐ **Yes**	x **No**
Floodplain Management Act	☐ **Yes**	x **No**
CERCLA (Hazardous Materials)	☐ **Yes**	x **No**
Section 106 National Historic Preservation Act	☐ **Yes**	x **No**
Uniform Relocation Act	x **Yes**	**No**
Section 4(f) Lands	☐ **Yes**	x **No**
Section 6(f) Lands	☐ **Yes**	x **No**
Wild & Scenic Rivers	☐ **Yes**	x **No**
Coastal Barriers	☐ **Yes**	x **No**
Coastal Zone	☐ **Yes**	x **No**
Sole Source Aquifer	☐ **Yes**	x **No**
National Scenic Byways	☐ **Yes**	x **No**
Other	☐ **Yes**	x **No**

If you checked yes to any of these, describe how the changes impact compliance and any actions needed to ensure compliance of the new project:

Will these changes or new information likely result in substantial public controversy?

☐ **Yes** x **No**

Comments: If an agreement cannot be reached with the property owners of 415 Madison Avenue and 280 Park Avenue, MTA may need to condemn the property. Currently, the building owners and managers are reviewing the plans for the new entrance and an agreement will be drafted once the design is accepted.

COMMENTS: In the FEIS, the only three impact categories that describe the 48th Street Entrance and/or would be materially affected by shifting the entrance to an adjacent building are Transportation/Pedestrian Flow, Economic Conditions/Property Acquisition, and construction impacts. Attachment 1 describes the history of the design of the 48th Street Entrance. Attachment 2 provides the back-up for the conclusions made in the environmental impact categories and assesses the affects of shifting the entrance – specifically with respect to Pedestrian Flow, Property Acquisition, and Construction.

CONCLUSIONS AND RECOMMENDATIONS: Neither design option would change the conclusions found in the FEIS or Tech Memo #4 and further environmental analysis is not necessary.

MTA would like to progress the design of the 48th Street Entrance at 415 Madison Avenue in consultation with Rudin Management to determine whether an easement agreement can be cooperatively developed.

LIST OF ATTACHMENTS:

Figure 1 - 48th Street Entrance (Current Design)
Figure 2 - 48th Street Entrance (Proposed Design)
Figure 3 - 48th Street Entrance Locations
Attachment 1 – History of Design and Assessment of Effects
Attachment 2 – Environmental Re-evaluation back-up

SUBMITTED BY:

By signing this, I certify that to the best of my knowledge this document is complete and accurate.

Name Audrey Heffernan Title Chief Environmental Officer, MTACC	Date April 13, 2011

Submit two paper copies of this form, attachments, and a transmittal letter recommending a NEPA finding to the address below. Submit an electronic version to your area FTA Community Planner. Contact FTA at the number below if you are unsure who this is or if you need the email address. Modifications are typically necessary. When the document is approved, FTA may request additional copies.

Federal Transit Administration, Region II
1 Bowling Green, Room 429
New York, NY 10004

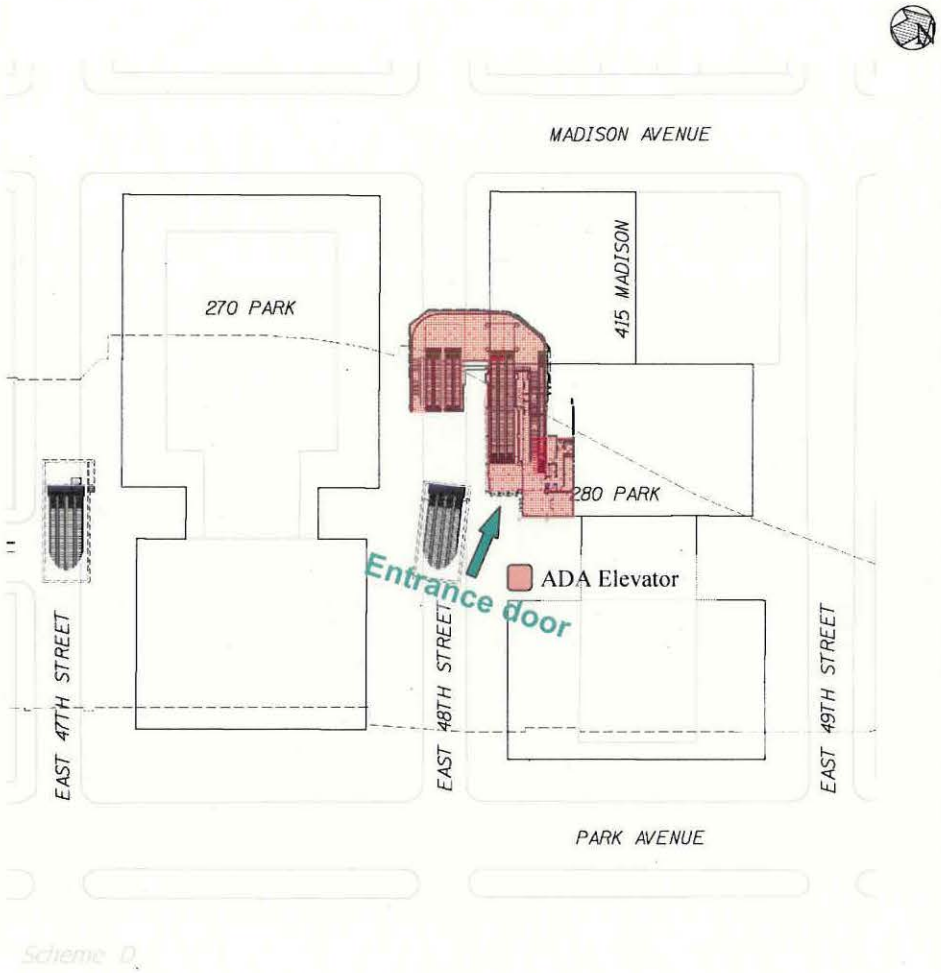
phone: (212) 668-2170
fax: (212) 668-2136

Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Transportation	Increased activity could result in some traffic and pedestrian impacts on streets, sidewalks and crosswalks in the vicinity of 48th Street and Madison Avenue. Standard mitigation measures, such as signal timing changes, more restrictive parking regulations, and exclusive turn lanes would mitigate the traffic impacts. For significant impacts on sidewalks and crosswalks, crosswalk widening and limiting sidewalk vendors would mitigate the impacts (see pages9C-63 and 9C-64).	None	None – see Attachment 2 Environmental Re-evaluation Back-up
Land Use and Economics	280 Park Avenue plaza affected. No significant adverse impact identified.	None	No change
Acquisitions, Displacements, & Relocations	Identified permanent displacement of restaurant at 280 Park Avenue.	Restaurant would remain in 280 Park Avenue. Tenant in 415 Madison Avenue would be displaced.	Not significant. MTA would follow the Federal Uniform Relocation Act of 1970 for acquisition of private property and tenant relocation.
Neighborhoods & Populations (Social)	280 Park Avenue plaza affected, not significant	None	No change
Visual Resources & Aesthetics	None	None	No change
Air Quality	None	None	No change

Noise & Vibration	None	None	No change
Ecosystems (Vegetation & Wildlife)	None	None	No change
Water Resources	None	None	No change
Energy & Natural Resources	None	None	No change
Geology & Soils	None	None	No change
Hazardous Materials	None	None	No change
Public Services	None	None	No change
Utilities	None	None	No change
Historic, Cultural &	None – neither 415 Madison or 280	None	No change

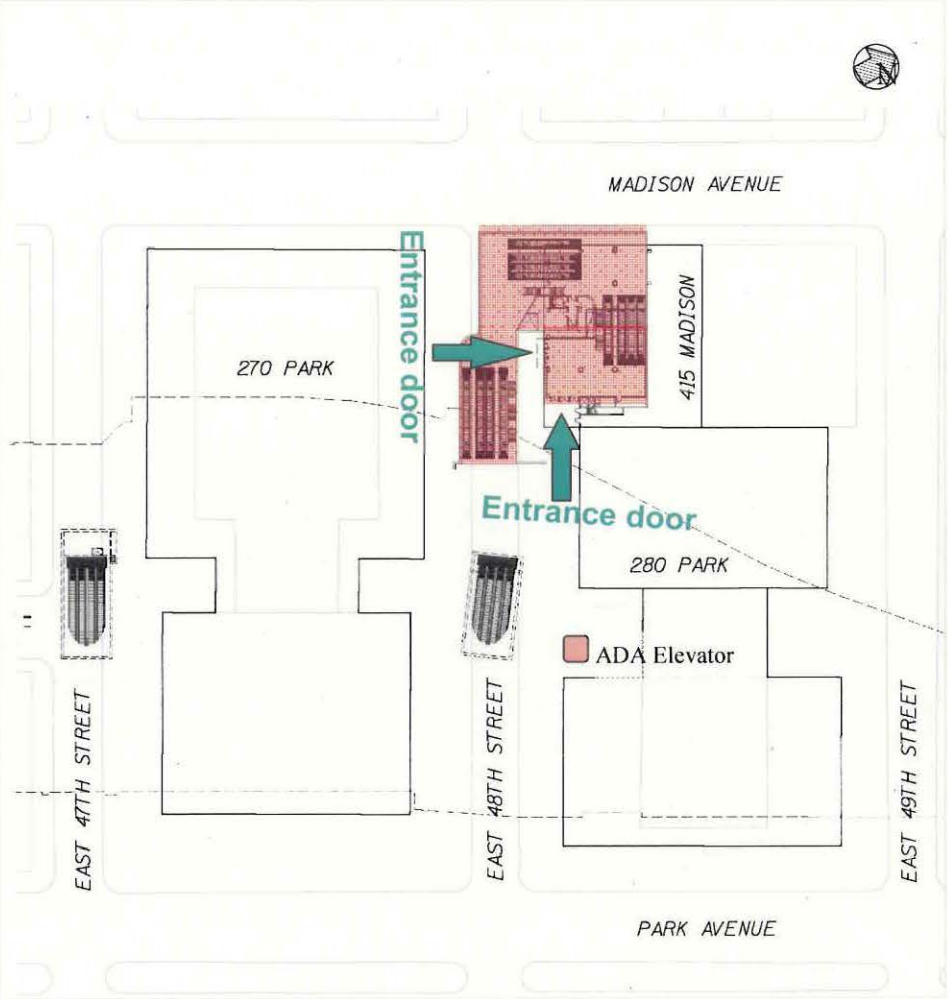
Archaeological Resources	Park are eligible for listing on the S/NR or have other historic designations		
Parklands & Recreation	None	None	No change
Construction	Disruptions and inconveniences identified near construction sites. No significant construction impacts identified. 1 curb lane on 48th Street closed for 1 year.	Construction of the entrance in an adjacent building would be similar to what was described in the FEIS. No significant adverse impact would occur as a result of construction of this entrance at 415 Madison.	Longer construction period, more extensive lane closures. See Attachment 2 – Environmental Re-evaluation Back-up.
Secondary and Cumulative	None	None	No change
Other	None	None	No change

Figure 1 – 48th Street Entrance – 280 Park Ave (Current Design)



PARTIES INVOLVED IN CONSTRUCTION/APPROVALS	**RUDINS** **INVESTCORP & BROADWAY PARTNERS** **CON EDISON (POWER DEPT. & STEAM DEPT.)** **VERIZON**
CONSTRUCTION SCHEDULE	**61 MONTHS, WORK BY RUDINS, CON ED, VERIZON AND ESA**
CONSTRUCTION RISK *VERY HIGH*	1,460 yd3 Rock excavated from within 415 Madison @ depth of 15ft 1,100 yd3 Rock excavated in the street @ depth of 12ft 10 Columns Underpinned, 2 Column Extensions, 3 New Columns, 2 Transfer Girders Introduced, 2 Transfer Girders Removed, 1 Girder Removed, 1 Girder Reinforced, South Basement Wall Underpinned, 6-story Party Wall Underpinned, New Plaza Framing, New Cellar Framing **SCHEDULE RISK:** Construction Schedule Close To Critical Path, No Control Over Building Services Relocation Schedule Work By Rudin, Heavily Dependent On Con Ed For Completion Of Building Owner Work, Risk Of Owner Ordered Work Stoppages During Underpinning, Complex And Time Consuming Contract Negotiations With Owner
IMPACT TO CON-ED	3 TRANSFORMER VAULTS IMPACTED
BUILDING SERVICES IMPACT	HIGH
BUILDING REAL ESTATE IMPACT	MEDIUM
STORE FRONT IMPACT	**14% STREET FRONTAGE LOST**
PRO'S	• Retail Impact - No Permanent Impact To HSBC Street Level Banking Space • LIRR Passenger Exit Onto An Existing Plaza At 280 Park • MTA-ESA CM014 Design Is Advanced
CON'S	• Loss of ground floor retail space in 280 Park Avenue – Haru Restaurant
EASEMENTS	7,780 SF Permanent 8,345 SF Temporary 517 SF Non-Exclusive

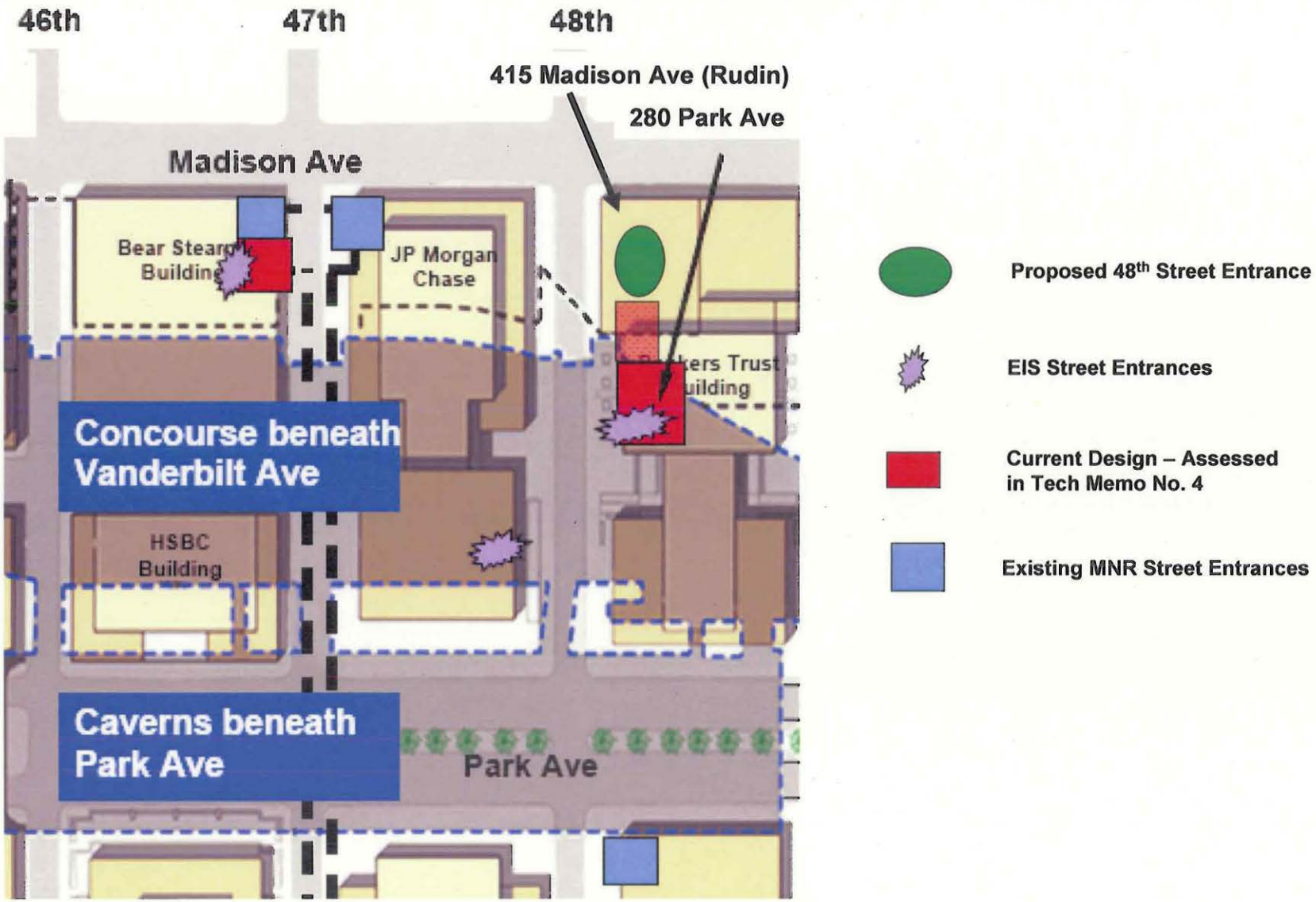
Figure 2 – 48th Street Entrance – 415 Madison Avenue (Proposed Design)



Scheme E

PARTIES INVOLVED IN CONSTRUCTION/APPROVALS	**RUDINS**
CONSTRUCTION SCHEDULE	**24 MONTHS, WORK BY ESA**
CONSTRUCTION RISK *MEDIUM*	390 yd3 Rock excavated from within 415 Madison @ depth of 6ft 2,075 yd3 Rock excavated in the street @ depth of 12ft 6 Columns Underpinned, 1 Transfer Girder Introduced, 6-Story Party Wall Underpinned Moderate Building Services Relocations **SCHEDULE RISK:** Reduced Risk presuming MTA Performs Design And Construction Of Building Services And Building Structure Modifications, Risk Of Owner Ordered Work Stoppages During Underpinning
IMPACT TO CON-ED	NO TRANSFORMER VAULTS IMPACTED
BUILDING SERVICES IMPACT	**MEDIUM**
BUILDING REAL ESTATE IMPACT	**MEDIUM**
STORE FRONT IMPACT	**25% STREET FRONTAGE COST**
PRO'S	• No Impact To Con Ed Vaults •Limited Impact To Building Services •Preserves 280 Park tenant (Haru Restaurant)
CON'S	• Underpinning Of 6 Columns And Rock Excavation Required Under Building •Retail Impact – HSBC street-level banking space. Preserves 50% Of Street Level Retail Space With Frontage On Madison Avenue And 48th Street
EASEMENTS	8,085 SF Permanent 6,435 SF Temporary 380 SF Non-Exclusive

Figure 3 – 48th Street Entrance Locations



Attachment 1 – History of Design and Assessment of Effects of Design Options Compared to FEIS and Tech Memo #4 in Affected Impact Categories

The proposed change would shift the entrance to the west, to 415 Madison Avenue, which is adjacent to 280 Park Avenue (see Figure 3). Note that during the FEIS, it was anticipated that shifts within the same building or block were likely and would not significantly affect the FEIS analyses or conclusions. This assessment confirms that statement.

FEIS and Tech Memo #4 Design Descriptions

New entrance locations were chosen from an initial list of 27 sites (developed during the Major Investment phase of the project) based on a set of objective siting criteria. While a review of structural and architectural drawings for affected buildings was part of the screening process, for some buildings these drawings were not up-to-date or even available. The FEIS (pg. 2-14) states that ***"as information becomes available through structural and architectural surveys performed during preliminary design, the locations chosen will continue to be reviewed and assessed....Any change in the location of an entrance to GCT is likely to a minor one, with potential shifts within the same building or block, or to a nearby street, which would not significantly affect the environmental analyses presented in this document."***

The sites listed for the Preferred Alternative in the FEIS include:

- 44th Street (the Bank of America building at 335 Madison Avenue)
- 45th Street (the MTA Building at 347 Madison Avenue)
- 47th Street (the American Brands Building at 245 Park Avenue on the south side of the street between Park and Lexington avenues)
- 48th Street (outside of the Chase building at 270 Park Avenue on the southwest corner)
- 48th or 49th Street (the Bankers Trust building at 280 Park Avenue between Madison and Park avenues)

Tech Memo #4 assessed pedestrian circulation within the LIRR concourse and on the streets and sidewalks in the study area assuming that the 44th and 45th Street entrances would not be built. In addition, Tech Memo #4 reviewed the two 48th Street entrances listed above, as follows: "*Two modest-sized (similar to the recently constructed MNR North End Access entrances) 48th Street entrances were identified in the FEIS – one at 280 Park Avenue and the other, across the street on the same block, at 270 Park Avenue. This entrance at 270 Park Avenue was planned with one stairway and one escalator daylighting in the large open plaza area at 270 Park Avenue (west side of Park Avenue). The entrance was mandated under Option 1 (shallow tunnel option in the FEIS) to correct a dead-end condition in a proposed 48th Street cross passage. Since there is no 48th Street cross passage under the Preferred Alternative, the need for this entrance is not critical. The current design includes a large entrance at 280 Park Avenue (four escalators and a staircase on 48th Street), eliminating the redundancy of the two FEIS entrances while providing ample capacity for those destined to 48th Street and north.*"

The current ESA design includes the following entrances:

- 47th Street (the American Brands Building at 245 Park Avenue on the south side of the street between Park and Lexington avenues)

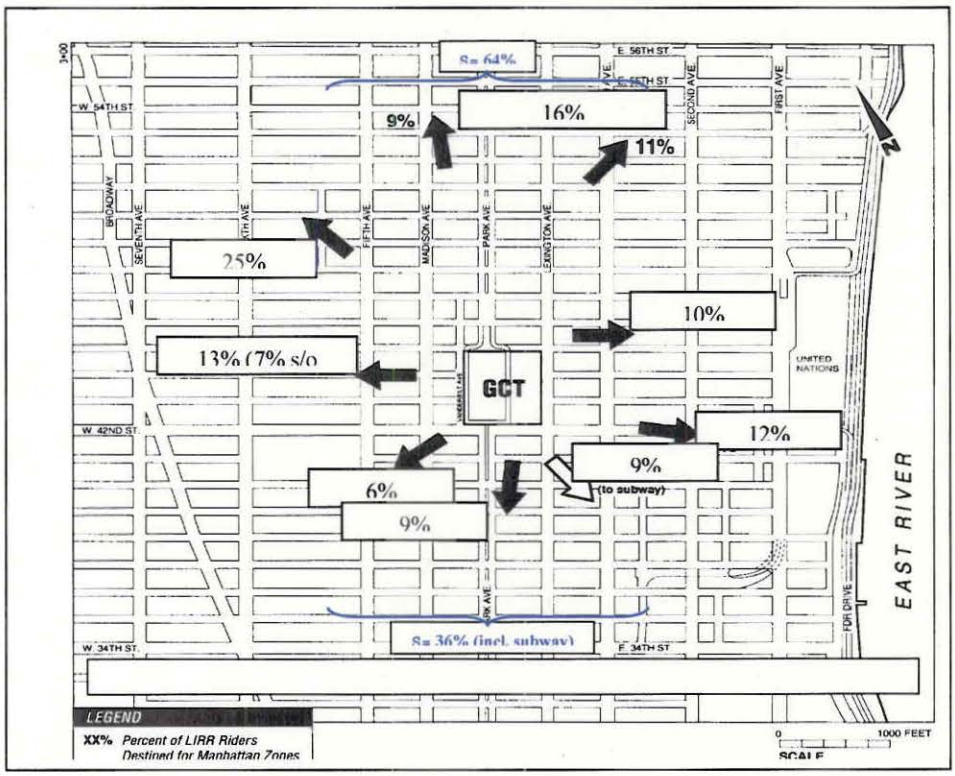
- 48th Street (point of entry located in the Bankers Trust building at 280 Park Avenue and extending into the adjacent building at 415 Madison Avenue, both at the northeast corner of Madison and Park Avenues)

Tech Memo #4 concluded that based on 2020 demand and beyond (analyses assumed that the LIRR system would operate at full capacity, i.e., 24 twelve-car trains per hour, 95 percent full); no significant pedestrian circulation or other environmental impacts would occur as a result of this entrance scheme.

Attachment 2 – Environmental Re-evalutation Backup

Transportation – Pedestrian Conditions

The distribution of LIRR customers at Grand Central Terminal shown in Figure 9C-7 in the FEIS was recently updated to reflect LIRR's most recent origin-destination survey (see below). The projected distribution of passengers throughout the GCT area remained relatively the same – with the majority of those traveling to the street destined for locations to the north, with the largest share (25%) projected to use the new 48th Street entrance. Grand Central Terminal itself has eight points of entry/exit to the south, east and west with only the relatively new "North End Access" entrances at 47th Street and Madison Avenue (Bear Stearns/Chase) and 48th Street and Park Avenue (Westvaco) serving customers whose destination is to the north. As a result, the 48th Street entrance is a critical entrance to meet the demand introduced by East Side Access.



In both the FEIS and Tech Memo #4, the escalators and stair at the 48th Street entrance were reported to function with volume-to-capacity ratios indicative of conditions under capacity and no queuing. As indicated in Tech Memo #4 (without the 44th and 45th Street entrances) based on current model results, the 15-minute pedestrian demand at 48th Street is 1,800 LIRR customers in year 2020. Each of the two design options for the 48th Street entrance would be constructed with the same amount of capacity and yield a volume-to-capacity ratio of 0.53. As a result, the design modifications would not change the conclusions presented in the FEIS or Tech Memo # 4 and would not create any adverse impacts to pedestrian flow.

On the sidewalks, crosswalks and mid-block, the FEIS identified significant impacts due to the increase in pedestrian activity in the GCT area. Mitigation measures included the widening of crosswalks in some locations and aimed at clearing the sidewalks of a variety of street impediments (private vendors and/or street furniture such as newspaper kiosks and flower boxes) to create more sidewalk capacity. These measures would be implemented if the NYC Department of Transportation deems them warranted upon project completion (pg. 9C-64).

Pedestrian counts were taken in October 2010 to establish an up-to-date baseline from which to assess the affects of this design change on sidewalks, crosswalks and mid-block near 48th Street and Madison Avenue. The results indicate that this design change would not result in any level of service changes at corners, crosswalks and mid-block in the vicinity of 48th Street and Madison Avenue compared to those reported in the FEIS (Tables 9C-34, 9C-35, 9C-36). The same mitigation measures identified in the FEIS would mitigate the significant adverse impacts that would result from either design option for the 48th Street entrance.

Economic Conditions – Property Acquisition and Displacements

The proposed design for the 48th Street Entrance requires acquisition of private property and tenant displacement. The extent and type of easements and displacements that are required are similar to those identified in the FEIS for other entrance locations. The rights of owners and tenants of real property needed for this project are protected under the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and the Uniform Relocation Act Amendments. As indicated in the FEIS, property acquisition and relocation of businesses would take place in accordance with the requirements of the New York State Eminent Domain Procedure Law and the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Construction Impacts

In the FEIS (page 17-42) it was anticipated that:

"One curb lane of 48th Street between Park and Madison Avenue would be used for construction activities for about 1 year. This block currently has midblock pedestrian cut-through walkways and several building delivery docks on either side and one emergency fire access entryway into GCT along the south side. Access would be maintained to these facilities. The north and south curbs do allow for curb deliveries with "No Standing Except Trucks Loading and Unloading, 7 AM to 7 PM, Except Sunday" regulations, although closer to Madison Avenue no standing rules are posted along the north curb. These rules would be changed to "No Standing Anytime" to ensure that at least one travel lane is maintained. About 18 curb spaces would be lost on the north side of the street and 14 spaces would be lost on the south side, depending on which side of the street would have its curb lane eliminated."

The current design requires more extensive street level construction than anticipated in the FEIS, with potential traffic and pedestrian impacts extending over a two-year period. The basement of 415 Madison Avenue extends west beneath the sidewalk to the curb line of Madison Avenue. As a result, a portion of the Madison Avenue sidewalk and street will be affected in addition to 48th Street.

Two of three 48th Street traffic lanes will be closed for a period of 1 ½ years, with one travel lane maintained at all times, except for a two-month period when weekend or night closures may be required.

Partial sidewalk closures would be required on both the north and south sidewalks of 48th Street for a period of about two years and on the east sidewalk of Madison Avenue, for about one year. Pedestrian walkways of adequate width would be provided to accommodate the pedestrian flow on these sidewalks. In addition to the partial sidewalk closure, intermittent closure of the 48th Street north sidewalk may be required for periods of one to two weeks at a time.

Access to the entrance of Haru Restaurant, and the main and service entrances for 415 Madison Avenue, 270 Park Avenue and 280 Park Avenue would be maintained at all times. Haru Restaurant, which was to be displaced under the previous design options, would not be able to operate their seasonal outdoor café for the two-year period. Additionally, in order to construct the ADA elevator, the 280 Park Avenue plaza would be closed to the public for period of one year.

While these construction-period impacts are more extensive than anticipated in the FEIS for the 48th Street Entrance, they are similar to those disclosed for other Project elements (e.g., ventilation facilities).

Construction noise, vibration, dust and temporary weekend utility service shutdowns during utility relocations would also be anticipated, similar to what was described in the FEIS.

U.S. Department
Of Transportation
Federal Transit
Administration

Region II
New York
New Jersey

One Bowling Green
Room 429
New York, NY 10004-1415
212-668-2170
212-668-2136 (Fax)

November 23, 2011

Mr. Marc Albrecht
Assistant Director, Grant Management
Metropolitan Transportation Authority
341 Madison Avenue
New York, NY 10017-3739

Subject: MTA Long Island Rail Road East Side Access Technical Memorandum No. 6 – 48th Street Entrance Design

Dear Mr. Albrecht:

FTA finds that the Proposed Design for the 48th Street entrance would not cause a change in the determination of impacts from the Current Design as described in the FEIS or Technical Memorandum No. 4, and that further environmental analysis is not necessary. The finding is based on MTA LIRR's Technical Memorandum No. 6 – 48th Street Entrance Design, dated October 6, 2011.

The approval date of Technical Memorandum No. 6 is November 23, 2011. This letter completes the re-evaluation required under the National Environmental Policy Act (NEPA). If you have any questions regarding this, please contact Ms. Leah Flax of my staff at 212.668.2170.

Sincerely,

Nancy Danzig

Nancy Danzig
Director, Planning and Program Development

cc: File

ENVIRONMENTAL RE-EVALUATION CONSULTATION

Note: The purpose of this worksheet is to assist sponsoring agencies in gathering and organizing materials for re-evaluations required under the National Environmental Policy Act (NEPA). Submission of the worksheet by itself does not meet NEPA requirements. FTA must concur in writing with its determination and/or the sponsoring agency's NEPA recommendation. Contact the FTA Region 2 office at (212) 668-2170 if you have any questions regarding this worksheet. We strongly encourage you to contact us to discuss your project changes expiration of NEPA determination before you fill out this worksheet.

For Agency Use *Date Received:* 10/06/11	
Recommendation by Planner or Engineer: ☒ *Accept* ☐ *Return for Revisions* ☐ *Not Eligible* Leah Flax	*Reviewed By:* LDF *Date:* 11/21/11
Comments:	
Concurrence by Director of Planning & Program Development ☒ *Accept Recommendation* ☐ *Return with Comments* Nancy Danzig	*Reviewed By:* NO *Date:* 11/22/11
Comments:	
Concurrence by Regional Counsel: ☒ *Accept Recommendation* ☐ *Return with Comments* Michael L. Dowd	*Reviewed By:* MLC *Date:* 11/22/11
Comments:	
Concurrence by Approving Official: Anthony G. Kan	*Date:* 11/23/11

Please answer the following questions, fill out the impact chart and attach project area and site maps. Using a site map from the previously approved NEPA document, show any project changes using a different color. Include additional site maps to help reviewer understand project changes.

PROJECT TITLE
MTA Long Island Rail Road East Side Access Technical Memorandum No. 6 – 48th Street Entrance Design

LIST CURRENT, APPROVED ENVIRONMENTAL DOCUMENTS (e.g. EIS/ROD, EA/FONSI, BA, RE-EVALUATION, etc.) If Re-evaluation, briefly describe.		
Title: FEIS	**Date:** Mar. 2001	**Type and Date of Last Federal Action** – ROD 5/01
Title: TM#1	**Date:** Feb. 2001	**Type and Date of Last Federal Action** – FTA concurred with an assessment that showed no new adverse impacts would result from extending tail tracks south of Grand Central Terminal (GCT), a redesign of the 50th Street vent plant and a new truck dock, loop track modifications at Sunnyside Yard, or a new entrance at the Roosevelt Hotel.
Title: TM#2	**Date:** Apr. 2006	**Type and Date of Last Federal Action** – FTA concurred with assessment that showed no new adverse impacts would result from design revisions in Sunnyside Yard, Queens involving the Harold Interlocking and to meet new 2003 National Fire Protection Association (NFPA) standards for ventilation systems design.
Title: Supplemental EA	**Date:** Jul. 2007	**Type and Date of Last Federal Action** – FONSI 7/06 – Redesign of the 50th Street Facility.
Title: TM#3	**Date:** Jul. 2007	**Type and Date of Last Federal Action** – FTA concurred with assessment that showed no new adverse impacts would result from the 37th Street sidewalk grates and vent plenum.
Title: TM#4	**Date:** Mar. 2010	**Type and Date of Last Federal Action** – FTA concurred with an assessment that showed no new adverse impacts would result from GCT design changes and entrance configuration.
Title: TM#5	**Date:** Jul. 2010	**Type and Date of Last Federal Action** – FTA concurred with an assessment that showed no new adverse impacts would result from construction of a redundant elevator for the East Side Access concourse.

HAS THE MOST CURRENT AND OTHER PERTINENT APPROVED ENVIRONMENTAL DOCUMENTS BEEN *RE-READ* TO COMPARE PROPOSED PROJECT CHANGES?

☐ **NO (STOP! The most current approved environmental document MUST be re-read prior to completing a re-evaluation.)**

☒ **YES NAME: Audrey Heffernan DATE: 9/14/11**

IS THE PROJECT CURRENTLY UNDER ☒ **DESIGN OR** ☒ **CONSTRUCTION?**

REASON FOR RE-EVALUATION

The FEIS identified two new entrances on 48th Street between Park and Madison Avenue: 270 Park Avenue and 280 Park Avenue. Technical Memorandum No. 4 explained changes in entrance configurations including the elimination of the 270 Park Avenue entrance concluding that it would be redundant with the 280 Park Avenue entrance. Technical Memorandum No. 4 evaluated the elimination of the 270 Park Avenue entrance for its impact on pedestrian flow in Grand Central Terminal and within the study area, as well as elimination of the 44th and 45th street entrances, but did not consider construction risk as design of the entrance had not yet been advanced.

Over the past year, as the conceptual design of the 48th Street entrance at 280 Park Avenue progressed along with the East Side Access Project, significant construction impacts and risks emerged. The design analyzed in the FEIS and Technical Memorandum No. 4, herein referred to as the "Current Design," would require temporary and permanent easements in 415 Madison Avenue and 280 Park Avenue. Construction of the Current Design would include a significant amount of rock excavation beneath 415 Madison Avenue, the underpinning of columns and walls in both buildings, and transferring loads onto new columns and beams, with significant reframing. Supporting/underpinning high-rise commercial buildings of this size during construction (415 Madison Avenue and 280 Park Avenue are 28 and 44 stories tall, respectively) is considered very high-risk. Moreover, prior to the start of construction, easement areas must be cleared and utilities removed and relocated while maintaining building services. This work would be conducted by Con Edison and 415 Madison Avenue's Rudin Management (owner), and would require agreements between MTA and three parties (280 Park Avenue's owner, Con Edison, and Rudin Management).

The construction schedule (61 months) for this package of work is close to the critical path and is at risk for delay because some of the work would not be under MTA control. As a result of these issues, the project team explored ways to reduce the construction and schedule risk associated with the Current Design. Based on analysis of the site and potential design options, moving the 280 Park Avenue entrance west to 415 Madison Avenue (an adjacent building) emerged as a solution. This design change would reduce overall construction impacts and risk while maintaining good level of service conditions and is presented herein as the "Proposed Design" (see Figure 1).

DESCRIPTION OF PROJECT CHANGES, NEW INFORMATION OR REASON FOR DELAY IN CONSTRUCTION

Technical Memorandum No. 6 proposes to move the 280 Park Avenue entrance west to 415 Madison Avenue (an adjacent building) in order to reduce overall construction impact and risk. The shift in entrance location from the Current Design would benefit the construction plan and schedule. The Proposed Design would not cause any significant adverse impacts, nor does it have the potential to cause a change in the determination of impacts from what was described in the FEIS or Technical Memorandum No. 4.

In considering the design change, there are some areas which should be noted for their change in impacts, lessened impacts, or increased impacts. The differences between the Current and Proposed Designs are summarized below:

Change in Impacts

Easements/Property Acquisition: The total amount of temporary and permanent easements required in terms of square footage would be comparable under the Current or Proposed Design (as illustrated in the tables below). The effect on building uses at 280 Park Avenue and 415 Madison Avenue, however, would vary. Neither 280 Park Avenue nor 415 Madison Avenue is listed on or eligible for listing on the State and National Registers of Historic Places, and they are not NYC Landmarks.

Easements in both buildings would be required under the Current Design. In 415 Madison Avenue basement space would be required (HSBC Bank cafeteria and mechanical/electrical equipment serving the entire building). And in 280 Park Avenue, basement space (building mechanical/electrical equipment) and all of the ground floor retail space (Haru Restaurant) would be needed. An easement of about 100 square feet for the ADA elevator would be needed in the outdoor plaza of 280 Park Avenue, which would be constructed under either design.

The Proposed Design would occupy about 50 percent of the street-level retail space in 415 Madison Avenue (HSBC Bank teller and office space) and basement space (HSBC Bank vault and cafeteria). Permanent easements needed in 280 Park Avenue would be reduced from the Current Design to a 550 square foot easement in their emergency exit corridor (to mitigate potential conflicts between LIRR customers and service deliveries to 415 Madison Avenue). The easement in the emergency exit corridor would comply with the New York City Building Code. An easement of about 100 square feet for the ADA elevator would be needed in the outdoor plaza of 280 Park Avenue, which would be constructed under either design.

Under either the Current or Proposed Design, the parties affected would be compensated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Permanent Easements – Approximate Square Footage

	Current Design	Proposed Design
280 Park Avenue	5,850	650
415 Madison Avenue	2,500	7,600
Total	**8,350**	**8,250**

Temporary Easements – Approximate Square Footage

	Current Design	Proposed Design
280 Park Avenue	5,650	200
415 Madison Avenue	4,250	6,300
Total	**9,900**	**6,500**

Tenant Displacements: Tenant displacements would be required under both the Current and Proposed Designs, however, the effects on building uses would vary. In either design, the parties affected would be compensated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Under the Current Design the 4,000 square foot restaurant at 280 Park Avenue would be displaced.

Under the Proposed Design the restaurant at 280 Park Avenue would not be displaced, but HSBC Bank at 415 Madison Avenue would need to be relocated (unless the Bank is agreeable to leasing a smaller space from 415 Madison Avenue for their operations).

Entrance Capacity: The number of escalators and stairs proposed for the 48th Street entrance would be reduced from four escalators and one two-lane stair (4+1) to three escalators and one two-lane stair (3+1). The pedestrian flow data indicates that during normal peak period operations, only two peak direction escalators are actually needed to handle the projected passenger flow of 1800 people in the peak 15 minutes. During normal peak operations, no passengers would be required to use the stairway in either direction. A LOS C/D design criteria has been established for the LIRR concourse and the reduced escalator design would meet that criteria. Each escalator processes 70 passengers per minute under LOS C/D conditions. Therefore, the two escalators operating at LOS C/D conditions for the 15 minute period could handle 2,100 customers, several hundred more than the estimated 1800 customers (based on the new LIRR system operating at tunnel capacity and with fully loaded trains). Another design change includes a potential sidewalk bump-out to address concerns expressed by the management of 415 Madison Avenue related to conflicts between new LIRR customers and service deliveries to their building. The sidewalk bump out would be designed in consultation with the New York City Department of Transportation (NYCDOT).

Lessened Impacts

Utility Relocations: Under the Current Design, three Con Edison transformer vaults would need to be relocated. Under the Proposed Design the three transformer vaults would not be affected. The Proposed Design also limits the potential impact to building services by reducing building service relocation requirements.

Geology & Soils: The Proposed Design significantly reduces the amount of excavation required within 415 Madison Avenue (from 1,460 cubic yards to 390 cubic yards of rock), and eliminates the need for underpinning, transferring column loads, and reframing in both 415 Madison Avenue and 280 Park Avenue. This is because under the Proposed Design, more of the excavation would take place beneath the street and sidewalks (along 48th Street and Madison Avenue).

Total Construction Period: Under the Current Design the construction period would be five years. Under the Proposed Design the construction period would be shortened to 28 months. Under the Proposed Design, construction is anticipated to start in December 2012.

Construction Noise, Vibration and Dust: Under the Current Design the duration of construction noise, vibration and dust impacts would be five years. Under the Proposed Design, the duration of construction noise, vibration and dust impacts would decrease from five to 28 months.

Increased Impacts

Street and Sidewalk Closures: The Proposed Design shortens the total construction period but increases the duration of sidewalk and traffic lane closures during construction from one year to 28 months. This is because under the Proposed Design more of the excavation will take place beneath the street and sidewalks (the Current Design calls for more construction under buildings).

Under the Current Design, an easement for the entire ground-floor retail space at 280 Park Avenue would have been required. Under the Proposed Design, there would be no impact to the ground-floor retail space at 280 Park Avenue; however, sidewalk closures on 48th Street adjacent to the outdoor seating area have the potential to make this area inhospitable to its current use as a dining area.

All traffic lane and sidewalk closures will be made in accordance with the traffic stipulations issued by New York City Department of Transportation (NYCDOT). Maintenance and Protection Traffic (MPT) for the Proposed Design have been drafted by MTACC and will be further developed by the contractor after approval by NYCDOT.

HAVE ANY NEW OR REVISED LAWS OR REGULATIONS BEEN ISSUED SINCE APPROVAL OF THE LAST ENVIRONMENTAL DOCUMENT THAT AFFECTS THIS PROJECT? If yes, please explain.

☒ **NO**
☐ **YES**

IS THE LIST OF THREATENED AND ENDANGERED SPECIES (NMFS AND USFWS) MORE THAN 6 MONTHS OLD?

Not Applicable - The project is on 48th Street and Madison Avenue, a dense urban environment, in New York City.

WILL THE NEW INFORMATION HAVE THE POTENTIAL TO CAUSE A CHANGE IN THE DETERMINATION OF IMPACTS FROM WHAT WAS DESCRIBED IN THE ORIGINAL ENVIRONMENTAL DOCUMENT FOR ANY OF THE AREAS LISTED BELOW? For each impact category, please indicate whether there will be a change in impacts. For all categories with a change, continue to the table at the end of this worksheet and provide detailed descriptions of the impacts as originally disclosed in prior environmental documents, describe all changes possible impacts. For a project with delay(s) in implementation, confirm the accuracy and validity of the underlying studies. The change in impact may be beneficial or adverse.

Transportation	☒ **Yes**	☐ **No**
Land Use and Economics	☐ **Yes**	☒ **No**
Acquisitions, Displacements, & Relocations	☒ **Yes**	☐ **No**
Neighborhoods & Populations (Social)	☒ **Yes**	☐ **No**
Visual Resources & Aesthetics	☐ **Yes**	☒ **No**
Air Quality	☐ **Yes**	☒ **No**
Noise & Vibration	☐ **Yes**	☒ **No**
Ecosystems (Vegetation/& Wildlife, incldg Endng'd Species)	☐ **Yes**	☒ **No**
Water Resources	☐ **Yes**	☒ **No**
Energy & Natural Resources	☐ **Yes**	☒ **No**
Geology & Soils	☐ **Yes**	☒ **No**
Hazardous Materials	☐ **Yes**	☒ **No**
Public Services	☐ **Yes**	☒ **No**
Utilities	☒ **Yes**	☐ **No**
Historic, Cultural & Archaeological Resources	☐ **Yes**	☒ **No**

Parklands & Recreation	☐ Yes	☒ No
Construction	☒ Yes	☐ No
Secondary and Cumulative	☐ Yes	☒ No
Environmental Justice	☐ Yes	☒ No

Will the changed conditions or new information result in revised documentation or determination under the following federal regulations/orders?

Endangered Species Act	☐ Yes	☒ No
Magnuson-Stevens Act	☐ Yes	☒ No
Farmland Preservation Act	☐ Yes	☒ No
Section 404-Clean Water Act	☐ Yes	☒ No
Floodplain Management Act	☐ Yes	☒ No
CERCLA (Hazardous Materials)	☐ Yes	☒ No
Section 106 National Historic Preservation Act	☐ Yes	☒ No
Uniform Relocation Act	☒ Yes	☐ No
Section 4(f)	☐ Yes	☒ No
Section 6(f) Lands	☐ Yes	☒ No
Wild & Scenic Rivers	☐ Yes	☒ No
Coastal Barriers	☐ Yes	☒ No
Coastal Zone	☐ Yes	☒ No
Sole Source Aqnifer	☐ Yes	☒ No
National Scenic Byways	☐ Yes	☒ No
Environmental Justice	☐ Yes	☒ No
Other	☐ Yes	☒ No

If you checked yes to any of these, describe how the changes impact compliance and any actions needed to ensure compliance of the new project:
The Proposed Design would not impact compliance or actions needed to ensure compliance of the project. Property easement agreements and potential relocations would be required with the same two buildings under both designs.

Will these changes or new information likely result in substantial public controversy?

☐ Yes ☒ No

Comments: MTACC has met with the owners/managers of both 280 Park Avenue and 415 Madison Avenue to review the Proposed Design (see Attachment 3). The property acquisition process will be initiated as soon as the NEPA review is complete. MTACC expects to begin developing easement agreements with the property owners in October 2011.

Will these changes or new information require any new or different mitigation measures? If yes, describe the measures in each category.

☐ Yes ☒ No

CONCLUSIONS AND RECOMMENDATIONS: The Proposed Design would not cause a change in the determination of impacts from what was described in the FEIS or Technical Memorandum No. 4 for any of the NEPA areas listed above. Further environmental analysis is not necessary.

LIST OF ATTACHMENTS:

Figure 1 - 48th Street Entrance (Current Design)
Figure 2 - 48th Street Entrance (Proposed Design)
Figure 3 - 48th Street Entrance Locations
Attachment 1 – History of Design and Assessment of Effects
Attachment 2 – Environmental Re-evaluation back-up
Attachment 3 – 48th Street Entrance Meetings

SUBMITTED BY:

By signing this, I certify that to the best of my knowledge this document is complete and accurate.

Name: Audrey Heffernan Title: Chief Environmental Officer, MTACC	Date: 9/14/11

Submit two paper copies of this form, attachments, and a transmittal letter recommending a NEPA finding to the address below. Submit an electronic version to your area FTA Community Planner. Contact FTA at the number below if you are unsure who this is or if you need the email address. Modifications are typically necessary. When the document is approved, FTA may request additional copies.

Federal Transit Administration, Region II
1 Bowling Green, Room 429
New York, NY 10004

phone: (212) 668-2170
fax: (212) 668-2136

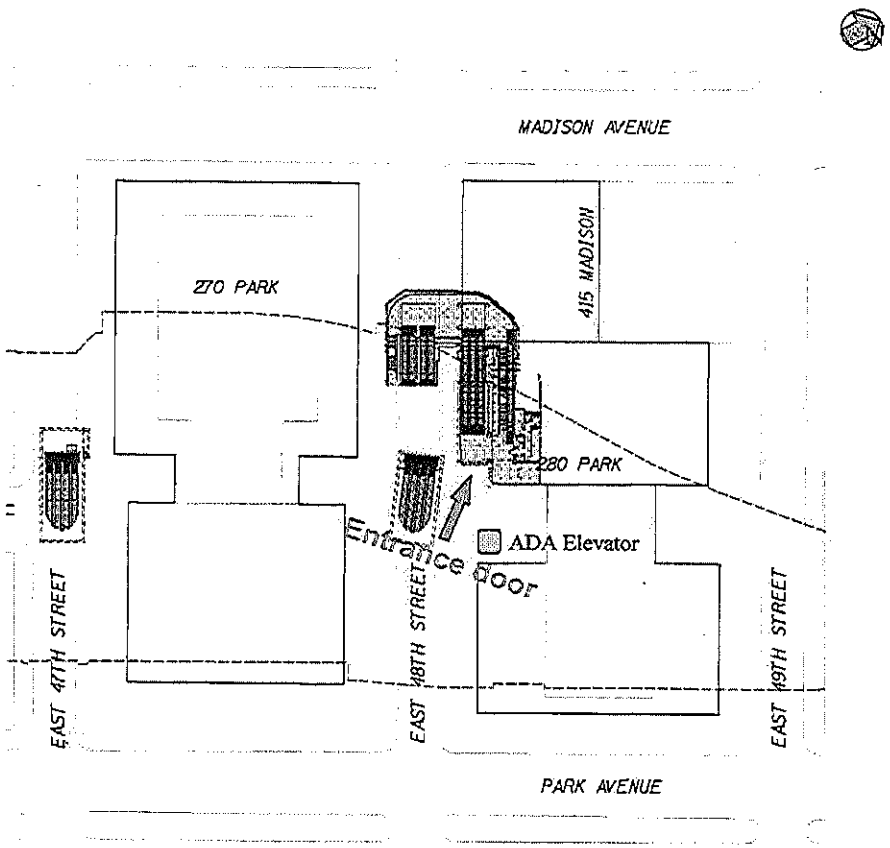
Impact Category	Impacts and Any Mitigation as Initially Disclosed	New Impacts or Updated Analysis	Change in Impacts
Transportation	FEIS: Increased activity could result in some traffic and pedestrian impacts on streets, sidewalks and crosswalks in the vicinity of 48th Street and Madison Avenue. Standard mitigation measures, such as signal timing changes, more restrictive parking regulations, and exclusive turn lanes would mitigate the traffic impacts. For significant impacts on sidewalks and crosswalks, crosswalk widening and limiting sidewalk vendors would mitigate the impacts (see pages 9C-63 and 9C-64). Tech Memo 4: Tech Memo 4 concluded that based on 2020 demand and beyond (analyses assumed that the LIRR system would operate at full capacity, i.e., 24 twelve-car trains per hour, 95 percent full), using up-to-date assumptions and assigning the new pedestrian overlay onto GCT without the 44th and 45th Street entrances, the findings of the FEIS did not change appreciably and no new significant pedestrian impacts were identified at potential impact locations (pg. 11).	Analyses were updated based on a new LIRR origin-destination survey (see Attachment 2) and pedestrian counts taken in October 2010 to establish an up-to-date baseline from which to assess the affects of this design change on sidewalks, crosswalks, and mid-block near 48th Street and Madison Avenue. The results indicate that this design change would not result in any level of service changes at corners, crosswalks, and mid-block in the vicinity of 48th Street and Madison Avenue compared to those reported in the FEIS (Table 9C-34, Pc-35, 9C-36). The same mitigation measures identified in the FEIS would mitigate the significant adverse impacts that would result from either design option for the 48th Street Entrance.	None
Land Use and Economics	None	None	None
Acquisitions, Displacements, & Relocations	FEIS: Identified potential property acquisitions and potentially displaced businesses (see Table 5-12 on pg. 5-27) based on a conceptual design for the entrances. Ground floor space in 28-story	Current Design: 8,350 s.f. permanent easement; 9,900 s.f. temporary easement; displacement of Haru Restaurant.	Not significant - MTA would follow the Federal Uniform Relocation Assistance and Property Acquisitions Policy Act of 1970 for acquisition of private property and tenant relocation.

	office building (280 Park Avenue), approximate 5,000 sq feet permanent acquisition, displacement of restaurant. Tech Memo 4: No change in impact as that described in the FEIS (pg 12).	Proposed Design: 8,250 s.f. permanent easement; 6,500 s.f. temporary easement; potential displacement of HSBC Bank.	
Neighborhoods & Populations (Social)	FEIS: Entrance at 280 Park would affect the plaza area that serves as an open space resource. These effects would not be considered significant (pg. 4-29). Tech Memo 4: No change in impact as that described in the FEIS (pg. 12).	None	Not significant - In addition to requiring the same small permanent easement in the plaza of 280 Park Avenue for an ADA elevator, construction of the project will affect the outdoor plaza seating area of Haru Restaurant for a period of 28 months under the Proposed Design. Haru Restaurant was to be relocated in the Current Design.
Visual Resources & Aesthetics	None	None	None
Air Quality	None	None	None
Noise & Vibration	None	None	None
Ecosystems (Vegetation & Wildlife)	None	None	None
Water Resources	None	None	None
Energy & Natural Resources	None	None	None
Geology & Soils	None	None	None
Hazardous Materials	None	None	None
Public Services	None	None	None
Utilities	FEIS: The entrances would be located	The Current Design would require the	Lessened impacts - The three (3) Con Edison

	within the easement areas of buildings above the GCT trainshed, and therefore, would not affect the utilities within the streets. When utility service connections to these buildings are affected by construction, revised connections would be provided to avoid disruption of service. (pg 13-3). Tech Memo 4: No change in impact as that described in the FEIS (pg 13).	relocation of three (3) Con Edison transformer vaults located beneath the sidewalk on 48th Street.	transformer vaults that would need to be relocated under the Current Design would not be affected under the Proposed Design. The Proposed Design also limits the potential impact to building services by reducing building service relocation requirements.
Historic, Cultural & Archaeological Resources	None	None	None
Parklands & Recreation	None	None	None
Construction	FEIS: One curb lane of 48th Street between Park and Madison Avenue would be used for construction activities for about 1 year. This block currently has mid-block pedestrian cut-through walkways and several building delivery docks on either side and one emergency fire access entryway into GCT along the south side. Access would be maintained to these facilities. The north and south curbs do allow for curb deliveries with "No Standing Except Trucks Loading and Unloading, 7 AM to 7 PM, Except Sunday" regulations, although closer to Madison Avenue no standing rules are posted along the north curb. These rules would be changed to "No Standing Anytime" to ensure that at least one travel lane is maintained. About 18 curb spaces would be lost on the north side of the street and 14 spaces would be lost on the	None	Not significant/lessened impacts - The Current Design requires more extensive street level construction than anticipated in the FEIS, with potential traffic and pedestrian impacts extending over a 28 month period. An escalator bank is located beneath 48th Street. As a result, lane and partial sidewalk closures and noticeable street-level construction will last approximately 28 months instead of one year as identified in the FEIS. Traffic will be maintained on the streets and sidewalks in accordance with NYCDOT permits. Deliveries and building access will be maintained at all times. The Proposed Design would result in reduced construction noise, vibration and dust impacts since overall construction activities will be limited to 28 months from the five-year construction period anticipated under the Current Design.

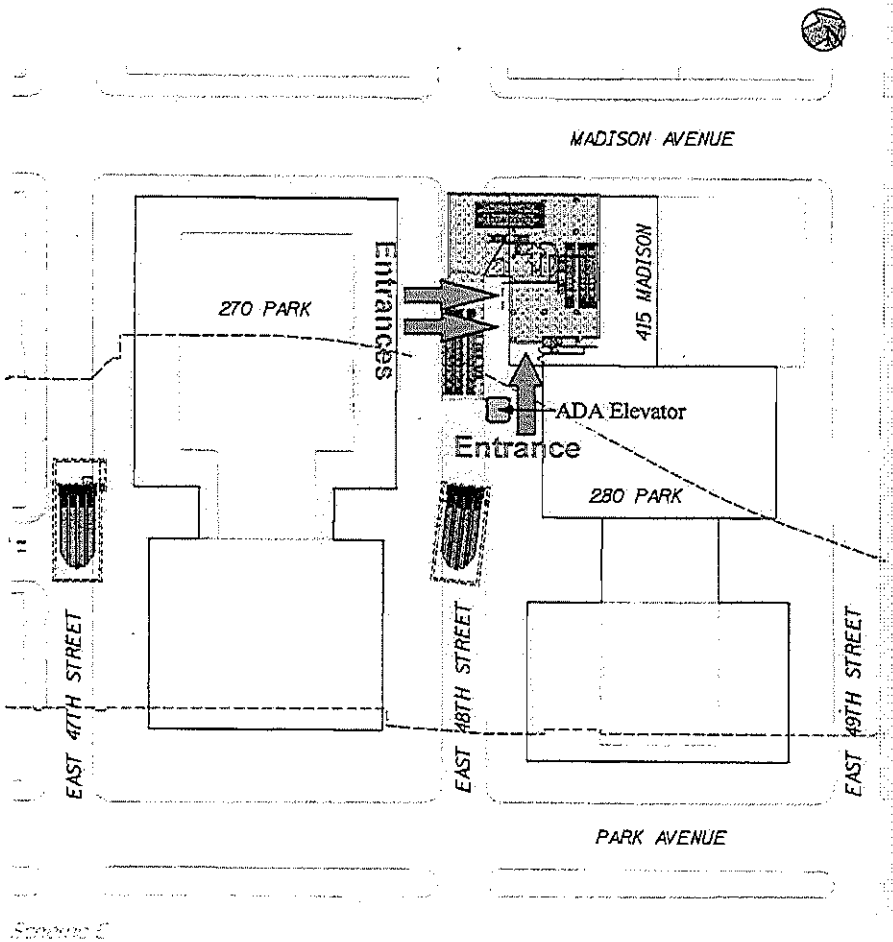
	south side, depending on which side of the street would have its curb lane eliminated." (page 17-42). Tech Memo 4: No change in impact as that described in the FEIS (pg 13).		
Secondary and Cumulative	None	None	None
Environmental Justice	None	None	None
Other	None	None	None

Figure 1 – 48th Street Entrance – 280 Park Ave (Current Design)



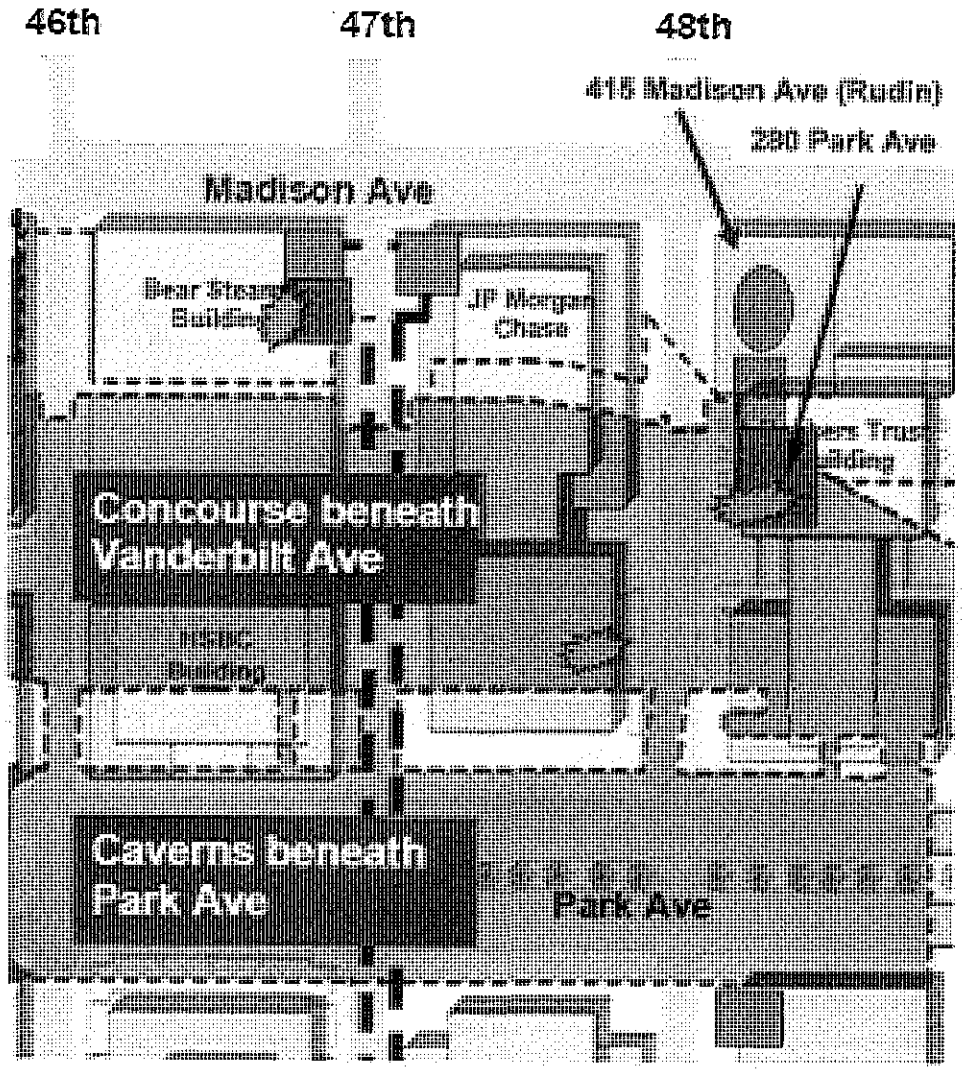
PARTIES INVOLVED IN CONSTRUCTION/APPROVALS	RUDINS INVESTCORP & BROADWAY PARTNERS CON EDISON (POWER DEPT. & STEAM DEPT.) VERIZON
CONSTRUCTION SCHEDULE	61 MONTHS, WORK BY RUDINS, CON ED, VERIZON AND ESA
CONSTRUCTION RISK VERY HIGH	1,460 yd3 Rock excavated from within 415 Madison @ depth of 15ft 1,100 yd3 Rock excavated in the street @ depth of 12ft 10 Columns Underpinned, 2 Column Extensions, 3 New Columns, 2 Transfer Girders Introduced, 2 Transfer Girders Removed, 1 Girder Removed, 1 Girder Reinforced, South Basement Wall Underpinned, 6-story Party Wall Underpinned, New Plaza Framing, New Cellar Framing **SCHEDULE RISK:** Construction Schedule Close To Critical Path, No Control Over Building Services Relocation Schedule Work By Rudin, Heavily Dependent On Con Ed For Completion Of Building Owner Work, Risk Of Owner Ordered Work Stoppages During Underpinning, Complex And Time Consuming Contract Negotiations With Owner
IMPACT TO CON-ED	3 TRANSFORMER VAULTS IMPACTED
BUILDING SERVICES IMPACT	HIGH
BUILDING REAL ESTATE IMPACT	MEDIUM
STORE FRONT IMPACT	**14% STREET FRONTAGE LOST**
PRO'S	• Retail Impact - No Permanent Impact To HSBC Street Level Banking Space • LIRR Passenger Exit Onto An Existing Plaza At 280 Park • MTA-ESA CM014 Design Is Advanced
CON'S	• Loss of ground floor retail space in 280 Park Avenue – Haru Restaurant
EASEMENTS	7,800 SF Permanent 8,500 SF Temporary

Figure 2 – 48th Street Entrance – 415 Madison Avenue (Proposed Design)



PARTIES INVOLVED IN CONSTRUCTION/APPROVALS	RUDINS
CONSTRUCTION SCHEDULE	28 MONTHS, WORK BY ESA
CONSTRUCTION RISK	390 yd3 Rock excavated from within 415 Madison @ depth of 6ft 2,075 yd3 Rock excavated in the street @ depth of 12ft 6 Columns Underpinned, 1 Transfer Girder Introduced, 6-Story Party Wall Underpinned Moderate Building Services Relocations
MEDIUM	**SCHEDULE RISK:** Reduced Risk presuming MTA Performs Design And Construction Of Building Services And Building Structure Modifications, Risk Of Owner Ordered Work Stoppages During Underpinning
IMPACT TO CON-ED	NO TRANSFORMER VAULTS IMPACTED
BUILDING SERVICES IMPACT	MEDIUM
BUILDING REAL ESTATE IMPACT	MEDIUM
STORE FRONT IMPACT	25% STREET FRONTAGE COST
PRO'S	• No Impact To Con Ed Vaults • Limited Impact To Building Services • Preserves 280 Park tenant (Haru Restaurant)
CON'S	• Underpinning Of 6 Columns And Rock Excavation Required Under Building • Retail Impact – HSBC street-level banking space. Preserves 50% Of Street Level Retail Space With Frontage On Madison Avenue And 48th Street
EASEMENTS	8,000 SF Permanent 6,500 SF Temporary

Figure 3 – 48th Street Entrance Locations



Proposed 48th Street Entrance

EIS Street Entrances

Current Design – Assessed in Tech Memo No. 4

Existing MNR Street Entrances

Attachment 1 – History of Design and Assessment of Effects of Design Options Compared to FEIS and Tech Memo #4 in Affected Impact Categories

The proposed change would shift the entrance to the west, to 415 Madison Avenue, which is adjacent to 280 Park Avenue (see Figure 3). Note that during the FEIS, it was anticipated that shifts within the same building or block were likely and would not significantly affect the FEIS analyses or conclusions. This assessment confirms that statement.

FEIS and Tech Memo #4 Design Descriptions

New entrance locations were chosen from an initial list of 27 sites (developed during the Major Investment phase of the project) based on a set of objective siting criteria. While a review of structural and architectural drawings for affected buildings was part of the screening process, for some buildings these drawings were not up-to-date or even available. The FEIS (pg. 2-14) states that ***"as information becomes available through structural and architectural surveys performed during preliminary design, the locations chosen will continue to be reviewed and assessed....Any change in the location of an entrance to GCT is likely to a minor one, with potential shifts within the same building or block, or to a nearby street, which would not significantly affect the environmental analyses presented in this document."***

The sites listed for the Preferred Alternative in the FEIS include:

- 44th Street (the Bank of America building at 335 Madison Avenue)
- 45th Street (the MTA Building at 347 Madison Avenue)
- 47th Street (the American Brands Building at 245 Park Avenue on the south side of the street between Park and Lexington avenues)
- 48th Street (outside of the Chase building at 270 Park Avenue on the southwest corner)
- 48th or 49th Street (the Bankers Trust building at 280 Park Avenue between Madison and Park avenues)

Tech Memo #4 assessed pedestrian circulation within the LIRR concourse and on the streets and sidewalks in the study area assuming that the 44th and 45th Street entrances would not be built. In addition, Tech Memo #4 reviewed the two 48th Street entrances listed above, as follows: "*Two modest-sized (similar to the recently constructed MNR North End Access entrances) 48th Street entrances were identified in the FEIS – one at 280 Park Avenue and the other, across the street on the same block, at 270 Park Avenue. This entrance at 270 Park Avenue was planned with one stairway and one escalator daylighting in the large open plaza area at 270 Park Avenue (west side of Park Avenue). The entrance was mandated under Option 1 (shallow tunnel option in the FEIS) to correct a dead-end condition in a proposed 48th Street cross passage. Since there is no 48th Street cross passage under the Preferred Alternative, the need for this entrance is not critical. The current design includes a large entrance at 280 Park Avenue (four escalators and a staircase on 48th Street), eliminating the redundancy of the two FEIS entrances while providing ample capacity for those destined to 48th Street and north.*"

The current ESA design includes the following entrances:

- 47th Street (the American Brands Building at 245 Park Avenue on the south side of the street between Park and Lexington avenues)

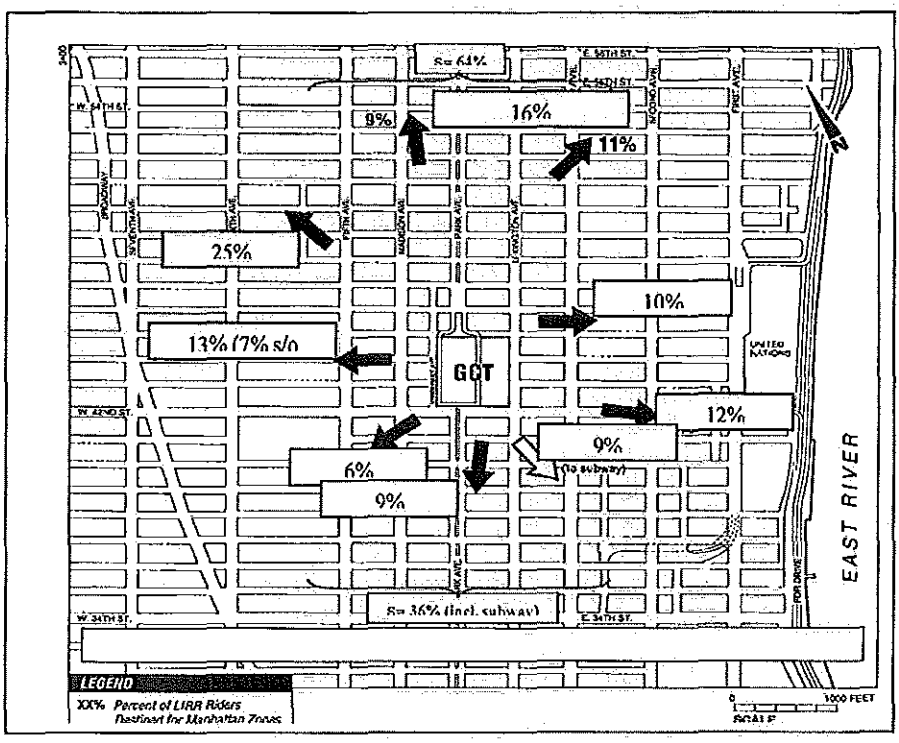
- 48th Street (point of entry located in the Bankers Trust building at 280 Park Avenue and extending into the adjacent building at 415 Madison Avenue, both at the northeast corner of Madison and Park Avenues)

Tech Memo #4 concluded that based on 2020 demand and beyond (analyses assumed that the LIRR system would operate at full capacity, i.e., 24 twelve-car trains per hour, 95 percent full); no significant pedestrian circulation or other environmental impacts would occur as a result of this entrance scheme.

Attachment 2 – Environmental Re-evalutation Backup

Transportation – Pedestrian Conditions

The distribution of LIRR customers at Grand Central Terminal shown in Figure 9C-7 in the FEIS was recently updated to reflect LIRR's most recent origin-destination survey (see below). The projected distribution of passengers throughout the GCT area remained relatively the same – with the majority of those traveling to the street destined for locations to the north, with the largest share (25%) projected to use the new 48th Street entrance. Grand Central Terminal itself has eight points of entry/exit to the south, east and west with only the relatively new "North End Access" entrances at 47th Street and Madison Avenue (Bear Stearns/Chase) and 48th Street and Park Avenue (Westvaco) serving customers whose destination is to the north. As a result, the 48th Street entrance is a critical entrance to meet the demand introduced by East Side Access.



In both the FEIS and Tech Memo #4, the escalators and stair at the 48th Street entrance were reported to function with volume-to-capacity ratios indicative of conditions under capacity and no queuing. As indicated in Tech Memo #4 (without the 44th and 45th Street entrances) based on current model results, the 15-minute pedestrian demand at 48th Street is 1,800 LIRR customers in year 2020 and beyond.

Attachment 3

48th Street Entrance Meetings

February 11, 2003. Management Meeting, 280 Park Avenue and Haru Restaurant. Project update and concept design briefing.

February 11, 2003. Management Meeting, 415 Madison Avenue. Project update and concept design briefing.

May 19, 2004. Technical Team Meeting, 280 Park Avenue. Briefing on fresh air intake through 280 Park Avenue.

February 15, 2005. Management Meeting, 280 Park Avenue. Design progress.

March 23, 2006. Technical Team Meeting, 280 Park Avenue. Site visit/design progress.

January 30, 2007. Management Meeting, 280 Park Avenue and Haru Restaurant. Project update/design progress.

January 30, 2007. Technical Team Meeting, 415 Madison Avenue. Design progress/space requirements for transformers.

February 7, 2007. Management Meeting, 280 Park Ave. Design progress.

April 17, 2007. Management Meeting, 280 Park Ave. Design progress.

May 30, 2007. Management/Technical Team Meeting, 280 Park Avenue. Design coordination.

June 29, 2007. Technical Team Meeting, 280 Park Avenue. Design coordination.

June 29, 2007. Technical Team Meeting, 415 Madison Avenue. Design coordination.

September 28, 2007. Technical Team Meeting, 415 Madison. Design coordination.

January 29, 2008. Management Meeting. 280 Park Avenue. Design progress/easement agreement.

March 7, 2008. Management/Technical Team Meeting, 280 Park Avenue. Presentation on pre-construction survey

March 18, 2008. Technical Team Meeting, 280 Park Avenue. Design coordination.

May 30, 2008. Technical Team Meeting, 415 Madision Avenue. Design coordination.

June 19, 2008. Technical Team Meeting, 415 Madison Avenue. Design coordination.

July 10, 2008. Management/Technical Meeting, 415 Madison Avenue. Presentation on pre-construction survey.

July 24, 2008. Technical Team Meeting, 415 Madison Avenue. Design Coordination.

August 7, 2008. Technical Team Meeting, 280 Park Avenue. Design coordination.

September 12, 2008, Management Meeting, 280 Park Avenue. Design progress.

October 27, 2008. Technical Team Meeting, 280 Park Avenue. Design coordination.

March 11, 2009. Technical Team Meeting, 415 Madison Avenue. Design coordination.

March 20, 2009. Management Meeting, 280 Park Avenue. Design progress/easement agreement.

March 25, 2009. Management Meeting, 280 Park Avenue. Construction progress review.

July 15, 2009. Technical Team, 280 Park Avenue. Design coordination.

June 24, 2010. Management Meeting, 280 Park Avenue. Construction progress.

August 11, 2009. Technical Team Meeting, 415 Madison Avenue. Design coordination.

January 6, 2011. Management Meeting, 415 Madison Avenue. Proposed design concept review.

March 24, 2011. Management Meeting, 280 Park Avenue and Haru Restaurant. Proposed design concept review.

July 27, 2011. Management Meeting, 280 Park Avenue (new owners). Proposed design concept review.

May 10, 2011. Technical Team Meeting, 415 Madison Avenue. Design coordination.

August 31, 2011. Technical Team Meeting, NYCDOT. Design review.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Project: **MTA/LIRR East Side Access 50th Street Facility Project**
Applicant: **Metropolitan Transportation Authority**
Project Location: **New York City, New York**

INTRODUCTION

Since the completion of the Final Environmental Impact Statement (FEIS) for the East Side Access Project (ESA Project) and the issuance of the Record of Decision for the FEIS in 2001, the Metropolitan Transportation Authority/Long Island Railroad (MTA/LIRR) proposes modifications to the design of the project near East 50th Street, between Park and Madison Avenues in Manhattan. A new, above-ground structure is needed to house necessary ventilation functions and a new loading dock for the ESA Project. A below-ground facility near 50th Street was analyzed in the FEIS. As a result of this change, additional environmental analysis for a new facility at 50th Street was completed.

Based on the *MTA Long Island Rail Road East Side Access 50th Street Facility Revised Supplemental Environmental Assessment to the East Side Access Final Environmental Impact Statement*, April 2006 (herein after referred to as the April 2006 Revised EA), prepared in compliance with the National Environmental Policy Act (42 U.S.C. §4321 et seq.) and the Federal Transit Administration's implementing regulations (23 CFR §771), the Federal Transit Administration (FTA) finds, in accordance with 23 CFR §771.121, that the current design of the proposed 50th Street facility, referred to as Preferred Alternative D, would not result in any new or changed significant impacts relative to those identified in the ESA Project's FEIS published in March 2001 or its Record of Decision issued by the FTA, dated May 2001. Preferred Alternative D is evaluated in the April 2006 Revised EA and is the subject of this FONSI. This FONSI expands the environmental record for the ESA Project to include the April 2006 Revised EA.

PROPOSED PROJECT

Project Description

The Preferred Alternative D will be located on a 79- by 100-foot site on East 50th Street that is currently occupied by four low-rise commercial buildings, as well as an approximately 20- by 100-foot parcel on East 49th Street that is currently improved with a two-story commercial building occupied by ING Bank. Five existing structures (44, 46, 48, and 50 East 50th Street and 45 East 49th Street) located on the site will be demolished and the Preferred Alternative D will be constructed. Above ground, this facility will house ventilation intake and exhaust shafts, a new loading dock with

a through drive from 49th Street to 50th Street, and a freight elevator. Below grade, the facility will house ventilation fans and related equipment and emergency generators. Under Preferred Alternative D, an approximately 40- by 60-foot open space will be constructed adjacent to the above-ground 50th Street Facility structure in the northeast corner of the site. The height of this Preferred Alternative D will vary but the highest element will be not more than approximately 65 feet above the level of the sidewalk on 50th Street. Three levels of sub-basements will be constructed below the site with connections to the new LIRR concourse and tunnels.

A new cooling tower for East Side Access (ESA cooling tower) will be constructed on the top of an adjacent building (300 Park Avenue, aka the Colgate-Palmolive Building) in the location of an existing cooling tower serving 300 Park Avenue. A new 300 Park Avenue cooling tower will be constructed in a location to be determined by the owners of 300 Park Avenue prior to removing and demolishing the existing cooling tower and constructing the new ESA cooling tower. An approximately 20- by 7-foot chase to house pipes and conduits connecting the ESA cooling tower and emergency generator exhaust to the Preferred Alternative D will be constructed along the west façade of 300 Park Avenue. Noticeable construction activities will take place on the site for approximately two-and-a-half years.

Background on Project Design Development

The location for the ventilation facility is dictated by the overall ventilation design for East Side Access, which includes ventilation facilities along the tunnel alignment in Manhattan at 63rd and Second Avenue, 55th Street, 50th Street, and 38th Street. The 50th Street site, where five low-rise buildings will be demolished, is the only location that meets the ESA Project siting criteria for ventilation that is not currently occupied by high-rise buildings. Siting criteria for the new facility included: Provide minimum floor plate required to house the loading dock, ventilation shaft, and ventilation equipment; provide minimum frontage required by loading dock and ventilation shafts; locate proximate to the tunnel/station interface; locate west of the existing Metro-North tracks to avoid impacts to train service; minimize displacement and disruption of residents and businesses. As a result, there are no acceptable alternate locations identified for the 50th Street facility.

A 50th Street facility is needed to provide ventilation (air intake and exhaust) for a portion of the new East Side Access terminal at Grand Central and a portion of its new tunnels, and to provide a loading dock for deliveries to and waste removal from the new terminal.

The 50th Street Facility includes the following elements:

- Station and tunnel ventilation shafts and tunnel ventilation fans (station ventilation fans would be located in the concourse); and
- A loading dock and freight elevator to support the retail space in the LIRR concourse and trash removal from the LIRR trains.

In addition to housing the necessary ventilation functions and new loading dock, the design includes other support functions for the ESA Project, including the following:

- Cooling tower to provide cooling functions for the new East Side Access terminal at Grand Central;

- Emergency generators and associated fuel tank and exhaust pipe to provide power to the new terminal in the event of a power outage; and
- Electrical substations to support the building functions and a signal room in the tunnel.

In addition, the 50th Street facility site is proposed for use as a construction access point to facilitate delivery of workers and materials during construction of the new East Side Access passenger terminal.

East 50th Street between Park and Madison Avenues was identified in the FEIS as a location for ventilation exhaust from the East Side Access tunnels and station. At that time, station and tunnel air intake and exhaust shafts and sidewalk grates were to be constructed on 49th and 50th Streets. Since that time, additional studies identified the need to make changes to the ventilation system that rendered an underground facility and sidewalk grates impractical. The need for air flows greater than were anticipated in the FEIS was identified, which would result in sidewalk grates extending over a larger area. This design would require excavation of the full width of the streetbeds, in addition to the sidewalks on 49th and 50th Streets. Also, the need for additional loading dock capacity was identified. In the FEIS design, the ESA Project would have used the existing loading dock located on Depew Place on the east side of Grand Central Terminal. Further study of the Depew Place loading dock, however, indicates that it is already operating near its design capacity today and it cannot accommodate the additional deliveries that will result from the ESA Project. Since there is no physical space to expand the Depew Place loading dock, additional loading space must be constructed at a new location.

An above-ground 50th Street facility was evaluated in several supplemental NEPA documents to determine if any significant adverse impacts would result from the 50th Street facility. The facility was first analyzed in a February 2002 Technical Memorandum and then in an Environmental Assessment published in January 2005 (herein after referred to as the January 2005 EA). Following public review of the January 2005 EA, the design for the 50th Street facility was revised in response to the numerous public comments received during the public comment period related to the overall size of the 50th Street facility, the proximity of the facility's exhaust louvers and cooling tower to neighboring buildings, and the proposed location of the fuel tank required to operate the facility's emergency generators. The majority of comments on the January 2005 EA focused on four issues:

1. Safety and security related to potential terrorist activities at the 50th Street facility and in the new tunnels or terminal that may affect nearby buildings as a result of the ventilation functions of the proposed facility. Concerns were raised that the 50th Street facility would be a terrorist target particularly because of the size of the facility, the consolidation of so many project elements in one location, and the presence of the fuel tank in the basement. In addition, concerns related to the potential for a biological or chemical release in the tunnels or terminal that would be exhausted to 50th Street and into nearby air intakes of adjacent buildings;
2. The effects of potential hazardous air emissions and smoke resulting from the cooling tower, emergency generator and the normal and emergency ventilation systems;
3. Traffic impacts resulting from truck activity at the loading dock on 49th and 50th Streets, which are part of the New York City "Thru Streets Program"; and
4. Construction impacts and the length of the construction period.

In response to these concerns, Preferred Alternative D, the current project design was developed. This design was presented and analyzed in the April 2006 Revised EA as Preferred Alternative D, which

incorporates the following modifications since the Preferred Alternative was described in the January 2005 EA:

- It relocates the facility's cooling tower and emergency generator exhaust to the rooftop of the Colgate-Palmolive Building at 300 Park Avenue.
- The tunnel ventilation fans are relocated below grade at the 50th Street facility.
- The location of the intake and exhaust louvers is modified, with no exhaust louvers on the west façade of the building.
- The fuel oil storage tank and electrical substations are relocated to the East Side Access concourse.
- A 40- by 60-foot landscaped public open space will be provided on a portion of the site.
- A new construction sequencing plan was developed to reduce the visible construction activity at the project site from about six to about two-and-a-half years.

Other Alternatives Evaluated

Four alternatives, including Preferred Alternative D described above, were analyzed in detail in the April 2006 Revised EA. The three other alternatives, known as Alternatives A, B, and C, are described below.

- ***Alternative A (FEIS Design):*** Alternative A consists of part of the design that was analyzed in the FEIS under the East Side Access Preferred Alternative. In the January 2005 and April 2006 Revised EAs, the no action alternative is referred to as Alternative A. This alternative included installation of grates in the sidewalks along 49th Streets and 50th Streets between Park and Madison Avenues for intake and exhaust of air, and station and tunnel ventilation fans co-located in the concourse near 48th/49th Street. The existing Grand Central Terminal truck dock on Depew Place was proposed to be used for all new deliveries and trash removal generated by the new LIRR service. The cooling tower for the new terminal's heating, ventilation, and air conditioning (HVAC) system serving the concourse and platform areas would have been placed on the roof of the North Court of Grand Central Terminal, in a space that is no longer available. When the FEIS was prepared, the East Side Access design had not advanced sufficiently to include details on the placement of emergency generators or electrical substations, other than the substations providing traction power for trains.

- ***Alternative B (2004 Design evaluated in the January 2005 EA and April 2006 Revised EA):*** Alternative B is a 50th Street facility without through drive. In this alternative, the 50th Street facility would be an approximately 124-foot-tall structure that would house a truck loading dock and a freight elevator leading to the freight corridor, as well as emergency generators, electrical equipment, tunnel ventilation fans, and air intake and exhaust structures. The fuel tank required to run the emergency generators would be below grade in the lowest basement level of the new structure and the cooling tower would be on the 50th Street facility's roof. The facility would be located on 50th Street between Park and Madison Avenues and would also include underground ventilation shafts and a freight corridor located beneath a portion of 50th Street. The four existing buildings at 44, 46, 48, and 50 East 50th Street would be acquired and demolished. After demolition of the four buildings on the project site, Alternative B would use the site for approximately two-and-a-half years as an access point and staging area to facilitate construction of the East Side Access concourse and caverns at Grand Central Terminal before the 50th Street facility structure is constructed. Including this period of access and staging activity, total construction time at the site would be approximately six years.

- ***Alternative C (Preferred Alternative in January 2005 EA, also included in the April 2006 Revised EA):*** Alternative C, the 50th Street facility with through drive, was developed in response to public concerns regarding potential disruptions to traffic flow on 50th Street from the earlier project design's loading dock, which were raised during a February 2004 public meeting. This modified alternative would have all the same functions and advantages as the 50th Street facility in Alternative B described above. However, to eliminate the need for trucks to back into the loading dock entrance on 50th Street, a through drive extending from 49th Street to 50th Street would also be created. This would allow trucks to enter the loading dock via a driveway on 49th Street and exit on 50th Street. Trucks would thus not have to back up into the loading dock. To create this driveway, one additional two-story building would be acquired at 45 East 49th Street (ING Bank building), directly behind the project site. With the new truck driveway and reconfigured loading dock, the configuration of equipment inside the 50th Street facility would be different from that of Alternative B. While the overall building height would be the same, the altered internal configuration of equipment is reflected in slightly different bulk and massing. Alternative C was identified as the preferred alternative in the January 2005 EA because of the benefits to traffic flow that it would provide relative to Alternative B, by eliminating the need for trucks to back into the loading dock. Like Alternative B, Alternative C would use the project site for approximately two-and-a-half years as an access point and staging area to facilitate construction of the East Side Access concourse and caverns at Grand Central Terminal and total construction time at the site would be approximately six years.

AGENCY COORDINATION AND PUBLIC OPPORTUNITY TO COMMENT

Public outreach activities for the East Side Access 50th Street Facility Project have included over 40 individual meetings with representatives of properties that would be affected and with other area stakeholders. These meetings were held to provide information about the facility to the stakeholders, as well as to listen to their concerns and suggestions about how the proposed facility could be modified. In addition, a large public meeting and two public hearings were held to review the proposed design for the 50th Street facility:

- **February 24, 2004:** An initial meeting was held on February 24, 2004 to provide information on the 50th Street facility and to solicit comments on the analyses to be included in the January 2005 EA. Comments were accepted through March 9, 2004. Comments made at that meeting were addressed in relevant portions of the January 2005 EA.

- **February 10, 2005:** Following publication and distribution of the January 2005 EA, a public hearing was held on February 10, 2005, to receive comments on the document. The public comment period was held open through March 8, 2005. The January 2005 EA was circulated to involved and interested agencies and other parties and posted on the MTA's website the week of January 12, 2005. Notice of its availability was also posted on MTA's website at the same time. To advertise the public hearing and to provide notice of the availability of the EA, MTA published notices in newspapers of general circulation in the project area the weeks of January 10 and January 17. In addition, information on the public hearing was posted on the MTA's website, and a notice of public hearing was mailed on January 11 to public officials and interested parties in the project area. In response to requests from the public, the public comment period, originally scheduled to be open through February 22, 2005, was held open through March 8, 2005. Fifty-four individuals, organizations, and agencies provided comments on approximately 14 different issue areas.

- **May 17, 2006:** Following publication and distribution of the April 2006 Revised EA, a public hearing was held on May 17, 2006 to receive comments on that document. The public comment period was held open through June 2, 2006. The April 2006 Revised EA was circulated to involved and interested agencies and other parties and posted on the MTA's website the week of May 1, 2006 and notice of its availability was also posted on MTA's website at the same time. The public hearing was advertised in the same manner as described for the public review of the January 2005 EA. Twenty-six individuals, organizations, and agencies provided comments on 11 different issues areas.

Finally, MTA meets regularly with city and state agencies to solicit input on plans and documents related to the design and construction of its projects. MTA is coordinating with the following city and state agencies regarding the 50th Street facility: New York City Department of Transportation (NYCDOT), New York City Fire Department (FDNY), New York City Department of City Planning (NYCDCP), the State Historic Preservation Officer (SHPO) at the New York State Office of Parks, Recreation and Historic Preservation, New York City Landmarks Preservation Commission (NYCLPC), and other relevant agencies. Agency coordination specifically related to security issues is conducted through MTA's participation in the New York City Joint Terrorism Infrastructure Task Force.

COMMENTS ON THE APRIL 2006 REVISED EA

Twenty-six stakeholders submitted written or oral comments on the April 2006 Revised EA. Most comments were supportive of Preferred Alternative D and wanted assurances that the design and construction sequencing plan described under Preferred Alternative D would be implemented. In addition, a number of comments requested assurances that MTA would implement the environmental monitoring and other measures identified to reduce community disruption during construction. One commenter proposed a "turntable" truck dock alternative to eliminate the need for the through drive loading dock and property acquisition on E. 49th Street. U.S. EPA, SHPO and NYC Landmarks Commission submitted comments stating that they agreed with the conclusions presented in the April 2006 Revised EA. Nine commenters provided comments on the overall design for the Manhattan tunnels and terminal and advocated an Upper Level Loop Alternative. A few commenters reiterated the concerns expressed on the earlier document (and addressed in the April 2006 Revised EA) related to the alleged lack of air quality modeling and the adequacy of the safety and security analyses presented.

See Attachment A for a summary of the comments on the April 2006 Revised EA and responses to those comments.

MEASURES TO MINIMIZE HARM

MTA will implement all measures to minimize harm that are described in the April 2006 Revised EA and this FONSI. The FTA will require in any grant documents for the 50th Street facility that the facility be built as described under Preferred Alternative D in the April 2006 Revised EA and that all commitments be carried out in accordance with the April 2006 Revised EA and this FONSI. The FTA finds that with the implementation of the commitments and measures to minimize harm, as described in Attachment D: Measurs to Minimize Harm, the MTA will have taken all reasonable and prudent means to avoid or minimize the potential for adverse impacts to occur as a result of Preferred Alternative D. The April 2006 Revised EA is incorporated by reference into this FONSI and its environmental considerations are summarized in Attachment D. This FONSI assumes that the fully

described commitments and measures to minimize harm in the April 2006 Revised EA, as supplemented and outlined in Attachment D, will be implemented.

DETERMINATION AND FINDINGS

Land Use, Zoning and Public Policy, and Social Conditions

Preferred Alternative D will not result in any significant adverse impacts on land use, zoning, public policy, or social conditions. Preferred Alternative D will be compatible in use and scale with surrounding land uses in the study area, which are predominantly high-density commercial (office) uses with ground-floor retail. The increase in traffic and noise as a result of the alternatives will not be significant, and the loading dock activities at street level will be similar to activities already occurring at the numerous docks near the project site, including those at buildings on the same block. With a smaller building and a new public open space, Preferred Alternative D will be more compatible with surrounding uses than Alternatives B or C. The new public open space included in Preferred Alternative D will be a visual and open space amenity in an area where publicly accessible open space is scarce, and will likely enliven street life in the immediate area. As a New York State public authority, MTA is not subject to local zoning requirements. Although the 50th Street facility is not specifically mentioned as a permitted use in the New York City Zoning Resolution, the facility's design under any of the alternatives will comply with the height, bulk, and setback requirements specified by the Zoning Resolution for commercial buildings in the area.

Socioeconomic Conditions

Preferred Alternative D will not result in significant adverse impacts to the neighborhood character of the surrounding area and it is therefore not anticipated that it will have a significant adverse impact on property values or rental income for adjacent properties. The presence of the 50th Street facility will not adversely affect the other businesses in the immediate area. Moreover, Preferred Alternative D's open space will bring a benefit to the project site, which is not included in Alternative B or C. The 50th Street facility, under all build alternatives, will house approximately seven employees, distributed in different shifts throughout the day. This small number of workers will not result in any significant changes to the socioeconomic profile of the immediate area.

Preferred Alternative D will require permanent acquisition of private property and easements, as follows:

- 44 East 50th Street (Block 1285, Lot 46)—full acquisition. Five-story commercial building.
- 46 East 50th Street (Block 1285, Lot 45)—full acquisition. Five-story commercial building with one residence.
- 48 East 50th Street (Block 1285, Lot 44)—full acquisition. Five-story vacant commercial building.
- 50 East 50th Street (Block 1285, Lot 43)—full acquisition. Six-story commercial building.
- 45 East 49th Street (Block 1285, western portion of Lot 36)—full acquisition. Two-story commercial building.
- 300 Park Avenue (Block 1285, Lot 36)—permanent underground easement along 50th Street and permanent easement agreement for pipe chase on building façade and for use of rooftop space for cooling tower.

Owners of properties will be compensated at fair market value, and relocation assistance would be provided to displaced occupants in accordance with applicable state regulations and pursuant to the federal Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as codified in Title 42, Section 4601 et seq. of the United States Code, and the applicable implementing regulations set forth in Title 49, Part 24 of the Code of Federal Regulations.

Visual and Aesthetic Considerations

The new 50th Street facility under Preferred Alternative D is not expected to result in significant adverse impacts to the visual character of the surrounding area. The Preferred Alternative D will be of modern design, with similar materials (metal and glass) to the modern office buildings nearby. Demolition of the four low-rise commercial buildings at 44, 46, 48, and 50 East 50th Street would not have a significant visual impact. While demolition of the two-story commercial building at 45 East 49th Street (the ING Café), will remove a building of visual interest from the project site, it will not result in a significant adverse impact on urban design and visual resources because the building currently has limited visibility among the surrounding high-rise buildings and because the proposed improvements are also anticipated to be minimally visible in the surrounding area. Preferred Alternative D will be substantially smaller in height and scale than Alternatives B and C and therefore will be less visible in the surrounding area. Preferred Alternative D will also bring a new open space to 50th Street, creating a benefit for the area's streetscape.

Historic Resources

In accordance with the East Side Access Amended Programmatic Agreement (Attachment B), executed by the FTA, SHPO, and MTA, and the Construction Protection Plan (Attachment C), an archaeological testing protocol will be implemented for the area of the 50th Street site that may contain archaeological resources, to identify the presence or absence of any resources. If potentially significant resources are identified, a data recovery plan will be developed and implemented. The Amended Programmatic Agreement also sets forth measures to be followed for all construction activities near historic resources. As stipulated in the Amended Programmatic Agreement, MTA will continue to consult with SHPO regarding the design and specifications of the 50th Street facility to ensure that no adverse effects occur to the context or setting of nearby architectural resources. Construction activities for the 50th Street facility will be subject to the project's Construction Protection Plan, which sets forth measures to protect nearby architectural resources from damage during construction. With these measures in place, no significant adverse impacts will occur to archaeological or architectural resources from Preferred Alternative D.

In an environmental review letter dated November 19, 2004, LPC concurred with the assessment of the 50th Street facility's effects (in Alternatives B and C) on architectural resources. In comments dated November 29, 2004, SHPO concurred with the above documentation and determined that the design of the 50th Street facility appeared appropriate. As part of the East Side Access Project's regular design review procedures with SHPO established by the March 2001 Programmatic Agreement, the concept for Preferred Alternative D was presented to SHPO and LPC in November 2005. Both SHPO and LPC staff stated at that meeting their preference for Preferred Alternative D compared to Alternatives B and C. In an environmental review document dated May 19, 2006, LPC concurred with the assessment of Preferred Alternative D's effects on architectural resources. In a

letter dated June 15, 2006, SHPO stated that they have no substantive comments on the April 2006 Revised EA.

Traffic and Transportation

Preferred Alternative D will bring an estimated 23 trucks per day (23 trucks arriving and 23 trucks departing, for a total of 46 "trips"). In the peak hour, this translates to approximately seven truck trips, too few to be expected to adversely affect traffic conditions at nearby intersections. The combination of taxi trips generated by East Side Access and truck trips generated by the 50th Street facility will not result in any significant adverse impacts beyond those already identified in the FEIS. In response to public comments on the January 2005 EA, a level-of-service analysis was completed at a number of study area intersections to confirm that the cumulative effect of taxi trips and truck trips will not result in significant adverse impacts. Preferred Alternative D will provide some benefits to traffic flow on East 50th Street, relative to Alternative B, by providing a through drive that will eliminate truck backing-in movements at the loading dock. Preferred Alternative D will also provide increased truck storage space within the proposed driveway, improved flexibility for loading and unloading operations, and distribution of the trips generated by the 50th Street facility to both 49th and 50th Streets, with trips arriving on 49th Street and departing on 50th Street. Under all alternatives, no adverse effect to the city's Thru Streets program will occur.

Since Preferred Alternative D will not result in significant adverse impacts to traffic conditions on 50th Street, it also will not result in significant adverse impacts to transit service (the M27 and M50 bus). The new loading dock on 50th Street will be similar to those loading docks already present on 50th Street and its presence will not adversely affect pedestrian flow.

Air Quality

Preferred Alternative D will not result in significant adverse impacts related to mobile source air quality. The 50th Street facility will bring a small number of new truck trips to the site, and this number of trucks is not large enough to adversely affect localized air quality.

Preferred Alternative D will not include any stationary fuel combustion sources that will operate continuously and will therefore not result in significant air quality impacts related to stationary sources. The ventilation system, cooling tower, and emergency generator exhaust were designed to be consistent with the New York City Building Code and New York State Mechanical Code, which specify the location of exhausts and cooling towers relative to nearby intakes, and are designed to prevent exhaust from being drawn into neighboring intakes. While the design for Alternatives B and C also meet the relevant code requirements, Preferred Alternative D relocates the emergency generator exhaust and cooling tower to the roof of Colgate Palmolive – about 300 feet above the sidewalk, more than 100 feet from the nearest air intakes at 437 Madison and 320 Park Avenue.

The cooling tower under Preferred Alternative D will replace the existing cooling tower at 300 Park Avenue (which is of similar size to the proposed ESA cooling tower). Like all cooling towers throughout the city, it will emit condensed water vapor with minute amounts of additives to the water to protect public health by preventing the formation of bacteria. This mist will not pose a health threat to nearby buildings.

Under non-emergency conditions, the 50th Street facility will exhaust only ambient air from the terminal, and warm air from the tunnels on days when temperatures in the tunnels exceed 105 degrees. This will be the same type of exhaust as is currently emitted from street-level grates throughout the Grand Central Terminal area. No PCBs or other pollutants will be present in this air, since there will be no source for such pollutants in the ambient air of the concourse or tunnels. Diesel trains will not operate in the tunnels; hence there will be no associated particulate matter emissions.

Exhausting smoke to street level from underground spaces during an emergency is an extremely rare and short-term event that would be unavoidable. Preferred Alternative D would exhaust smoke from elevated louvers rather than from sidewalk grates (as in Alternative A, the FEIS design), thereby minimizing adverse impacts to the public at street level as much as possible.

Noise and Vibration

The truck trips associated with Preferred Alternative D will not result in any significant adverse noise impacts. With the incorporation of noise attenuation features such as silencers, sound absorption lining in the plenums, and a muffler for the generator exhaust, the operation of the Preferred Alternative D will not result in significant adverse impacts related to stationary source noise. With the incorporation of vibration control measures, including spring isolators and concrete inertia bases, equipment vibration levels will not exceed the New York City Zoning Resolution vibration performance standards under any of the build alternatives. Accordingly, Preferred Alternative D will not result in significant adverse vibration impacts to neighboring properties.

Energy

The East Side Access Project will result in beneficial energy impacts by improving transit service and reducing vehicular trips in the Long Island transportation corridor, which consists of Nassau and Suffolk Counties, Brooklyn, Queens, and Manhattan. None of the build alternatives would change these regional and statewide beneficial energy impacts or create any adverse impacts on energy consumption.

Utilities

Preferred Alternative D will avoid the extensive relocation of utilities and Consolidated Edison underground vaults that would be required in Alternative A (the FEIS design) to permit installation of intake and exhaust ventilation grates along 49th and 50th Streets between Park and Madison Avenues. Under all three build alternatives, the length of street to be excavated—125 feet along 50th Street—will be much shorter than that required for Alternative A.

Contaminated Materials

Based on the site history, review of regulatory databases, and site reconnaissance, no potential significant contaminated or hazardous materials impacts are anticipated during soil disturbance and rock excavation activities for the 50th Street facility. If underground storage tanks, contaminated soil and/or groundwater, lead-based paint, asbestos-containing materials, polychlorinated biphenyls, or mercury-containing components are identified, they will be addressed by project-specific hazardous materials plans incorporated in the final design documents. If dewatering is required, testing and treatment prior to disposal to the sewer system or water body will be performed. The project spe-

cifications for dewatering will include testing and potential treatment to ensure that regulatory levels are not exceeded. With these measures in place, no potential significant adverse impacts associated with contaminated or hazardous materials will occur under Preferred Alternative D.

Natural Resources

The 50th Street facility site and surrounding area are located in the densely urbanized Midtown district, which is fully built out with buildings and paved surfaces. No significant adverse impacts will occur to natural resources as a result of Preferred Alternative D.

Safety and Security

Plans for all aspects of train safety, station safety, and public safety (including, for example, emergency communications systems and fire exit procedures) are a key component of the design of East Side Access in its entirety and for individual project elements such as the 50th Street Facility. East Side Access is being designed to be consistent with the standards established by the National Fire Protection Association (NFPA) in NFPA 130 ("Standard for Fixed Guideway Transit and Passenger Rail Systems"), which defines fire protection and life safety requirements for underground rail transit systems including trainways, vehicles, and transit stations. As part of the ESA Project, the 50th Street facility is also required to meet the NFPA 130 standards.

Preferred Alternative D would not result in significant safety or security impacts, because all appropriate state-of-the-art safety and security measures would be implemented to protect the health and safety of LIRR customers and workers and the general public. The combination of several project elements into the 50th Street facility will allow MTA security personnel to have maximum control over access and implementation of appropriate security measures. In Preferred Alternative D, certain project elements—the cooling tower, fuel oil storage tank, and electrical substations—will be located either in the concourse or at an adjacent building, rather than at the 50th Street facility (as they would in Alternatives B and C). The fuel oil tank and substations will be placed in access-controlled rooms in the service corridor portion of the new East Side Access terminal, which will not be accessible to the public, and MTA security personnel will have control of appropriate security measures. Significant cooperation from the owners of the Colgate-Palmolive Building has made it possible to build and maintain the cooling tower on the roof of 300 Park Avenue. Security measures developed pursuant to agreements with the owners of the building will similarly restrict public access and ensure appropriate control by security personnel of the cooling tower. Therefore, relocation of these project elements from the 50th Street facility under Preferred Alternative D is acceptable from a security standpoint.

State-of-the-art security measures that will be incorporated into the 50th Street facility's design under Preferred Alternative D will permit the entire building to function as a security-controlled area. These measures will include access restrictions at all entrance points including the loading dock, intrusion detection systems, and CCTV monitoring. The appropriate degree of structural reinforcements, fire suppression, and blast-retardant materials—in accordance with MTA Security Division recommendations and all relevant codes and standards—will be incorporated into the 50th Street facility design.

Finally, under Preferred Alternative D the 50th Street facility emergency functions have also been designed to protect public health and safety. These functions—the exhaust vents, which would

exhaust smoke from a fire occurring in the southern portion of the new LIRR tunnels, and the emergency generators, which would provide power to the new LIRR concourse and cavern spaces at Grand Central Terminal in the event of a power outage—would allow people to exit those underground spaces safely in the event of an emergency.

Construction Impacts

Construction activities for Preferred Alternative D will generate the disturbances typically associated with demolition and construction of buildings within Midtown Manhattan. The most disruptive construction activities under any of the build alternatives will be the cut-and-cover and excavation work for the project site and adjacent street. The length of street to be affected will be much shorter than with Alternative A (the FEIS design), affecting only 125 feet along 50th Street. While there may be some inconvenience associated with increased noise and traffic and access limitations related to construction, no conflicts are expected with the surrounding land uses during the construction period. The construction of the project will be similar to construction at any other site in Manhattan and will have similar impacts related to street closures. Most of the land uses adjacent to the construction area are office uses, which are less sensitive to noise and other disruptions than residences or schools. The project team will work closely with the Palace Hotel, which is directly across 50th Street from the project site, to limit disturbances to the hotel.

With the implementation of a Maintenance and Protection of Traffic (MPT) plan and a Construction Protection Plan (Attachment C; approved by SHPO and designed to avoid accidental damage to any historic structure located within 200 feet of the construction zone), none of the build alternatives will result in significant adverse construction period impacts in any environmental area.

Preferred Alternative D will reduce the time when noticeable construction activities occur at the site from about six years under Alternatives B and C to less than two-and-a-half years. This revised construction plan was developed to address concerns from neighboring businesses about the potential adverse effects to business activities from construction at the 50th Street facility. Activities on the site during use of the site as a construction access point will occur within the completed building superstructure, and therefore will not be similar to construction activities during this phase for Alternatives B and C. During this time, the facility would function similarly to the completed facility. With a much shorter schedule for noticeable construction activity at the 50th Street site, Preferred Alternative D will result in less disruption to the surrounding area than Alternatives B and C where construction activities would occur on an open site. In addition, like Alternative C, Preferred Alternative D will have a through drive, facilitating smoother truck deliveries during construction.

Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires that each federal agency "shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." The 50th Street facility will not result in any significant adverse environmental impacts during construction or operation. Further, the area around the project site is not home to minority or low-income populations. Therefore, Preferred Alternative D will not result in disproportionately high and adverse effects on minority populations or low-income populations and no additional analysis is warranted.

Secondary and Cumulative Effects

No significant adverse secondary economic impacts to surrounding businesses will result from construction or operation of Preferred Alternative D. The project will implement an MPT plan to manage traffic flow on affected streets during the construction period, and to minimize effects of construction on surrounding stores and businesses. No significant adverse cumulative impacts, with other aspects of the East Side Access Project or other projects in the vicinity, will result from construction activities or from the operation associated with the Preferred Alternative D.

SECTION 4(f) FINDING

Section 4(f) of the Department of Transportation Act of 1966, codified at 49 U.S.C. 303, declares a national policy that a special effort should be made to preserve the natural beauty of the countryside, public park and recreational lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation may not approve transportation projects that use land from publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that there is no feasible and prudent alternative, and that all possible planning has been done to minimize harm (23 CFR 771.135).

FTA has determined that Preferred Alternative D will not use any resources protected by Section 4(f) of the DOT Act of 1966.

FTA NEPA FINDING

The following documents are attachments to this FONSI:

Attachment A: Summary of Comments and Responses on East Side Access 50th Street Revised Supplemental EA, April 2006 (June 2006)

Attachment B: Amended Programmatic Agreement for MTA/LIRR ESA Project (June 2006)

Attachment C: Construction Protection Plan (April 2004) – this is being updated to reflect the Amended Programmatic Agreement.

Attachment D: Measures to Minimize Harm

FTA has reviewed the *MTA Long Island Rail Road East Side Access 50th Street Facility Revised Supplemental Environmental Assessment to the East Side Access Final Environmental Impact Statement*, April 2006, and Attachments A, B, C, and D of this FONSI, and finds pursuant to 23 CFR 771.121 that Preferred Alternative D, as described in these documents, will not result in any new or changed significant impacts relative to those identified in the *East Side Access Final Environmental Impact Statement*, March 2001, and Record of Decision, May 2001.

Letitia Thompson
Regional Administrator, Region 2
Federal Transit Administration

07/27/06
Date

Attachment A
Summary of Comments and Responses on
East Side Access 50th Street Revised Supplemental EA, April 2006

A. INTRODUCTION

This document summarizes and responds to comments on the April 2006 Revised Supplemental Environmental Assessment (April 2006 EA) for the proposed 50th Street facility of the Metropolitan Transportation Authority (MTA) Long Island Rail Road East Side Access Project. MTA prepared the April 2006 EA under the National Environmental Policy Act (NEPA) for the Federal Transit Administration (FTA) as lead federal agency. Public review for the April 2006 EA began with publication and distribution of the document. MTA held a public hearing to receive comments on the document on May 17, 2006, in the fifth floor boardroom at MTA Headquarters, 347 Madison Avenue, New York, NY. The public comment period remained open until June 2, 2006.

This document is organized as follows. Section B lists all resource agencies, elected officials, and individuals and organizations that commented on the April 2006 Revised EA. This list is organized alphabetically. Following each commenter's name is a list of the comments made, referenced by comment number. A total of 26 stakeholders submitted written or oral comments on the April 2006 Revised EA. Section C contains a summary of all comments made and a response to each of those comments. Where similar comments on the same subject matter were made by more than one person, a single comment summarizes all comments on that issue. Following each comment is a list in parentheses of people or organizations that made the comment.

The comments are organized by 11 different subject areas, and provided in the same general order as the organization of the April 2006 Revised EA:

1. Preferred Alternative D Design and Cost
2. Commitment to Preferred Alternative D
3. Project Design: Need for Acquisition of 45 East 49th Street
4. East Side Access Project
5. Socioeconomic Conditions
6. Visual Resources
7. Historic and Archaeological Resources
8. Traffic and Transportation
9. Air Quality
10. Safety and Security
11. Construction Impacts

B. LIST OF COMMENTERS

RESOURCE AGENCIES

1. U.S. Environmental Protection Agency (EPA), Grace Musumeci, Chief, Environmental Review Section, Strategic Planning and Multi-Media Programs Branch, written submission dated June 2, 2006 (Comments 3, 23, 31).
2. New York City Landmarks Preservation Commission (NYCLPC), Gina Santucci, Director of Environmental Review, written submissions dated May 4 and 19, 2006; Amanda Sutphin, Director of Archaeology, written submission dated May 18, 2006 (Comment 18).
3. New York State Office of Parks, Recreation and Historic Preservation, State Historic Preservation Office (SHPO), Beth A. Cummings, Historic Preservation Specialist—Technical Unit, letter dated June 15, 2006 (Comment 17).

ELECTED OFFICIALS

4. Honorable Carolyn B. Maloney, United States House of Representatives, comments made at public hearing, May 17, 2006 (presented by Minna Elias, New York Chief of Staff), and written submission dated June 2, 2006 (Comments 1, 4, 5, 24, 25, 28, 32).
5. Honorable Jonathan L. Bing, New York State Assembly, written submission dated May 19, 2006 (Comments 1, 4, 5, 32).

ORGANIZATIONS AND INDIVIDUALS

6. Mutual of America Life Insurance Company (320 Park Avenue), comments made by Ross Moskowitz, Stroock & Stroock & Lavan, comments made and written testimony submitted at public hearing, May 17, 2006 (Comments 24, 25, 28).
7. Mutual of America Life Insurance Company (320 Park Avenue), comments made by James Roth, Vice President and Associate General Counsel, comments made and written testimony submitted at public hearing, May 17, 2006 (Comments 25, 28).
8. Mutual of America Life Insurance Company (320 Park Avenue), comments made by Dr. Bruce Egan, President, Egan Environmental, comments made and written testimony submitted at public hearing, May 17, 2006 (Comments 24, 25, 26, 28).
9. 437 Madison Avenue fee and leasehold (437 Madison Avenue), comments made by Michael Zarin, Zarin & Steinmetz, comments made at public hearing, May 17, 2006, and written submission dated June 1, 2006 (Comments 1, 4, 5, 32).
10. Jefferson Chase, comments made at public hearing, May 17, 2006 (Comment 12).
11. Joseph Clift, comments made at public hearing, May 17, 2006, and written submission dated June 5, 2006 (Comment 9).
12. Fonteselva New York Limited LLP (45 E. 49th Street), comments made by Jesse Strauss, Blank Rome LLP, at public hearing, May 17, 2006, and written submission dated June 2, 2006 (Comments 2, 6, 7, 14, 16, 19, 20, 21, 27).

13. Fonteselva New York Limited LLP (45 East 49th Street), *Technical Memo Addendum to the statement made by Jesse Strauss for Fonteselva New York Limited LLP, Review of Proposed 50th Street Loading Dock, East Side Access Project*, prepared by Urbitran Associates, Inc., June 2006 (Comments 6, 7, 15, 21, 22).
14. Jeff Gorlach, comments made at public hearing, May 17, 2006 (Comment 9).
15. Herbert Gormley, comments made at public hearing, May 17, 2006 (Comment 9).
16. Institute for Rational Urban Mobility, Inc., comments made by George Haikalis at public hearing, May 17, 2006, and written submission dated June 5, 2006, including 10 attachments (Comments 9, 13, 29).
17. Local Expression, comments made by Steve Stollman at public hearing, May 17, 2006 (Comment 9).
18. Municipal Art Society, comments made by Amanda Hiller, written submission dated June 1, 2006 (Comments 1, 37, 38).
19. National Association of Railroad Passengers, Empire State Passengers Association, New Jersey Association of Railroad Passengers, comments made by Albert Papp, Jr., at public hearing, May 17, 2006 (Comment 9).
20. James O'Shea, comments made at public hearing, May 17, 2006, and written submission dated May 30, 2006 (Comments 9, 30).
21. Palace Hotel (Palace Hotel), by Brian Socolow, Loeb & Loeb, comments made at public hearing, May 17, 2006, and written submission dated June 2, 2006 (Comments 4, 5, 32, 35, 36).
22. Roman Catholic Archdiocese of New York (Archdiocese), comments made by Richard Leland, Kramer Levin Naftalis & Frankel, at public hearing, May 17, 2006, and written submission dated June 1, 2006 (Comments 1, 4, 33, 34).
23. Rena Schilsky, written submission dated May 22, 2006 (Comments 1, 25).
24. Sierra Club, comments made by Patrick Centolanzi, Chair, New York City Chapter Transportation Committee, comments made at public hearing, May 17, 2006 (Comment 8).
25. Richard Stow, comments made at public hearing, May 17, 2006 (Comment 11).
26. Mr. X, comments made at public hearing, May 17, 2006 (Comment 10).

C. COMMENTS RECEIVED

SUBJECT AREA 1: PREFERRED ALTERNATIVE D DESIGN AND COST

Comment 1: The revised 50th Street facility (Preferred Alternative D) has taken into account many of the concerns of the community with the previous proposal and is therefore a considerably better design. We appreciate the changes made to the design, scope, and construction sequencing of the 50th Street facility to address concerns raised by the public. The revised plans reflect a facility that is more consistent with the character of the neighborhood and the desires of the surrounding community. Relocating the cooling tower, emergency generator, and fuel tanks and reducing the

size of the building result in a safer and more environmentally friendly design. Preferred Alternative D is downsized to a scale more consistent with the midblock buildings it will replace, relocates the cooling tower to better disperse the mist, and reconceives the construction staging to minimize construction impacts on surrounding landmarks and other buildings. New public open space in Midtown Manhattan is an inspired idea and would be welcomed by the community. (Archdiocese, Bing, Maloney, Municipal Art Society, Schilsky, 437 Madison Avenue)

Response: Comment noted.

Comment 2: The addition of the public open space in Preferred Alternative D increases the cost of the 50th Street facility by more than $60 million; appears to run afoul of MTA's statutory authority to acquire property for transportation facilities; and is not necessary in light of numerous public open spaces available in the surrounding area (including on 51st Street between Madison and Park Avenues; the indoor space at Park Avenue Plaza, between 52nd and 53rd Streets between Madison and Park Avenues, Paley Park on 53rd Street between Madison and Fifth Avenues and another space immediately to its east on 53rd Street, and numerous public plaza areas at street level). None of the other alternatives would include open space. (45 E. 49th Street)

Response: The additional cost of Preferred Alternative D is related to many different design elements added to address the concerns raised by the public during review of Alternative C, including not only the new open space but also the relocation of the cooling tower to the Colgate-Palmolive Building and additional below-grade excavation to accommodate the tunnel ventilation fans to enable the height of the facility to be comparable to the existing buildings on site. The costs associated with construction of Alternatives B and C and Preferred Alternative D are shown in Table 1, below.

Please also note that the entire 50th Street site will be used for transportation purposes: the 40-foot-wide by 60-foot-deep public open space included in Preferred Alternative D will be placed on the rooftop of the underground portions of the 50th Street facility, which will have three below-grade levels. As shown in Figures 2-12 and 2-13 in Chapter 2, "Project Alternatives," of the April 2006 EA, these underground levels would house the generator room, a large air intake plenum, and the fan control room for the 50th Street facility.

Table 1
50th Street Facility Comparison of Costs

Element	Alternative B	Alternative C	Preferred Alternative D
50th Street Facility Building	$42,551,000	$51,047,000	$53,356,000
Equipment, Excavation, and Real Estate	$71,807,000	$83,807,000	$114,261,000
Open space construction and maintenance	--	--	$7,986,000
Total	**$114,358,000**	**$134,854,000**	**$175,603,000**

With respect to the availability of open space in Midtown, please see Comment 1. While Midtown Manhattan does include numerous small plazas and indoor public spaces, these exist because of New York City's public policies specifically intended to increase the amount of public open space in this densely developed area. The city's Zoning Resolution provides bonus floor area to developers who include plazas and arcades in their buildings. Following the guidance presented in New York City's *City Environmental Quality Review Technical Manual*, a ratio of 0.15 acres per 1,000 nonresidents is used as a measure of adequate open space in an area (see page 3D-2 of the *Manual*). In contrast, the area of Midtown Manhattan around the 50th Street site—encompassing the area between 42nd and 56th Streets, from Third to Fifth Avenue has an estimated 7.3 acres of open space (consisting of 32 public plazas, arcades, and indoor sitting areas) and 199,110 workers, for a total ratio of 0.04 acres per 1,000 workers, which is far below the city's recommended ratio.[1]

Comment 3: Based on our review of the April 2006 EA, we do not anticipate the proposed changes at 50th Street to the East Side Access Project would result in significant adverse impacts. (EPA)

Response: Comment noted.

SUBJECT AREA 2: COMMITMENT TO PREFERRED ALTERNATIVE D

Comment 4: It is imperative that MTA be held to the design presented for Preferred Alternative D in the April 2006 EA. Any approval of the project and NEPA or SEQRA findings

[1] **Sources:** Open space based on *Privately Owned Public Space*, Jerold S. Kayden, The Department of City Planning of the City of New York, and The Municipal Art Society of New York, 2000, supplemented by field visits to three nearby spaces not included in that source—St. Bartholomew's Cathedral, 390 Park Avenue, and 277 Park Avenue—to estimate size. Number of employees based on reverse journey-to-work data from Census 2000, compiled by the New York City Department of City Planning.

must include adoption of monitoring and enforcement measures to ensure that the facility is constructed and maintained in strict accordance with the drawings, commitment, and descriptions presented in for Preferred Alternative D in the April 2006 EA. (Archdiocese, Bing, Maloney, Palace Hotel, 437 Madison Avenue)

The following additional commitments should be incorporated into a document that becomes part of the FTA's record of decision and its NEPA findings:

— FTA shall require and MTA shall commit to record and file against the subject property with the New York County Office of Land Records a restrictive covenant, limiting, in perpetuity, the scope, function, size, framework, and design of the proposed facility as reflected in Preferred Option D in the April 2006 EA until 1) the 50th Street facility is removed from service and is demolished or 2) 100 years from the date that FTA issues its NEPA findings. (437 Madison Avenue, Archdiocese)

— FTA and MTA shall ensure that truck traffic to and from the facility shall not exceed the 23 trucks per day projected for the facility in the April 2006 EA. (Archdiocese)

Response: MTA agrees that the 50th Street facility shall be built in accordance with the Schematic Drawings for Preferred Alternative D that are included in the April 2006 EA, including without limitation, the loading dock configuration, design and location of the open space, general massing of the building, and the construction sequencing plan described for Preferred Alternative D. No restrictive covenant will be filed for the property. Such a covenant is not necessary, because in accordance with NEPA, the commitments made in the April 2006 EA and FTA's environmental finding are legal commitments that will be implemented by MTA. MTA tracks environmental and community commitments made during the project development process with a commitments database to ensure the design drawings and construction specifications incorporate the measures to minimize disruption to the community both during and after construction. The commitments database, design drawings, and construction specifications will be made available for public review, if requested. With regard to the 23 trucks per day projected for the facility once it is operational, this represents an estimate of loading dock use based on the full build-out of the retail spaces in the new concourse, which is a worst-case estimate of use for the foreseeable future. The number of trucks during construction is different, as described below in response to Comment 34.

Comment 5: Environmental monitoring should be conducted during construction and during operation of the 50th Street facility. (Bing, Maloney)

The provisions of the April 2006 EA should be strictly enforced to ensure their implementation. Noise emission analyses should be conducted during and after the construction phase, on a monthly, quarterly, and annual basis, with the results of all such tests promptly conveyed to the hotel and other interested parties. (Palace Hotel)

The vibration control measures described in the April 2006 EA, including concrete absorbers, should be implemented and vibration impacts vigilantly monitored so the hotel, including the historic Villard Houses, does not suffer any damage from vibration and vibration mitigation efforts can be immediately implemented if threshold values are exceeded. (Palace Hotel)

We request that there be implemented and maintained a program of environmental monitoring both during construction and after completion when the facility is operational. This monitoring shall be conducted by an independent environmental engineer licensed by New York State, the results of all such monitoring shall be promptly conveyed to interested parties within three days following MTA's receipt of the information, and in the event that the monitoring shows an unhealthy or hazardous condition for people in the surrounding buildings or on the sidewalks, MTA should immediately implement necessary mitigation measures. (437 Madison Avenue)

Response: MTA has secured the services of Bechtel/URS to serve as the overall Construction Managers (CM) for the project. Project staff includes tunneling experts and professionals in the areas of construction safety, security, quality control, quality assurance, environmental monitoring, geotechnical engineering, and community relations. CM staff and their subcontractors will oversee all work, enforce safe practices, and verify contractor compliance with the design and construction specifications. The CM will be responsible for instrumentation monitoring of settlement, noise and vibration monitoring. Monitoring data and related reports will be shared with individual property owners if requested.

Before the contractor is permitted to begin construction, a pre-construction survey of every structure within a 200-foot-wide radius of the site will be completed. This survey will be conducted by an independent, highly experienced firm to provide assurance for both the MTA and the property owner. The pre-construction survey will involve a detailed inspection, with the owner's permission, of the interior and exterior of the structure. Documentation of all existing conditions of the property will be made and a copy of the survey report will be provided by MTA to the property owner, if requested.

Regarding vibration, the project's Construction Protection Plan sets forth measures to protect historic resources, including Villard Houses, during construction activities associated with the East Side Access Project (see Chapter 4, page 19, of the Construction Protection Plan, which is included in Appendix C-2 to the April 2006 EA). The Construction Protection Plan establishes maximum construction-generated vibration thresholds that are not to be exceeded. A more stringent threshold is established for construction work near historic resources than for other areas. In

addition, as described in Chapter 15, "Construction Impacts," of the April 2006 EA (see page 15-22), the Construction Protection Plan establishes a three-step process to protect historic resources from vibration during construction.

The measures that are specified in the April 2006 EA to control noise and vibration during operation of the facility will be incorporated into the design and construction specifications, and built in accordance with identified performance standards. During the start-up and testing of the facility, noise and vibration levels will be monitored to ensure that the equipment is functioning properly and conforms to the performance standards specified in the contract documents. The monitoring shall be conducted by an independent monitor qualified to perform such tasks. The monitor will be an employee or contractor of the construction manager, which will be independent of the contractor performing the construction work. These documents and the results of the monitoring efforts will be made available to the commenters upon request.

SUBJECT AREA 3: PROJECT DESIGN: NEED FOR ACQUISITION OF 45 EAST 49TH STREET

Comment 6: The April 2006 EA is deficient because it fails to consider an alternative that would allow trucks to enter and exit the 50th Street facility on 50th Street: the April 2006 EA does not consider the addition of a "turntable" mechanism in the 50th Street facility to allow trucks to enter the 50th Street facility without backing in. An alternative with a turntable would greatly reduce the cost of the project. Such turntables are widely used in Europe, including 30-foot diameter tables and larger and smaller sizes. This would eliminate the need for a through drive and the associated property acquisition. It would also improve security, by reducing the number of entrance points to be controlled. This type of facility would require roughly a 50-foot wall-to-wall space to provide ample clearance on both sides as a truck turns, which is greater than the amount of interior space to be provided at the 50th Street entranceway in Preferred Alternative D. (45 E. 49th Street)

Response: Including a turntable on the ground-floor of the 50th Street facility would allow the ground floor to accommodate only one truck at a time, which is not enough capacity to meet the needs of the project. As shown in the April 2006 EA in Figure 2-3 (depicting the ground floor plan for Alternative B), a 50th Street facility that occupies the full site on 50th Street and does not include a through drive from 49th Street would have a total width of approximately 38 feet available for loading dock functions. A turntable that could accommodate a 30-foot truck would be 30 feet in diameter, and therefore only one turntable could be provided within this area. As described in the April 2006 EA, an estimated 3 to 4 trucks are anticipated during the peak hour, and therefore the facility needs to be able to accommodate more than one truck at a time. Preferred Alternative D can accommodate two trucks at a time and can stage an additional three trucks within the facility. Alternatives B and C

analyzed in the April 2006 EA also can accommodate multiple trucks simultaneously. In contrast, the turntable option could only accommodate one truck at a time, and therefore could result in trucks queuing on East 50th Street.

Comment 7: Although the program changes proposed with Preferred Alternative D substantially reduced the space demands at the project site, and ground-floor space was freed up in the process, no re-assessment of the need for the 49th Street entrance and drive through was conducted. Rather than putting open space on the 50th Street frontage of the site, that space could be used for other functions. (45 E. 49th Street)

Response: A re-assessment of the need for the 49th Street entrance and through drive was not conducted because the need for that entrance is unchanged with Preferred Alternative D. The 49th Street entrance allows trucks to enter the loading dock head first, and to exit head first onto 50th Street. The drive-through is still required, to reduce the potential for congestion caused by trucks backing out of the facility's loading dock. No other alternative is available to eliminate the need for trucks backing onto 50th Street. Please see the response to Comment 6, above, which explains why a turntable cannot be used on the project site. Preferred Alternative D accommodates all the required functions and allows an additional public benefit, a public open space.

SUBJECT AREA 4: EAST SIDE ACCESS PROJECT

Comment 8: We support the East Side Access Project overall. (Sierra Club, 320 Park Avenue)

Response: Comment noted.

Comment 9: The East Side Access Project should not be built with a new deep terminal at Grand Central Terminal (GCT). The project should use existing GCT tracks for its terminal. (Clift, Gormley, Gorlach, Haikalis, O'Shea, Stollman) This is feasible, and MTA's previous response to comments on this subject is flawed:

— The East Side Access MIS recommended use of tracks leading to the lower level loop, and the Delcan Study recommended use of the upper level platforms and loop. The 2006 EA cavalierly and unprofessionally dismisses the Delcan report. (Clift, Haikalis, O'Shea, Stollman)

— Further investigation can be conducted to determine the maximum speeds around the loop track, which will be higher than MTA's current assumptions. With higher speeds on the loop track, the capacity of the track is higher. Reliability of the loop track should also not be a concern—the East River tunnels present a greater potential reliability concern, and moreover, the PATH World Trade Center terminal has operated a five-track loop terminal successfully for nearly a century. (Haikalis, O'Shea, Stollman)

- Using GCT instead of a new deep cavern for East Side Access service would save an extra three to four minutes per day per trip; the deep cavern station diminishes passengers' travel time savings considerably. (Gorlach, Haikalis, Stollman)
- Adequate space exists at GCT for LIRR operations, considering that Metro-North Railroad shared GCT for years with Amtrak and that Metro-North has placed into service the new Highbridge Yard in the Bronx, greatly expanding the opportunity for LIRR to use existing tracks at GCT. Metro-North has considerable slack in its current operations, and some operational changes and changes to tracks and signals can be made to facilitate Metro-North's service. (Haikalis, O'Shea)
- MTA has raised concerns about peak hour LIRR passengers overtaxing GCT if the existing terminal is used for an East Side Access terminal. However, with a deep station, passengers who wish to travel to the upper level must use existing crowded escalators and stairs, whereas with an upper level loop alternative, they would already be at the upper level. Additional space can also be provided in the Vanderbilt Room, the Main Concourse, and along Vanderbilt Avenue. (Haikalis)
- The deep station will not allow safe evacuation in an emergency in accordance with federal and international railroad standards. While the National Fire Protection Association (NFPA) Code 130 calls for a "point of safety," it is ambiguous in its definition. With the deep station, as many as 8,000 passengers could be trapped in the mezzanine between the upper and lower level tracks. The April 2006 EA completely ignores and fails to address the capability of the deep cavern station to handle willful acts of destruction. (Clift, O'Shea, Haikalis, Stollman)
- The 50th Street facility is not needed at all if the upper or lower level at GCT is used for LIRR service rather than a new deep station. Currently, Metro-North uses its abundance of tracks at GCT for midday storage, which increases the heat load. Use of the upper level loop tracks for LIRR will actually reduce the heat load. All elements in the 50th Street facility can be relocated to other places—the only element that inherently needs to be at 50th Street is the loading dock, and that is because of the deep cavern option. (Clift, Haikalis, O'Shea)
- The upper level loop alternative would cost considerably less than the current deep cavern proposal. (Gorlach, Haikalis)
- Creation of a future crosstown link between Penn Station and GCT would be precluded by use of a new unlinked level at GCT. This link, which was examined in the Major Investment Study phase of the Access to the Region's Core project, would convert Grand Central Terminal into a through terminal, greatly increasing its capacity. (Haikalis, O'Shea, Papp, Stollman)

— The program to provide a one-seat ride to JFK will require separate platform space that should be on the upper level to facilitate passenger movements to the GCT taxi stand. (O'Shea)

Response: The East Side Access Project, including its deep terminal at Grand Central Terminal, was thoroughly analyzed in a Final Environmental Impact Statement (FEIS) completed in 2001. During the process of preparing the FEIS, ample opportunities were provided for public review and comment; and numerous comments were received and responded to on the design of the project at Grand Central Terminal. Taking into account all of that information, FTA issued its Record of Decision on that project in May 2001. The April 2006 EA does not examine the need for, or design of, the East Side Access Project as a whole. It is intended only to analyze a change to the design of the East Side Access Project at 50th Street, to determine whether that design modification would result in new significant adverse impacts that were not identified in the FEIS. This comment was also made on the January 2005 EA and a response was provided in Chapter 20 of the April 2006 Revised EA. Please see Comment 16 in that chapter.

Comment 10: Can LIRR go to Hunters Point Avenue with this project, to connect to the 7 train? (Mr. X)

Response: The East Side Access Project will not bring additional service to Hunters Point Avenue station.

Comment 11: The East Side Access Project does not meet an important need, because it does not provide a direct, seamless connection from Long Island to the Bronx and Connecticut. Such a route would reduce travel time and crowding at GCT. This option, using a new 34th Street tunnel, should be analyzed in an SEIS. (Stow)

Response: Please see the response to Comment 9, above.

Comment 12: The entire East Side Access Project is without merit; LIRR passengers are fine today. Most LIRR commuters do not go to destinations near GCT in any case. Moreover, East Side Access will make GCT a more inviting terrorist target. Rather than the East Side Access Project, we need a new commuter terminal for both LIRR and New Jersey Transit, using a new tunnel. (Chase)

Response: Please see the response to Comment 9, above.

SUBJECT AREA 5: SOCIOECONOMIC CONDITIONS

Comment 13: The economic consequences of the removal of five very valuable properties from the tax rolls should be estimated as part of the "no build" alternative. The likely economic gain to the city and the region from the redevelopment of these properties without the vent facility should also be specified in the EA. (Haikalis)

Response: The April 2006 EA describes the need to acquire five privately owned properties for Preferred Alternative D in Chapter 4, "Socioeconomic Conditions." However, this acquisition is not part of the "no build" alternative—it is a result of the proposed action. The no action alternative does not analyze the economic consequences of the redevelopment of these properties if the 50th Street facility is not constructed (i.e., the no action alternative) because there is no reason to believe that these properties would be demolished and redeveloped, given that they are in separate private ownership and most have active tenants.

SUBJECT AREA 6: VISUAL RESOURCES

Comment 14: The April 2006 EA notes that 45 East 49th Street is a visual resource and its replacement by a vehicular entrance would adversely affect views to the site. However, the April 2006 EA vastly understates the building's architectural significance. The building is recognized as one of the few commercial buildings in Manhattan designed by Emory Roth, and has been retrofitted by the accomplished Gensler design firm. The April 2006 EA is simply incorrect when it finds that there will be no significant impact to visual resources on 49th Street from the building's demolition and replacement. (45 E. 49th Street)

Response: The April 2006 EA clearly describes the architectural significance of the building at 45 East 49th Street in Chapter 5, "Visual and Aesthetic Considerations" (see page 5-2, third and fourth paragraphs) and Chapter 6, "Historic Resources" (see page 6-6, second paragraph); see also the Historic Resource Inventory completed for the building in Appendix C-3 (page 18) of the April 2006 EA and the comments of the SHPO on the building's architectural merit, provided in a letter dated May 20, 2004, which is included as page 11 in Appendix C-1 to the April 2006 EA. See the response to Comment 15 below regarding the impact of demolition of this building.

Comment 15: The April 2006 EA notes that Preferred Alternative D would remove a building of visual interest, the building at 45 East 49th Street, and that this would adversely affect views to the project site. The main reasons given for the finding that this would not be a significant impact are that the building's narrow width limits views to it, and because these views are in the context of passing traffic, including large trucks on East 49th Street. Preferred Alternative D fails to look for ways to protect the visual interest provided by the existing building, and adds more trucks. It is also unclear why the thousands of people who walk by this site each day should be dismissed as an unimportantly small viewer group just because they can only see the building when they're close to it. (45 E. 49th Street)

Response: The through drive included in Preferred Alternative D requires the use of the property at 45 E. 49th Street; no other alternative is available to avoid trucks backing into or out of the loading dock on 50th Street. As noted by the commenter, the April 2006 EA clearly states that the loss of the building at 45 East 49th Street

would result in an adverse visual impact, but that this impact would not be considered significant because of the building's limited visibility from the surrounding area (see page 5-14 in Chapter 5 of the April 2006 EA). The April 2006 EA does not dismiss those who pass by the site as an "unimportantly small viewer group."

Comment 16: It is doubtful that addition of a new public space will "enliven street life in the area," given that the area already has a great deal of activity. On a recent beautiful day, hundreds of people were using the other open spaces in the nearby area, and therefore the proposed public space would not appear to add to the already active street life of Midtown Manhattan. (45 E. 49th Street)

Response: The commenter notes that many people use open spaces in Midtown during nice weather. For this reason, the addition of a new open space on the East 50th Street block as part of Preferred Alternative D is expected to bring additional people to the block, who will use the new open space. See Chapter 3, "Land Use, Zoning and Public Policy, and Social Conditions," in the April 2006 EA, page 3-14.

SUBJECT AREA 7: HISTORIC AND ARCHAEOLOGICAL RESOURCES

Comment 17: The SHPO has received the April 2006 EA and has no substantive comments at this time. (SHPO)

Response: Comment noted.

Comment 18: The NYCLPC is in receipt of the April 2006 EA. The text is acceptable for architectural resources. NYCLPC concurs with the conclusions related to archaeological resources. NYCLPC is in receipt of the amended Programmatic Agreement of April 2006. NYCLPC has deferred to this SHPO, but is providing comments on architectural resources. Two resources, the Hunters Point Historic District and the New York State Supreme Court, should be added to the list of known resources in Queens; and two resources, Abigail Adams Smith Museum at 421 E. 61st Street and City and Suburban Homes, 1168-1200 First Avenue, should be added to the list of known resources in Manhattan. Exhibit C should also include a column for LPC-eligible resources, not just "pending," which implies they have already been heard. Should the lead agency wish LPC to issue determinations on LPC-eligible properties, photos and clarifying information should be submitted to LPC. (NYCLPC)

Response: Comments noted. The four architectural resources cited do not fall with the Areas of Potential Effect (APE) for the East Side Access Project. The tables in Exhibit C include National Historic Landmarks, properties listed on or determined eligible for the State and National Registers, New York City Landmarks, and properties being considered for designation (i.e., pending) as New York City Landmarks. If

MTA/LIRR decides to seek determinations on LPC-eligible properties, the appropriate documentation will be submitted to NYCLPC.

SUBJECT AREA 8: TRAFFIC AND TRANSPORTATION

Comment 19: The amount of truck traffic generated by the 50th Street facility is estimated at 23 trucks per day. However, no support for this estimate was provided. This comment was made on the January 2005 EA, and was not adequately addressed in the April 2006 EA. While Appendix D-1 is intended to provide support for this estimate, the basis for the estimate is not provided in the appendix. (45 E. 49th Street)

Response: This comment was made on the January 2005 EA and responded to in that document (see Comment 75 in Chapter 20, "Comments and Responses," in the April 2006 EA). As noted in the response, additional information was provided in Chapter 7, "Traffic and Transportation" of the April 2006 EA (not Appendix D-1). An explanation of how the number of trucks was calculated is provided on page 7-6 and 7-7 of the April 2006 EA. As noted there, the existing number of truck trips at the Depew Place loading dock (49 per day) was used to calculate the future trucks expected at 50th Street. Back-up information on the existing trucks at Depew Place is provided in Appendix D-1 (see page 33 of Appendix D-1). The percentage of trucks at Depew Place generated by different GCT functions was determined, and then the amount of additional space for each of those GCT functions that would occur because of the East Side Access Project was determined. The truck trips assigned to each type of space was assumed to increase in proportion to the increase in the amount of space.

Comment 20: Because the truck trip generation is below the amount that triggers the need for a full environmental review, there is still no traffic analysis of Preferred Alternative D's impact on 49th Street. Appendix D-1 provides a highly technical analysis of traffic flow at several intersections around the project site, but does not specifically analyze traffic congestion caused by trucks using the 49th Street entrance. (45 E. 49th Street)

Response: The comment is incorrect. Chapter 7 of the April 2006 EA includes an analysis of Preferred Alternative D's impact on traffic flow on 49th Street. As noted in the chapter (see page 7-12), this alternative will have the same traffic operating characteristics as Alternative C. The text on pages 7-10 and 7-11, including Table 7-6 on page 7-11, presents the results of a simulation model used to estimate the effects of these alternatives on travel time on the block of East 49th Street between Park and Madison Avenues. Table 7-7 presents the results of the intersection level of service analysis conducted for these alternatives for the intersections in the surrounding area including those on East 49th Street.

Comment 21: As noted in Comment 89 on the January 2005 EA, Urbitran pointed out in its earlier report that 40-foot-long trucks, and perhaps 30-foot-long trucks, would have

difficulty turning into the 49th Street entrance. This issue is tersely addressed in a response to the comment in the April 2006 EA, but is not studied. The lot's narrow width (18 feet) will result in a still narrower entrance when constructed (14 feet). Moreover, a security apparatus will likely limit the width of the entrance further, to at most 12 feet. The 30-foot "design vehicle" for this facility would not be able to safely access the site front first, as the "swept path width" trucks need to make this turn would be insufficient, even if the turn were made from the south curb lane. For longer trucks (35 feet or more are common), the problem would be more severe. The narrow width of the entrance and the need to stop for security clearance will both cause traffic congestion on 49th Street. The potential for traffic congestion caused by trucks taking up three lanes of traffic attempting this turn should be fully explored. (45 E. 49th Street)

Response: As noted in the comment, this comment was made on the January 2005 EA and was addressed there (see Comment 89 on page 20-60 of Chapter 20 in the April 2006 EA). As also noted in Chapter 20 of the April 2006 EA, trucks larger than 30 feet long will not use the 50th Street facility. (See response to Comment 84, page 20-58.) This is also stated in Chapter 2, "Project Alternatives," of the April 2006 EA (see page 2-9). This size truck meets the project's delivery needs; for this reason, trucks that are 30 feet or smaller currently make deliveries for Grand Central Terminal at DePew Place. Figure 1 provides a diagram demonstrating the adequate turning radius from the center lane of East 49th Street to the 50th Street facility assuming a 30-foot truck.

Comment 22: The April 2006 EA shows that Preferred Alternative D has a revised interior layout, with a system of freight lifts and dock levelers to allow trucks loading and unloading from the side. Alternative C, which does not have those elements, would require additional truck maneuvers on 50th Street that were not described in the EA. (45 E. 49th Street)

Response: Alternative C would not have required additional truck maneuvers on 50th Street that were not described in the EA. In this alternative, trucks would pull into the driveway on 49th Street and continue through the building to the loading dock. There would be enough space for a truck to pull up within the facility and then back into the loading dock without encroaching on 50th Street or the sidewalk.

SUBJECT AREA 9: AIR QUALITY

Comment 23: We commend the MTA's commitment to use low-sulfur diesel fuel to reduce emissions from the emergency generators. (EPA)

Response: Comment noted.

Comment 24: One glaring omission in the April 2006 EA is the absence of a dispersion modeling analysis. Experts point out that the height and direction of the exhaust vents, for such a large volume of air being driven out into such a confined space, have been changed radically from the configuration at the time of the original EA. Now air emitted from the exhaust vents could adversely affect pedestrians or the Colgate-Palmolive building. (320 Park Avenue, Maloney)

Response: Please see the response to Comments 94, 114, 115, and 116 in Chapter 20 of the April 2006 EA. As noted there, no dispersion modeling was necessary for the January 2005 EA because the station air exhausted from the 50th Street facility during normal conditions will consist only of the ambient air from the station area, and will not be a source of pollutant levels. It will be similar to what is already emitted from the numerous sidewalk grates in the GCT area. The ventilation system was designed to be consistent with New York City and State codes, which specify the location of exhausts with respect to nearby intakes. As also noted in the responses, the exhaust air would be moving at a velocity of 5.5 miles per hour when it is 6 inches from the exhaust louvers, which does not constitute high velocity. Because the 50th Street facility will not have any continuously operating stationary fuel combustion sources and will not be a source of pollutant levels, no dispersion analysis was necessary. For the same reasons, no dispersion modeling is necessary for the new alternative, Preferred Alternative D.

Comment 25: The EA has no analysis to determine whether Preferred Alternative D would expose pedestrians to even higher concentrations of contaminants that are in the exhaust vents in the event that there is a release of toxic substances in the concourse or tunnels that would be vented through the 50th Street facility and discharged to the ambient air. Dispersion modeling should be conducted to estimate what the ambient air impacts and likely consequences would be to pedestrians at street level or to occupants of the neighboring buildings that draw in air from outside. (Maloney, Schilsky, 320 Park Avenue)

Response: Please see the response to Comments 118 and 165 in Chapter 20 of the April 2006 EA. As indicated in those comments, Preferred Alternative D represents an improvement over the no action condition, since it would elevate the exhaust louvers above the street level. Dispersion modeling was not conducted because it would be extremely difficult to model the results of a biological or chemical attack without making arbitrary and speculative assumptions about the nature and amount of chemicals or biological agents and the location of the attack, among other things. Depending on those factors, emissions could affect any number of different locations, including the 50th Street facility as well as many other exhaust locations.

Comment 26: The EA should provide more information on the emission of rail dust from the proposed facility. (320 Park Avenue)

Response: This comment was also made on the January 2005 EA and was responded to in that document (Comment 114 in Chapter 20). As noted in that response, particulate matter generated by abrasion of rails, wheels, and braking systems is not regulated by EPA. There has been only one study of this issue for underground transit systems in New York City. This study, recently conducted by Columbia and Harvard Universities[1], concluded that levels of these metals present in the New York City underground subway system are substantially lower than federally established 8-hour exposure limits for workers. The subway system is used by many more trains per day than the LIRR terminal at Grand Central would be, and is a much older system, so the levels in the new terminal would likely be lower.

SUBJECT AREA 10: SAFETY AND SECURITY

Comment 27: If MTA cannot place a security checkpoint at the 49th Street entrance, given the width of the entranceway, then this deficiency should be addressed in the EA. (45 E. 49th Street)

Response: The security measures to be included in the building are described in Chapter 14, "Safety and Security," of the April 2006 EA. As described there (see page 14-3), the loading dock will have a security checkpoint to ensure that all trucks arriving at the dock have appropriate security clearance.

Comment 28: The EA does not provide the basis for its claim that the new 50th Street facility would be "low visibility." Whether or not the 50th Street facility would be a soft target or a prime target, the fact is that the potential for a security problem exists. The EA does not set forth any plans for emergency management in the event of a disaster. Among the things the community would like to see addressed are: 1) what will the MTA do to notify neighboring buildings; and 2) what will the MTA do to evacuate the people in those buildings should a terrorist event or other release of contaminants occur. They hope the evacuation procedures would include evacuation plans or shelter-in-place recommendations for neighboring buildings, detection systems for toxic gases or radiological materials, and automatic system adjustments such as reversible fans to contain releases. (Maloney, 320 Park Avenue)

Response: The MTA recognizes the potential for security problems at its facilities and has committed to working with adjacent properties on emergency preparedness and response plans as they are developed. Also, please see the response to Comments 165 and 166 in Chapter 20 and Chapter 14 of the April 2006 EA, which describes the MTA Division of Security's review of the proposed 50th Street facility.

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1 Chillrud, S. et al, "Elevated Airborne Exposures of Teenagers to Manganese, Chromium, and Iron from Steel Dust and New York City's Subway System," *Environmental Science and Technology*; February 1, 2004.

Comment 29: We request a full and comprehensive review of security issues by appropriate police, fire, and security officials. (Haikalis)

Response: The MTA has met, and will continue to meet, with the appropriate police, fire and security officials. Please see Chapters 14 and 19 of the April 2006 EA, which describes the MTA Division of Security's review of the proposed 50th Street facility, which was conducted by outside security experts, and a description of the coordination with the Fire Department.

Comment 30: Moving the fuel supply into GCT with Preferred Alternative D is dangerous for passengers. At 7 World Trade Center, the fuel supply could not be shut off and as a result the fire burned continually. (O'Shea)

Response: Please see the response to Comment 170 in Chapter 20 of the April 2006 EA. As noted in that response as well as on page 14-4 of Chapter 14, the location and design of the fuel oil storage tank has been reviewed and accepted by the Fire Department of New York.

SUBJECT AREA 11: CONSTRUCTION IMPACTS

Comment 31: We commend the MTA's commitment to use ultra-low sulfur diesel fuel with diesel oxidation catalysts and/or diesel particulate filters on all construction equipment to minimize emissions. (EPA)

Response: Comment noted.

Comment 32: Environmental monitoring should be conducted during construction of the 50th Street facility. This should include noise emission analyses. (Bing, Maloney)

The provisions of the April 2006 EA should be strictly enforced to ensure their implementation. Because of the proximity of the Palace Hotel to an active construction site, the noise levels at the site must be kept at or below the levels stated in the April 2006 EA. Noise emission analyses should be conducted during and after the construction phase, on a monthly, quarterly, and annual basis, with the results of all such tests promptly conveyed to the hotel and other interested parties. (Palace Hotel)

The vibration control measures described in the April 2006 EA, including concrete absorbers, should be implemented and vibration impacts vigilantly monitored so the hotel, including the historic Villard Houses, does not suffer any damage from vibration and vibration mitigation efforts can be immediately implemented if threshold values are exceeded. (Palace Hotel)

We request that there be implemented and maintained a program of environmental monitoring both during construction and after completion when the facility is operational. This monitoring shall be conducted by an independent environmental

engineer licensed by New York State, the results of all such monitoring shall be promptly conveyed to interested parties within three days following MTA's receipt of the information, and in the event that the monitoring shows an unhealthy or hazardous condition for people in the surrounding buildings or on the sidewalks, MTA should immediately implement necessary mitigation measures. (437 Madison Avenue)

Response: In accordance with NEPA, the commitments made in the April 2006 EA and FTA's environmental finding are legal commitments that will be implemented by MTA. MTA tracks environmental and community commitments using a commitments database to ensure the design drawings and construction specifications incorporate the measures to minimize disruption to the community both during and after construction. The commitments database, design drawings, and construction specifications will be made available for public review upon request.

MTA has secured the services of Bechtel/URS to serve as the overall Construction Managers (CM) for the project. Project staff includes tunneling experts and professionals in the areas of construction safety, security, quality control, quality assurance, environmental monitoring, geotechnical engineering, and community relations. CM staff and their subcontractors will oversee all work, enforce safe practices, and verify contractor compliance with the design and construction specifications. The CM will be responsible for instrumentation monitoring of settlement, noise and vibration monitoring. Monitoring data and related reports will be shared with individual property owners if requested.

Before the contractor is permitted to begin construction, a pre-construction survey of every structure within a 200-foot-wide radius of the site will be completed. This survey will be conducted by an independent, highly experienced firm to provide assurance for both the MTA and the property owner. The pre-construction survey will involve a detailed inspection, with the owner's permission, of the interior and exterior of the structure. Documentation of all existing conditions of the property will be made and a copy of the survey report will be provided by MTA to the property owner, if requested.

Regarding vibration, the project's Construction Protection Plan sets forth measures to protect historic resources, including Villard Houses, during construction activities associated with the East Side Access Project (see Chapter 4, page 19, of the Construction Protection Plan, which is included in Appendix C-2 to the April 2006 EA). The Construction Protection Plan establishes maximum construction-generated vibration thresholds that are not to be exceeded. A more stringent threshold is established for construction work near historic resources than for other areas. In addition, as described in Chapter 15, "Construction Impacts," of the April 2006 EA (see page 15-22), the Construction Protection Plan establishes a three-step process to protect historic resources from vibration during construction.

Comment 33: The following commitments should be incorporated into a document that becomes part of the FTA's record of decision and its NEPA findings:

— Construction of the facility must comply with the construction sequencing plan described for Preferred Alternative D in the April 2006 EA. FTA and MTA must also be required to engage in further examination of construction methods and design modifications with the New York City Department of Transportation to determine whether weekday lane closures between 7 AM and 7 PM can be further reduced.

— All documentary support, including geotechnical studies and construction protection plans, must be made available to the public and all appropriate measures must be taken to ensure that construction activities shall not detrimentally impact nearby historic buildings. (Archdiocese)

Response: See the responses to Comments 4 and 5, above, regarding commitments and monitoring during construction.

MTA and its contractors will adhere, at a minimum, to the lane closure schedule described in the April 2006 Revised EA and will continue to work with NYCDOT to develop Maintenance and Protection of Traffic Plans that minimize, to the greatest extent practicable, traffic and access impacts on 50th Street. As noted in the comment, the April 2006 EA provides information on potential lane closures required during construction of the 50th Street facility and on the maintenance and protection of traffic plan to be employed. MTA will continue to work with NYCDOT to further reduce lane closures.

Comment 34: To provide a meaningful assessment of the project's potential traffic impacts during construction, MTA must clarify whether the 23 trucks per day applies only to the period that the facility is fully operational, or whether it also applies to the period during which construction of the LIRR concourse will take place. While the April 2006 EA provides that the 50th Street facility would function similarly to the completed facility while it is being used for construction access to the concourse, and that the loading dock would be used to accept deliveries related to construction activities on the concourse, it does not specify whether truck traffic to and from the facility would be limited to 23 trucks per day during this time. (Archdiocese)

Response: The project would result in 23 truck trips per day during operation, not construction. Chapter 15, "Construction Impacts," of the April 2006 EA describes the numbers of trucks expected during each phase of construction (see pages 15-12 and 15-13) and evaluates the potential effects of these trucks on traffic in the immediate area. As described there, during demolition and excavation, 20 trucks will arrive at and depart from the site each day. For the rest of the construction period (use of the site as an access point and building construction), 10 trucks will typically arrive at and depart from the site each day, except when certain activities are occurring: while the building is being used as an access point and concrete deliveries are occurring, up to

50 trucks will arrive at and depart from the site each day; and during the period when the structural steel for the 50th Street building is being delivered, up to 20 trucks will arrive at and depart from the site each day.

Comment 35: The Palace Hotel's peak season is from approximately September through January. In order to minimize the economic impact of construction of the 50th Street facility on the hotel, construction should be scheduled so that it does not take place during those months. We trust that the construction schedule promised in the April 2006 EA, including no construction during the hotel's peak season, will be adhered to. (Palace Hotel)

Response: During a meeting between representatives of the Palace Hotel and MTA on November 22, 2005, a commitment was made to develop a construction schedule for the 50th Street facility that would not require lane closures between the months of September and January. The East Side Access project is planning to do the work in the street that requires lane closures from January to end of August. Once the street is decked, construction will be occurring year-round, beneath the deck. Construction will also occur on the project site itself year-round. MTA will adhere to that commitment as well as all others stated in the April 2006 EA. Also, see response to above comments.

Comment 36: The Palace Hotel is concerned that lane closures on East 50th Street during construction will impede vehicular access to the hotel's principal entrance across from the 50th Street facility as well as the parking garage adjacent to the entrance. Taxis and black cars, which account for most of the trips to and from the hotel, may find it difficult to drive on 50th Street, which would inconvenience guests and visitors and could cause them to stay at other hotels. It is imperative that the lane closure schedule promised in the April 2006 EA be strictly adhered to, and, if necessary, further modified to avoid a negative impact to the hotel. (Palace Hotel)

Response: MTA and its contractors will adhere, at a minimum, to the lane closure schedule described in the April 2006 Revised EA and will continue to work with NYCDOT to develop Maintenance and Protection of Traffic Plans that minimize, to the greatest extent practicable, traffic and access impacts on 50th Street. As noted in the comment, the April 2006 EA provides information on potential lane closures required during construction of the 50th Street facility and on the maintenance and protection of traffic plan to be employed. Please also see the response to Comment 35.

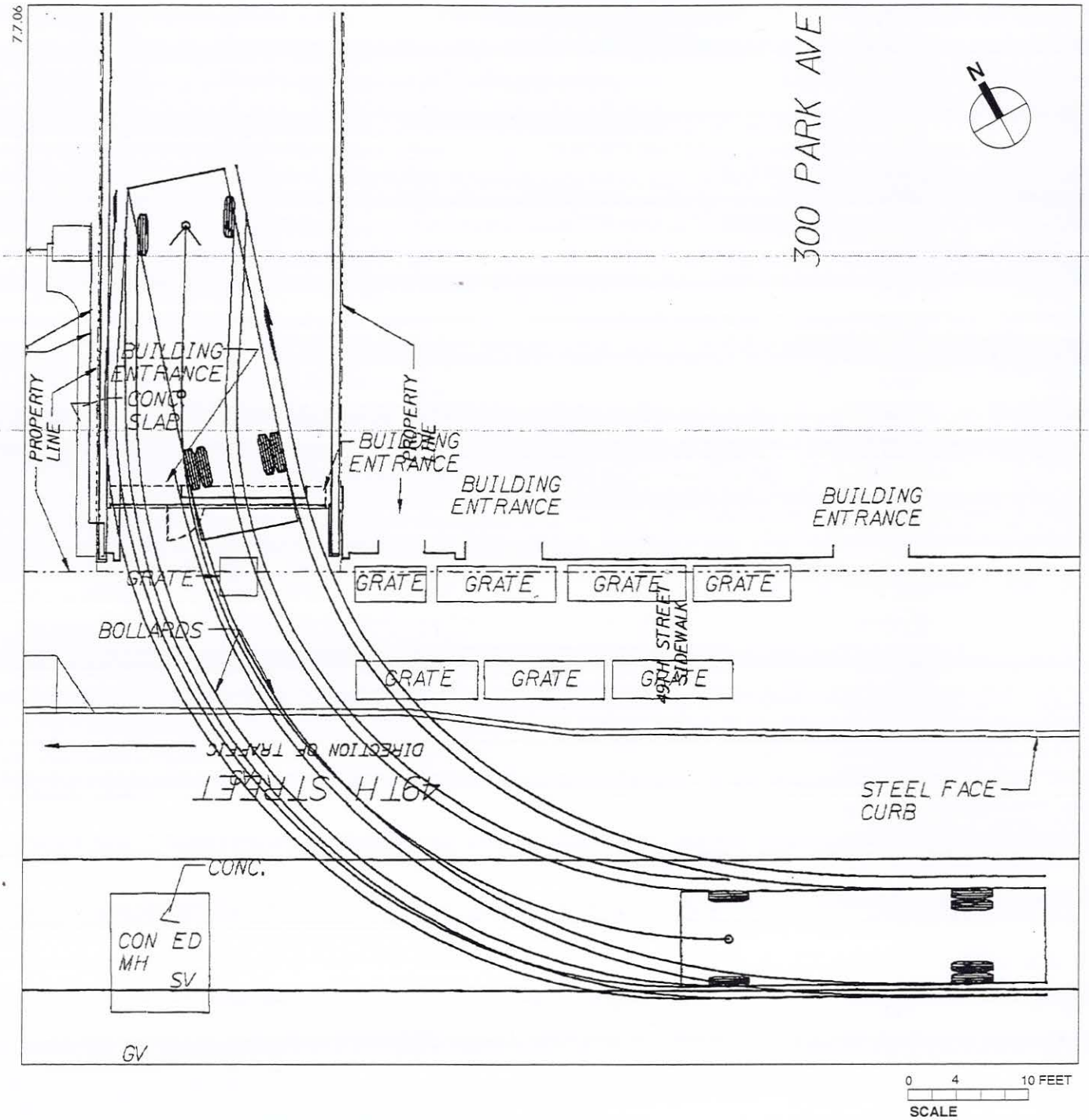
Comment 37: The Municipal Art Society remains troubled by the potential construction impacts of the project, particularly potential impacts of construction dust and blasting on the nearby Villard Houses. The EA predicts that much of the construction dust will settle near the project site, but does not address the impacts the dust might have on

the Villard Houses, which are 80 feet from the site and adjacent to the 50th Street excavation area. (Municipal Art Society)

Response: Chapter 15, "Construction Impacts," of the April 2006 EA describes the measures to be used to control dust at the 50th Street site during construction (see page 15-15). Because significant dust impacts on nearby buildings including the Villard Houses are not anticipated to result from construction of the 50th Street facility, the EA does not analyze impacts dust might have on the Villard Houses. Dust control specifications that will be monitored daily include all reasonable requirements to minimize dust from excavation and trucking operations including, wheel wetting, tarping trucks, and wetting the site and sidewalk.

Comment 38: As for potential blasting impacts, we recognize that a Construction Protection Plan has been developed, in consultation with the State Historic Preservation Office, to monitor historic structures for vibration-induced adverse impacts so that further adverse impacts can be mitigated. However, this "wait and see" approach is not a substitute for a thorough assessment of these potential impacts prior to approval of the project. (Municipal Art Society)

Response: A thorough assessment of potential impacts related to construction of the 50th Street facility has been completed. With respect to controlled drill-and-blasting and other construction activities, SHPO has established a criterion for vibration levels at historic resources that is sufficiently low to ensure not only the structural protection of the resource but also protection of the façade. The project has adopted this limiting value (0.5 inch/second) and will monitor vibration levels daily to ensure that the contractor's activities adhere to the stringent standards. Also, please see the response to Comment 32. ✷



EAST SIDE ACCESS

50th Street Facility

Figure 1

Turning Radius Diagram for 30-Foot Truck Turning into Through Drive from 49th Street

Attachment B:
Amended Programmatic Agreement for MTA/LIRR ESA Project

June 2006

AMENDED PROGRAMMATIC AGREEMENT
AMONG THE
FEDERAL TRANSIT ADMINISTRATION,
METROPOLITAN TRANSPORTATION AUTHORITY,
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF THE
MTA/LIRR EAST SIDE ACCESS PROJECT

WHEREAS, the Federal Transit Administration ("FTA") has identified through an Final Environmental Impact Statement ("FEIS") prepared in 2001 under the National Environmental Policy Act ("NEPA") that the MTA/LIRR East Side Access Project would have an effect on properties included in or eligible for inclusion in the National Register of Historic Places; and

WHEREAS, the FTA has consulted with the Advisory Council on Historic Preservation ("the Council") and the New York State Historic Preservation Officer ("SHPO") pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act; (16 USC 470f), and Section 110(f) of the same Act (16 USC 470h-2(f)); and

WHEREAS, following consultation with the Council in 2000, FTA, MTA/LIRR, and SHPO entered into a Programmatic Agreement in 2001 ("2001 Programmatic Agreement"); and

WHEREAS, subsequent to the issuance of the FEIS and Record of Decision for the MTA/LIRR East Side Access Project in 2001, new project elements and modifications have been identified through the 50th Street Revised Supplemental Environmental Assessment to the FEIS, dated April 2006 ("EA"), through Queens Revision 14-4M Environmental Analysis, dated November 2005 ("Queens Revision"), and through the Technical Memorandum Assessing Potential Design Changes, dated February 2002 ("2002 Tech Memo") prepared under NEPA; and

WHEREAS, the revised MTA/LIRR East Side Access Project may have an effect on additional historic and archaeological resources not identified in the FEIS; and

WHEREAS, the Metropolitan Transportation Authority ("MTA") has participated in the consultation and has been invited to execute this Amended Programmatic Agreement; and

WHEREAS, the New York City Landmarks Preservation Commission ("LPC") has been included in the consultation as a consulting party; and

WHEREAS, pursuant to 36 CFR Section 800.8(c), FTA is utilizing the process under the NEPA to comply with its requirements under Section 106 of the National Historic Preservation Act; and

WHEREAS, the 2001 Programmatic Agreement pertained to potential project effects on archaeological and historic properties/structures in Areas of Potential Effect (APEs) that were evaluated in the FEIS; and

WHEREAS, the APEs were further defined through development of a construction protection plan; and

WHEREAS, the MTA has progressed project engineering subsequent to the FEIS and has identified additional archaeological and historic properties/structures in areas not covered by the former APEs in the Manhattan and Queens alignment of the MTA/LIRR ESA project; and

WHEREAS, the parties have determined that it is appropriate to enter into an Amended Programmatic Agreement to identify the APEs of the current project alignment as specified in the FEIS and through subsequent engineering identified in the EA, Queens Revision, and 2002 Tech Memo; and

WHEREAS, Exhibit A provides a list of areas of archaeological sensitivity within the redefined APE, and Exhibit B depicts the approximate locations of these areas; and

WHEREAS, Exhibit C provides a list of known historic properties/structures within the redefined APE, and Exhibit D depicts the approximate locations of these properties/structures; and

WHEREAS, Exhibits B depicts the redefined APE for Archaeological resources and Exhibit D depicts the redefined APE for Historic resources; and

WHEREAS, the APEs depicted in Exhibits A, B, C, and D reflect the APEs of the current project alignment; and

WHEREAS, this Amended Programmatic Agreement replaces the 2001 Programmatic Agreement;

NOW, THEREFORE, FTA, MTA, and SHPO agree that the MTA/LIRR East Side Access Project (the "East Side Access Project") shall be administered in accordance with the following stipulations to ensure that potential effects on historic and archaeological resources are taken into account and to satisfy FTA's Section 106 responsibility for all aspects of the MTA/LIRR East Side Access project.

STIPULATIONS

FTA, MTA, AND SHPO AGREE THAT THE FOLLOWING STEPS HAVE BEEN UNDERTAKEN IN CONNECTION WITH THE EAST SIDE ACCESS PROJECT AND THAT FTA INCLUDED THE OBLIGATIONS SET FORTH IN THIS AGREEMENT AS PART OF ITS RECORD OF DECISION AND AS A CONDITION OF FTA's APPROVAL OF A GRANT(s) ISSUED FOR THE PROJECT, AND WILL MANDATE THAT THESE REQUIREMENTS BE MET AS PART OF OTHER ENVIRONMENTAL REVIEWS TO ENSURE THAT THESE MEASURES ARE IMPLEMENTED AS PART OF THE COMPLIANCE WITH THE SECTION 106 PROCESS AND THE SUBSEQUENT PLANNING, DESIGN, AND CONSTRUCTION OF THE EAST SIDE ACCESS PROJECT .

I. ARCHAEOLOGICAL RESOURCES

The FEIS, EA, Queens Revision, and 2002 Tech Memo prepared under NEPA identify several areas that may be archaeologically sensitive within areas of potential effect ("APEs") for the project. The following measures will be carried out in connection with implementation of the East Side Access Project for all areas within those APEs that MTA in consultation with SHPO identified as potentially archaeologically sensitive and in which construction activities will occur. Those areas are listed in Exhibit A and depicted in Exhibit B.

A. Soil Borings

At all sites where the potential for archaeological sensitivity was identified through Stage 1A evaluation and where soil borings were determined to be appropriate, MTA in consultation with SHPO will develop and implement a soil boring program to better delineate the filling and grading that have occurred and determine archaeological sensitivity. At all sites where borings confirm the potential for archaeological resources to exist, MTA will conduct further subsurface testing, in consultation with SHPO, in accordance with Paragraph I.B, below.

B. Field Testing

At all sites where the potential for archaeological resources to exist is confirmed by soil borings conducted under Paragraph I.A above, MTA, in consultation with SHPO, will perform further subsurface testing and/or field monitoring to identify the presence or absence of archaeological resources. The field evaluation and testing program has been developed by MTA in consultation with SHPO and at a level sufficient to determine if sites meet the criteria for listing in the National Register. In consultation with FTA and SHPO, MTA will apply the National Register criteria and reach one of the following conclusions:

1. The site does not meet the National Register criteria; no further action is required.
2. The site does meet the National Register criteria, in which case the site will be treated in accordance with Paragraph I.C below.
3. A dispute exists regarding whether the criteria are met, in which case the opinion of the Keeper of the National Register of Historic Places at the National Park Service ("the Keeper") will be sought to resolve disagreements, and the site treated in accordance with the Keeper's findings.

MTA will notify SHPO and FTA of conclusions regarding evaluation of all sites for National Register eligibility.

C. Mitigation and Data Recovery

MTA, in consultation with SHPO, will consider measures for avoidance of archaeological sites, such as design modification, rather than data recovery. For those sites determined to be eligible for inclusion in the National Register where MTA determines, in consultation with FTA and SHPO, that avoidance is not practicable, MTA, in consultation with SHPO, shall develop and implement a data recovery plan that is consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* and *Standards and Guidelines for Archeological Documentation* and the Council's *Treatment of Archeological Properties* and subsequent amendments.

The plan will be designed to recover data sufficient to address significant research issues and test assumptions and thus substantially preserve the archaeological value of National Register eligible or listed sites; allow for addressing unanticipated resources or site conditions; include a process for consultation with SHPO; and include a schedule of proposed data recovery efforts.

D. Professional Standards

MTA shall ensure that all archaeological research, testing, and analysis conducted pursuant to this Agreement are carried out by or under the direct supervision of a person or persons meeting the Secretary of Interior's Professional Qualifications Standards and certified by the Register of Professional Archeologists. FTA shall ensure that all final archaeological reports are responsive to the New York Archaeological Council's Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State and to the Department of the Interior's *Format Standards for Final Reports of Data Recovery Program.*

E. Curation

MTA shall develop, in consultation with SHPO, and in accordance with 36 CFR Part 79, a plan for the analysis and curation of material and records from any archaeological excavations. MTA shall be responsible for the implementation of such a plan.

F. Phasing of Construction Activities and Archaeological Field Work

MTA will ensure that all steps practical to ensure that archaeological field analysis and data recovery, if required, will be completed prior to construction activities in the vicinity of affected resources. The MTA, in consultation with FTA and SHPO, will develop a plan to appropriately phase the archaeological field analysis and data recovery with construction activities.

II. HISTORIC PROPERTIES/STRUCTURES

The FEIS, EA, Queens Revision, and 2002 Tech Memo prepared under NEPA identify known historic properties in the redefined APE (see Exhibits C and D). In consultation with SHPO, the physical and contextual impacts on the historic properties/structures of the current project alignment were assessed and potential adverse effects identified. It was determined that the East Side Access Project would have the potential for impacts on all resources listed in Exhibit C. A comprehensive program for treatment of historic properties/structures will be developed and implemented by MTA in the manner set forth below.

A. Construction Protection Plan

The MTA, in consultation with SHPO, has developed and is implementing a construction protection plan to ensure the protection of known historic resources located within the redefined APE from damage due to the construction of the East Side Access Project. The MTA shall ensure that any construction conducted within the redefined APE of an identified historic resource will be included in the construction protection plan.

B. Design Specifications

The MTA, in consultation with SHPO, has developed design specifications to ensure that new elements constructed as part of the East Side Access Project inside Grand Central Terminal are compatible with the terminal's historic and architectural qualities. The MTA, in consultation with SHPO, will also develop design specifications to ensure that new above-ground structures constructed as part of the East Side Access Project (such as the proposed 44th Street Vent Plant (adjacent to the Yale Club) and 50th Street Vent Plant (across from the Villard Houses) within the contextual APE (i.e., within visual range of a resource)are compatible with the historic and architectural qualities of those resources and any other historic resources listed on or eligible for the National Register or New York City Landmarks The design and specifications for those elements of the East Side Access Project will be developed in consultation with the SHPO and submitted to the SHPO for approval.

III. REPORTING

MTA shall ensure that all final archaeological reports and all final historic resources reports resulting from the actions pursuant to this Agreement shall be provided to SHPO.

Annual reports about archaeological resources and historic structures will be completed and provided by MTA to FTA and the SHPO one year from the date this Agreement is fully executed and every year thereafter until project completion. The signatories to this Agreement will review implementation of the Agreement and determine whether revisions are needed at the time the reports are submitted. If revisions are needed, the parties to this Agreement will consult to make such revisions.

IV. DISPUTE RESOLUTION

Should the SHPO object within 30 days to any action proposed pursuant to this agreement, FTA shall consult with the objecting party to resolve the objection. If FTA determines that the objection cannot be resolved, FTA shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will provide FTA with recommendations or comments, which FTA will take into account in reaching a final decision regarding the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; FTA's responsibility to carry out all actions under this agreement that are not the subject of the dispute will remain unchanged.

V. OTHER

The SHPO and FTA may monitor activities carried out pursuant to this Programmatic Agreement, and will review such activities if so requested. MTA will cooperate with the FTA and SHPO in carrying out their monitoring and review responsibilities.

Any party to this Programmatic Agreement may request that it be amended, whereupon the parties will consult to consider such amendment.

If the East Side Access Project does not proceed, this Agreement shall be terminated.

VI. PROJECT STATUS

To date, no archaeological resources have been physically identified and therefore, no mitigation measures have been implemented.

Archaeologists have reviewed geotechnical borings taken in the areas of archaeological sensitivity. This review has yielded information about the soil and fill layers that will, or have been, used to prepare the testing protocols to be included in the contract documents as they become available. This information has also been used to identify the archaeologically sensitive areas and screen out areas of prior disturbance that would have no potential for intact remains.

At Highbridge Yard, the project archaeologists completed a Topic Intensive Study related to a roundhouse and other historic railroad elements at the site. The study concluded and SHPO concurred that these artifacts are not eligible for listing on the register.

For historic architectural resources, the designs of the 44th Street Ventilation Building (adjacent to the historic Yale Club), concourse plans affecting the GCT Dining Concourse, and the 50th Street Facility (across the street from the historic Villard Houses) have been reviewed with SHPO at the conceptual or later level of design. As each of these designs progress toward 60 percent completion and a greater amount of architectural detail is defined, a second review by SHPO will be solicited.

EXECUTION AND IMPLEMENTATION OF THIS PROGRAMMATIC AGREEMENT EVIDENCES THAT FTA HAS SATISFIED ITS SECTION 106 RESPONSIBILITIES FOR ALL INDIVIDUAL UNDERTAKINGS OF THE PROGRAM.

FEDERAL TRANSIT ADMINISTRATION

By: Letitia Thompson **Date:** 07/27/06

Letitia Thompson
Regional Administrator, Region II

METROPOLITAN TRANSPORTATION AUTHORITY

By: _____ **Date:** 6/27/06

Christopher Boylan
Deputy Executive Director, Corporate and Community Affairs

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By: _____ **Date:** 7/19/06

Bernadette Castro
Commissioner

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT A

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT A

MTA/LIRR East Side Access Project
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref.[1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[2]	Proposed Construction
1	Area between Northern Blvd. & Yard A (Block 239, Lots 35 & 48)	Precontact Resources	Below approximately 4-20 feet of fill. Resources potentially at elevations of 300-288 feet (based on soil boring profiles prepared for Contract CQ028)	Cut and cover tunnel excavation. Construction of Yard Services Building/Vent Structure.
		Historic period resources: mid 19th century Payntar Homestead	In the lowest levels and beneath approximately 4 to 20 feet of fill. The top of the sensitive area ranges from elevations of 310-305 feet at Northern Blvd to 299-297 feet near Yard A	
2	Northern edge of Yard A	Precontact resources	Below approximately 4 to 8 feet of fill . Resources potentially at elevations of 307-293 feet	Construction in Yard A for new storage yard facility and construction of new yard systems including lighting and power
3	Northern edge of Yard A	Precontact resources	Below approx. 4-8 feet of fill between Thomson Ave & Queens Blvd. near 41st Ave. Resources potentially at elevations of 307-293 feet	Yard A storage yard facility
4, 5	Area in Yard A extending southwest from old LIRR trackbed to proposed tunnel alignment	Precontact resources	Below approximately 8-13 feet of fill. Resources in Area 4 potentially at elevations of 303-288 feet. Resources in Area 5 potentially at elevations of 306-289 feet in Yard A and 306 to 296 in the area of Amtrak bldgs 3 & 4	Cut and cover tunnel excavation. Construction in Yard A.
6a[3]		Precontact resources	Below approximately 0-12.75 feet of fill. The top of the sensitive area would be at and below an elevation of approx. 320 feet, declining to below 307.75 feet from east to west.	None.
		Historic period resources:	In the lowest levels and beneath approximately 0-10.25 feet of fill. The top of the sensitive area would be between elevations of approximately 312.75-to 327 feet, declining from east to west.	

MTA/LIRR East Side Access Project (cont'd)
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref. [1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered [2]	Proposed Construction
6b	Area near Queens Boulevard	Precontact resources	Below approximately 2-17.5 feet of fill. Resources potentially at elevations of 317-307 feet on the rail embankments and 313-303 feet in Yard A.	Harold Interlocking Reconfiguration. New Sunnyside Station.
		Historic period resources: 19th-early 20th century residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and beneath approximately 2-17.5 feet of fill. The top of the sensitive area ranges from an elevation of 317 feet on the rail embankments to one of 313 feet in Yard A	
6c[3]	Area near Queens Boulevard at Skillman Avenue	Precontact Resources	Below approximately 2 feet of fill. Resources potentially at elevations of 335-302.75 feet, increasing from east to west	Proposed new storm sewer.
7	Triangular area of tracks bounded by north edge of Yard A, Dutch Kills St. and Thomson Ave. Bridge	Historic period resources: late 19th-early 20th cent. Residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation, including for new utilities
8	Area adjacent to and east of Dutch Kills St. and the Thomson Ave Bridge	Historic period resources: late 19th-early 20th cent. residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation including for new utilities. Harold Interlocking Reconfiguration.
9	Subsequent to the FEIS, a review of boring logs and re-analysis of sensitivity has resulted in the removal of this sensitive area, which was located along the LIRR Main Line between the 39th Street Bridge and 43rd Street.			
10	Northern edge of Yard A	Precontact Resources	Below approx. 11-17 feet of fill. Resources potentially at approximately at elevations of 297-288 feet	Cut and cover tunnel excavation. Yard A storage yard facility.
		Historic period resources: ca.1650 grist mill between 41st Ave. and 40th Road	In the lowest levels and beneath approx. 11-17 feet of fill. The top of the sensitive area is approximated at an elevation of 297 feet	
11	L-shaped area adjacent to western end of loop track	Historic period resources: British & Hessian Revolutionary War troop occupation	In and below fill. Some areas may have up to 6.75' of surface removed, others up to 14' of fill added. The top of the sensitive area is approximated at an elevation of 346 feet	Harold Interlocking Reconfiguration
12	Portions of the area bounded by 43rd and 46th Sts, and 37th and Barnett Avenues	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 10 –20 feet of fill. The top of the sensitive area is approximated at an elevation of 340 feet	Harold Interlocking Reconfiguration, including filling and construction of retaining walls
13	Northern edge of Yard A between former Crane Street and former Nott Avenue (44th Drive)	Precontact Resources	Below approximately 5-10 feet of fill. Resources potentially at elevations of 293-303 feet near Crane Street and at elevations of 298-308 feet near former Nott Avenue.	Excavation in Yard A, including for new utilities.

MTA/LIRR East Side Access Project (cont'd)
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref. [1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered [2]	Proposed Construction
14[3,4]	Area 0-50 feet west of the 39th St Bridge and 0-278 feet north of the LIRR Main Line	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 0-15 feet of fill. The top of the sensitive area is approximated at an elevation of 345 feet.	New sewer to be built parallel to the 39th Street Bridge. Present engineering indicates that sewer will be excavated outside the area of potential sensitivity.
15[3]	Area north of the LIRR Main Line between the Honeywell Street and 39th Street Bridges	Historic period resources: late 19th – early 20th cent. Residential lot features ((e.g., shafts from privies, cisterns, and wells)	Just beneath the surface to the lowest levels of, and beneath approximately 9 feet of fill. The top of the sensitive area is approximated at elevations of between 342 and 347.75 feet.	Proposed new sanitary sewer.
16[3]	Area north of LIRR Main Line east of Area No. 15	Historic period resources: late 19th – early 20th cent. Residential lot features ((e.g., shafts from privies, cisterns, and wells)	Just beneath the surface to the lowest levels of, and beneath approximately 10 feet of fill. The top of the sensitive area is approximated at elevations of between 342 and 347.75 feet.	Proposed new sanitary sewer, Central Instrument Location (CIL) Building, and storm and seepage basin.
17[3,4]	Woodside Interlocking: rear lots of former Lots 57/58, 59, and 60 of Block 1342	Historic period resources: 19th century residential shaft features (e.g., privies)	Anticipated just beneath the surface	Excavation for signal hut and retaining wall. Present engineering indicates that excavation will occur approximately 10 feet away from sensitive area.

Notes:

1 Areas 1-17 correspond to Exhibit B, "Area of Potential Effect and Archaeologically Sensitive Areas."

2 Except for the contract for the cut and cover tunnel excavation, which affects Areas 1, 4, 5, and 10, the estimated depth of potential archaeological sensitivity is based on geotechnical information contained in early design submittal packages (pre-50% design completion), and is expected to be refined as engineering proceeds and additional geotechnical information is compiled. Since much of the potentially affected area was formerly an alluvial area (a marsh), the area of potential precontact sensitivity has been approximated to extend for a depth of 10 feet (except Areas 1 and 10 where current geotechnical profiles based on boring logs taken in preparation for contract for the cut and cover tunnel were reviewed). The East Side Access Project is using a datum of 0=300.

3 Areas 6a, 6c, 14, 15, 16, and 17 have not yet been reviewed by the New York State Historic Preservation Office (SHPO).

4 Areas 6a, 14, and 17 are conservatively included in the event that the locations of the proposed work need to be adjusted and these sensitive areas are taken into account.

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT A (CONTINUED)

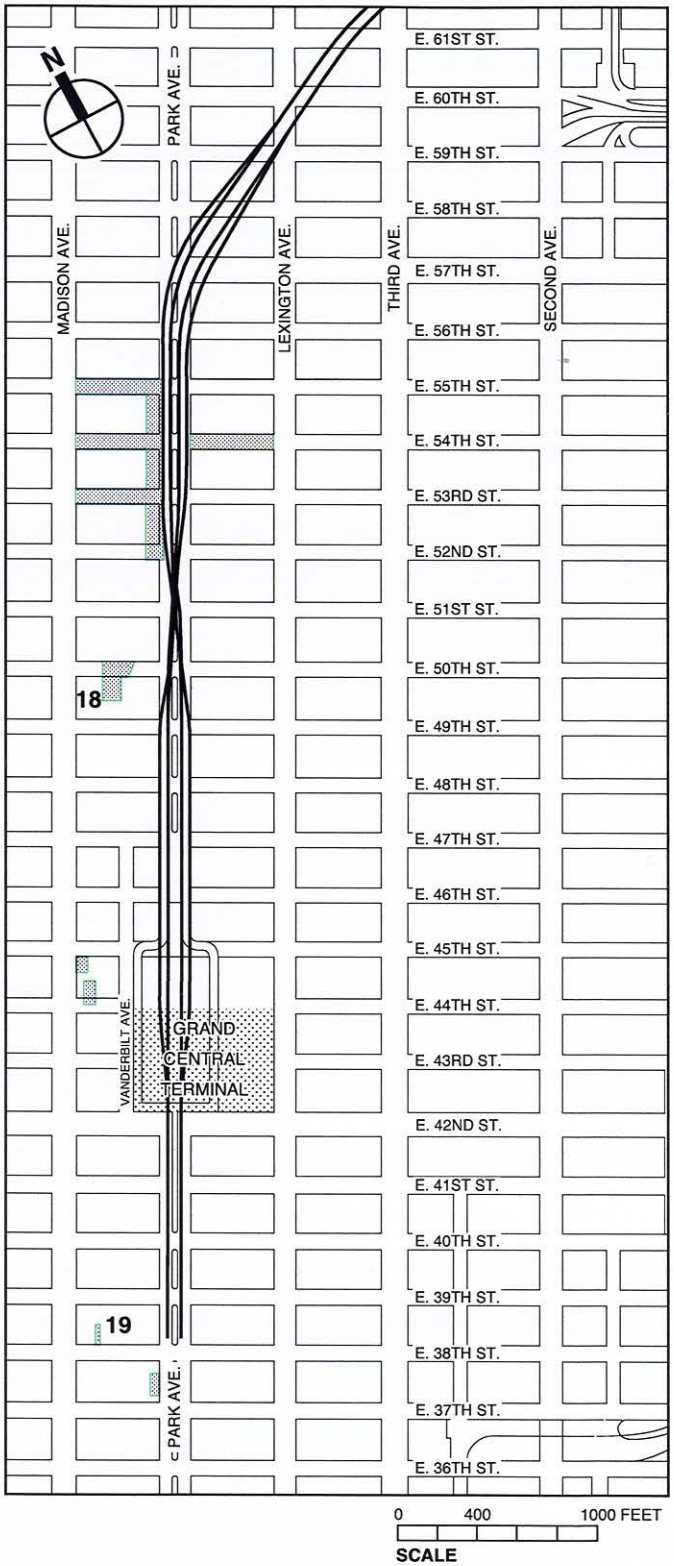
MTA/LIRR East Side Access Project
Manhattan Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

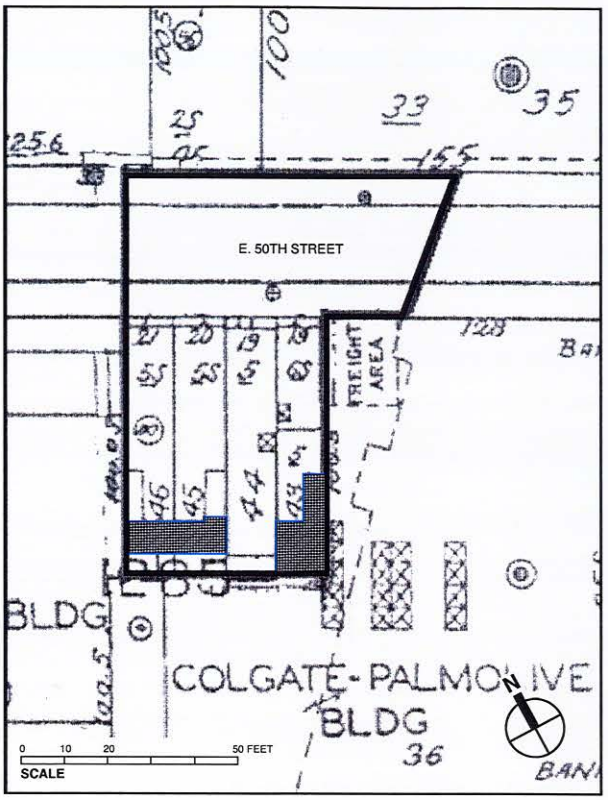
Map Ref.	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[1]	Proposed Construction
18	South side of East 50th Street between Park and Madison Avenues (rear portions of Lots 43, 45, and 46 of Block 1285)	Historic period resources: subsurface shaft features associated with the early to mid-19th century Institute for the Deaf and Dumb	Unknown	Excavation associated with construction of the East 50th Street Facility
19	North side of East 38th Street between Park and Madison Avenues (rear portion of Block 868, Lot 53)	Historic period resources: Subsurface shaft features associated with 19th century homelot deposits	Unknown	Excavation associated with construction of the East 38th Street Vent Plant in prior design

Note: Corresponds to Exhibit B, "Area of Potential Effect and Archaeologically Sensitive Areas"

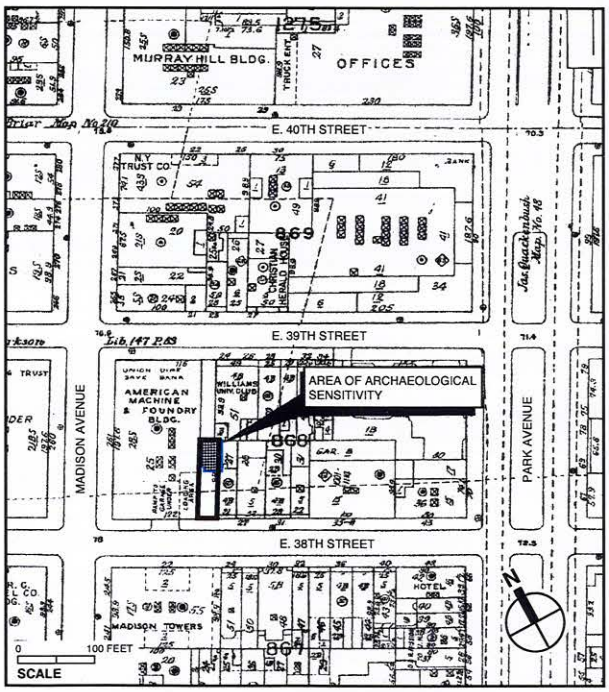
AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT B

3.23.06





18 **AREA OF ARCHAEOLOGICAL SENSITIVITY – EAST 50TH STREET VENT PLANT**
(Areas of potential historic archaeological sensitivity are located at the back of lots 43, 45 and 46 and are shown in black)



19 **AREA OF ARCHAEOLOGICAL SENSITIVITY – EAST 38th STREET VENT PLANT IN PRIOR DESIGN**

LEGEND

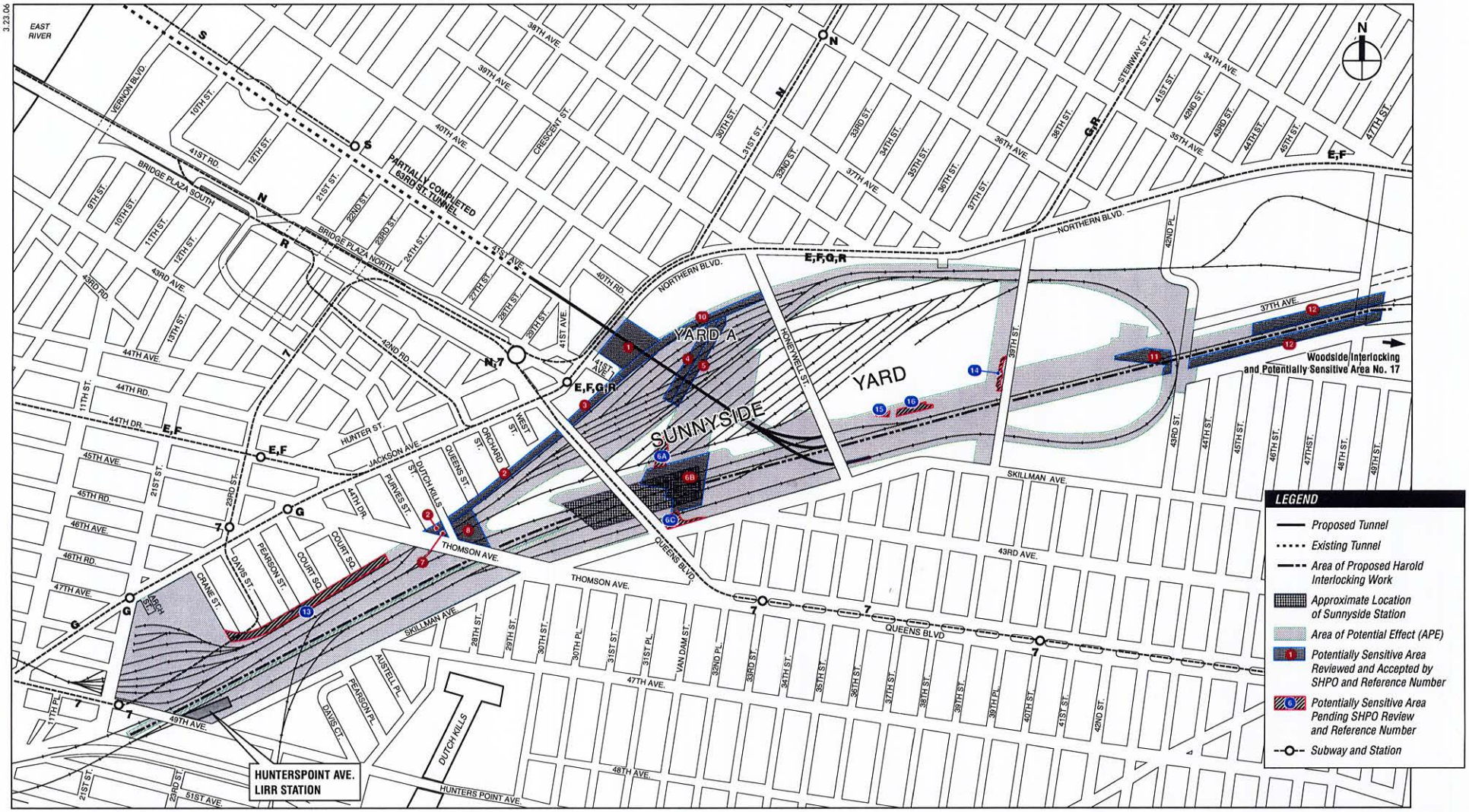
- *Area of Potential Effect (APE)*
- *Potentially Sensitive Area Reviewed and Accepted by SHPO*

Area of Potential Effect and Archaeologically Sensitive Areas - Manhattan Alignment

Exhibit B

EAST SIDE ACCESS

3.23.06

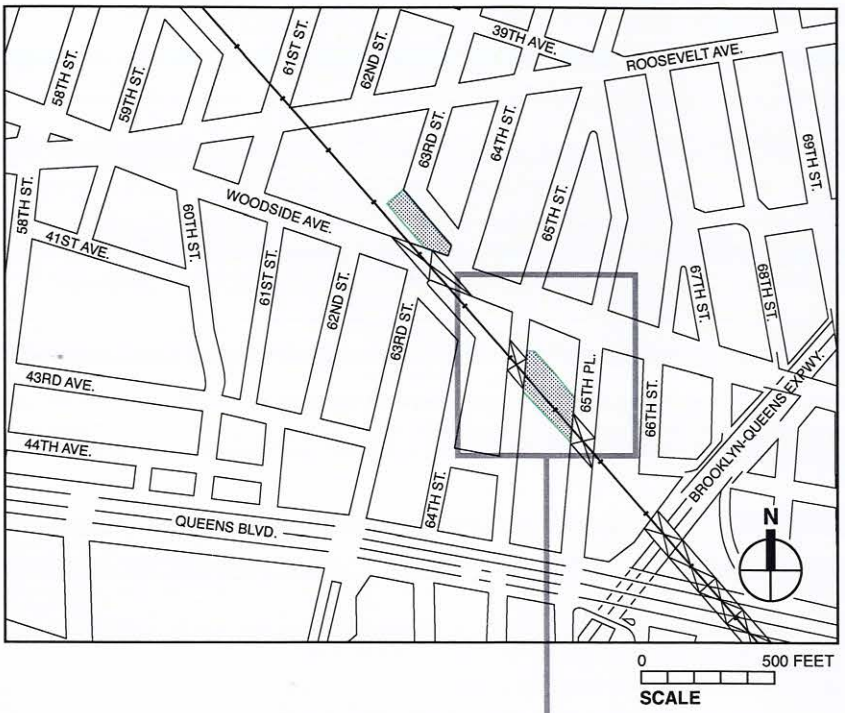


Area of Potential Effect and Archaeologically Sensitive Areas - Sunnyside Rail Yard

Exhibit B

EAST SIDE ACCESS

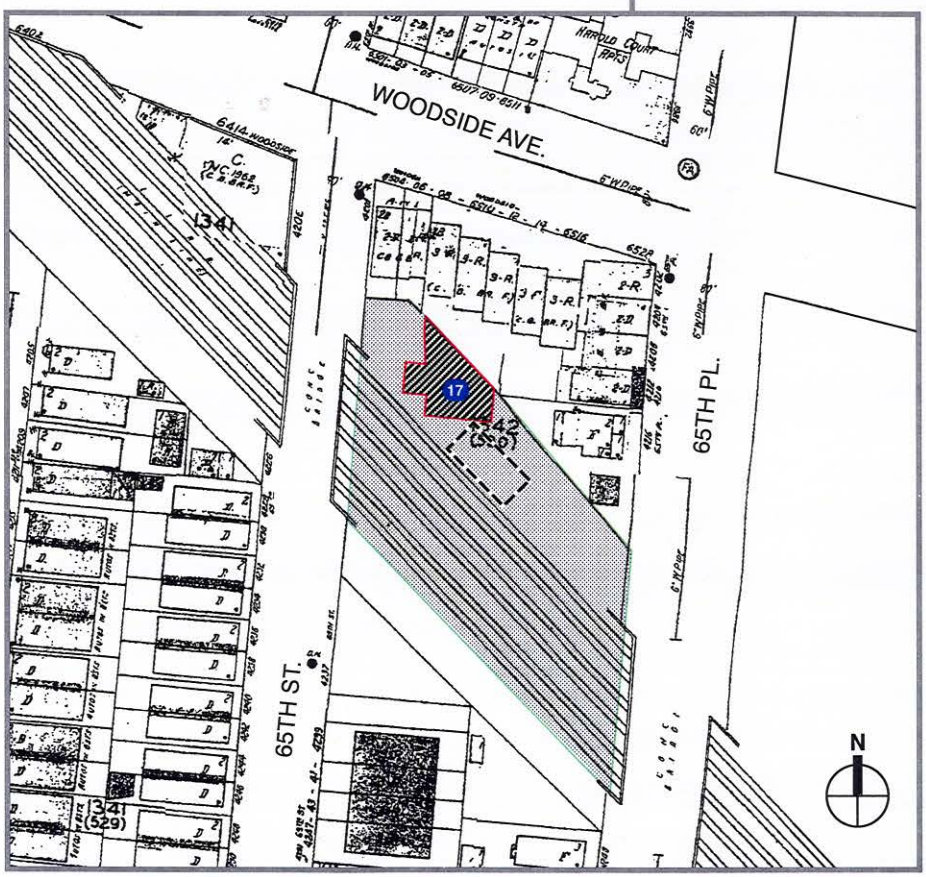
3.23.06



LEGEND

- Area of Potential Effect
- Limits of Excavation, Proposed Signal Hut

  Note: The Location of the signal hut, shown here at approximately 10 feet from the potentially sensitive area, has been moved to avoid disturbance. The location of the proposed excavation is now 30 feet away.
- 17 Potentially Sensitive Area Pending SHPO Review and Reference Number



Area of Potential Effect and Archaeologically Sensitive Areas - Woodside Interlocking

Exhibit B

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT C

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT C

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Queens

Resource No.	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL
1	Switch Tower Q (formerly Signal Cabin Q, Yardmaster's Office)	East of Queens Boulevard Viaduct			X		
2	Office (formerly Signal Cabin F)	West of Thomson Avenue			X		
3	Sunnyside Gardens Historic District	Approximately 16 blocks located east of 43rd Street and south of Barnett Avenue		X			

Notes:

- Corresponds to Exhibit D, "Area of Potential Effect and Locations of Historic Resources/Structures"

NHL: National Historic Landmark.
SR: New York State Register of Historic Places.
NR: National Register of Historic Places.
S/NR Eligible: Site has been found eligible for listing on the New York State and National Registers of Historic Places.
NYCL: New York City Landmark.
Pending NYCL: Site has been calendared for a public hearing or heard for designation by the New York City Landmarks Preservation Commission.

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT C (CONTINUED)

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
4	Treadwell Farm Historic District	East 61st and 62nd Streets between Second and Third Avenues		X		X		A,B
5	Bloomingdale's	743-765 Lexington Avenue, between 59th and 60rh Streets			X			A,C
6	New York Genealogical and Biographical Society	122-126 East 58th Street, between Park and Lexington Avenues			X			A,C
7	Ritz Tower Apartment Hotel	465 Park Avenue (between 57th and 58th Streets)				X		A,C
8	East 54th-East 55th Streets Historic District	North side of East 54th and south side of East 55th Street, between Park and Lexington Avenues			X			A, G
9[1]	Lever House	390 Park Avenue		X		X		E
10[1]	Racquet & Tennis Club	370 Park Avenue		X		X		E
11[1]	Seagram Building	375 Park Avenue		X		X		E
12[1]	Four Seasons Restaurant (Interior)	99 East 52nd Street		X		X		E
13[1]	St. Bartholomew's Church & Community House	Park Avenue at East 50th Street		X		X		E
14[1]	Waldorf-Astoria Hotel	301 Park Avenue			X	X		E
15[1]	Hotel Intercontinental (formerly Barclay Hotel)	111 East 48th Street			X			E
16[1]	Postum Building	250 Park Avenue			X			E
17[1]	New York Central (Helmsley) Building	230 Park Avenue			X	X		E
18[1]	Roosevelt Hotel	45 East 45th Street			X			E
19[1]	Vanderbilt Concourse Building	52 Vanderbilt Avenue			X			E
20[1]	Yale Club	50 Vanderbilt Avenue			X			E
21[1]	Vanderbilt Avenue Building	51 East 42nd Street			X			E
22[1]	Park Avenue Viaduct	Park Avenue between East 40th and 42nd Streets		X		X		E
23[1]	Grand Central Terminal	East 42nd Street at Park Avenue	X	X		X		E
24[1]	Graybar Building	420 Lexington Avenue			X			E

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
25[1]	Grand Central Terminal Post Office	Southwest corner of Lexington Avenue and East 45th Street			X			E
26	43-story Office Building	273-277 Madison Avenue			X			D
27[2]	Murray Hill Historic District (LPC and SHPO boundaries differ)	Roughly bounded by Park & Lexington Avenues and 39th and 35th Streets		X		X		D, H
28	Williams Club	24 East 39th Street			X			D
29	Rowhouse	31 East 38th Street			X			D
30[3]	Rowhouse	40 East 38th Street			X			D
31[3]	Rowhouse	38 East 38th Street			X			D
32[3]	Rowhouse	36 East 38th Street			X			D
33[3]	Rowhouse	34 East 38th Street			X			D
34[3]	Rowhouse	32 East 38th Street			X			D
35[4]	Church of our Savior	59 Park Avenue		X				D
36[4]	Adelaide L.T. Douglas House	57 Park Avenue		X		X		D
37[4]	15-story Apartment House	55 Park Avenue		X				D
38	Former Fraternity Clubs Building (now Jolly Hotel Madison Towers)	241-245 Madison Avenue			X			D
39	Former Duane Hotel (now Morgans Hotel)	237-239 Madison Avenue			X			D
40[5]	Rowhouse	29 East 37th Street			X			D
41[5]	Four Rowhouses	21-27 East 37th Street			X			D
42[5]	Rowhouse	19 East 37th Street			X			D
43[4]	James F.D. and Harriet Lanier House	123 East 35th Street		X		X		D
44	Villard Houses	Madison Avenue between East 50th and 51st Streets		X		X		F
45	13-story Apartment House	417 Park Avenue			X			G
46	Office Building	18-20 East 50th Street			X			F
47	Townhouse	39 East 51st Street			X			F
48	Former Institute of Physics	57 East 55th Street			X			A
49	Former Drake Apartment Hotel	434-442 Park Avenue			X			A
50	Townhouse	142 East 62nd Street			X			A
51	Lexington United Methodist Church	148-150 East 62nd Street			X			A
52	Rowhouse	171 East 62nd Street			X			A
53	Lincoln Building	60 East 42nd Street			X			H

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
54	Former Pershing Square Building	125 Park Avenue			X			H
55	Former Chemists' Club	50-54 East 41st Street			X			H
56	Bowery Savings Bank Building	110 East 42nd Street				X		

Notes:

NHL: National Historic Landmark.
SR: New York State Register of Historic Places.
NR: National Register of Historic Places.
S/NR Eligible: Site has been found eligible for listing on the New York State and National Registers of Historic Places.
NYCL: New York City Landmark.
Pending NYCL: Site has been calendared for a public hearing or heard for designation by the New York City Landmarks Preservation Commission.

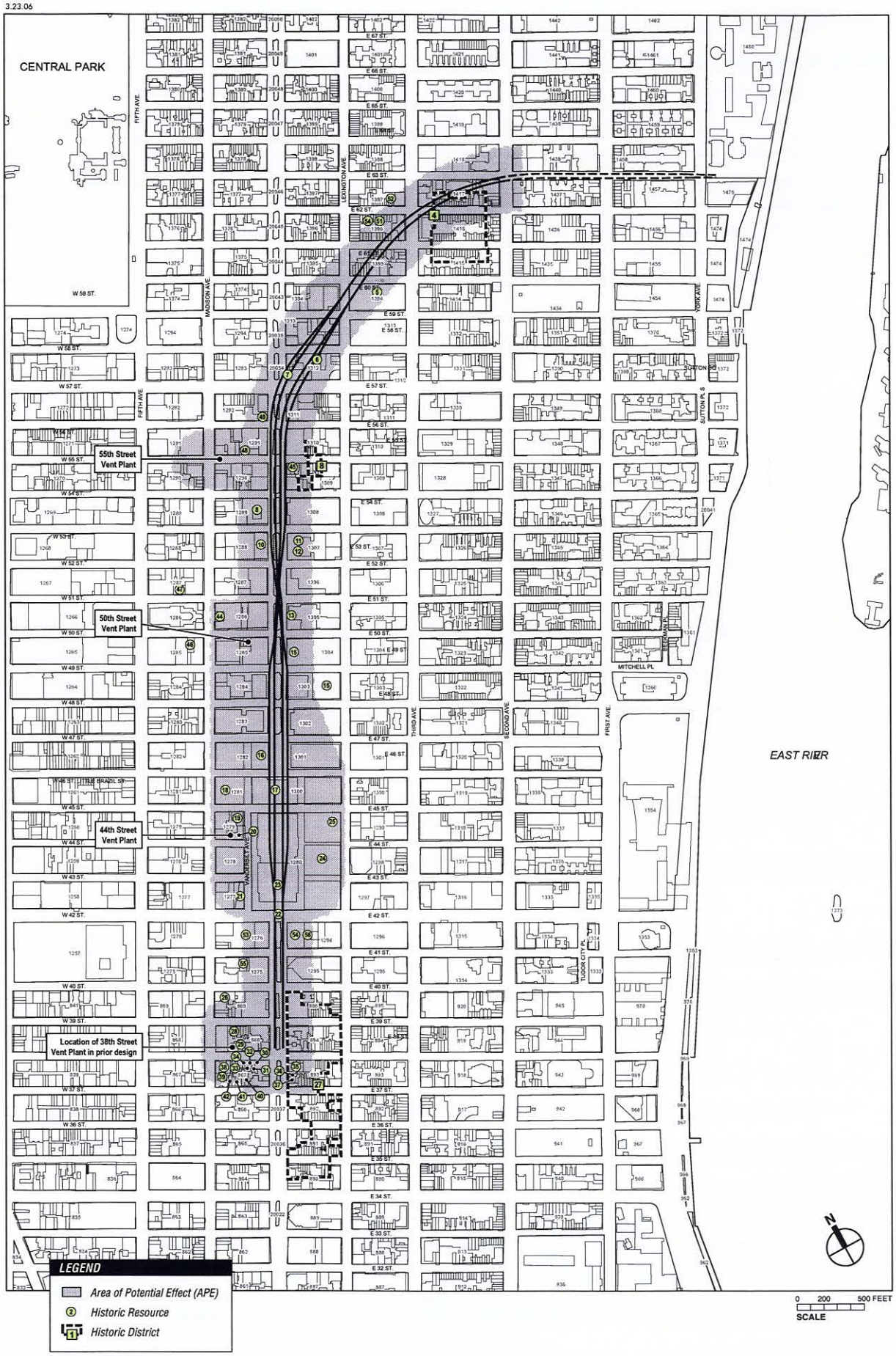
* Corresponds to Exhibit D, "Area of Potential Effect and Locations of Historic Resources/Structures"
[1] Included in March 2001 FEIS
[2] The boundaries for the New York City Historic District fall within those for the S/NR. Only the S/NR boundaries are mapped.
[3] Included in the NR-eligible "32-40 East 38th Street Historic District".
[4] Included in the NR-listed "Murray Hill Historic District". However, SHPO has indicated that the Church of Our Savior is not a contributing resource due to its age (1956-59).
[5] Included in NR-eligible "Rowhouses at 19-29 East 37th Street Historic District".

Within Area of Potential Effect (APE):
- A: 63rd Street Curve (200-foot APE)
- B: East 63rd Street Blasting Area (200-foot APE)
- C: Lexington Avenue Blasting Area (200-foot APE)
- D: East 38th Street Blasting Area (200-foot APE)
- E: FEIS analysis areas (50-100-foot APEs)
- F: East 50th Street Vent Plant (200-foot APE)
- G: Park Avenue Tunnel (200-foot APE)
- H: Grand Central Terminal Tail Tracks (200-foot APE)

* No historic resources were identified in the East 55th Street Vent Plant APE (200-foot APE)

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT D

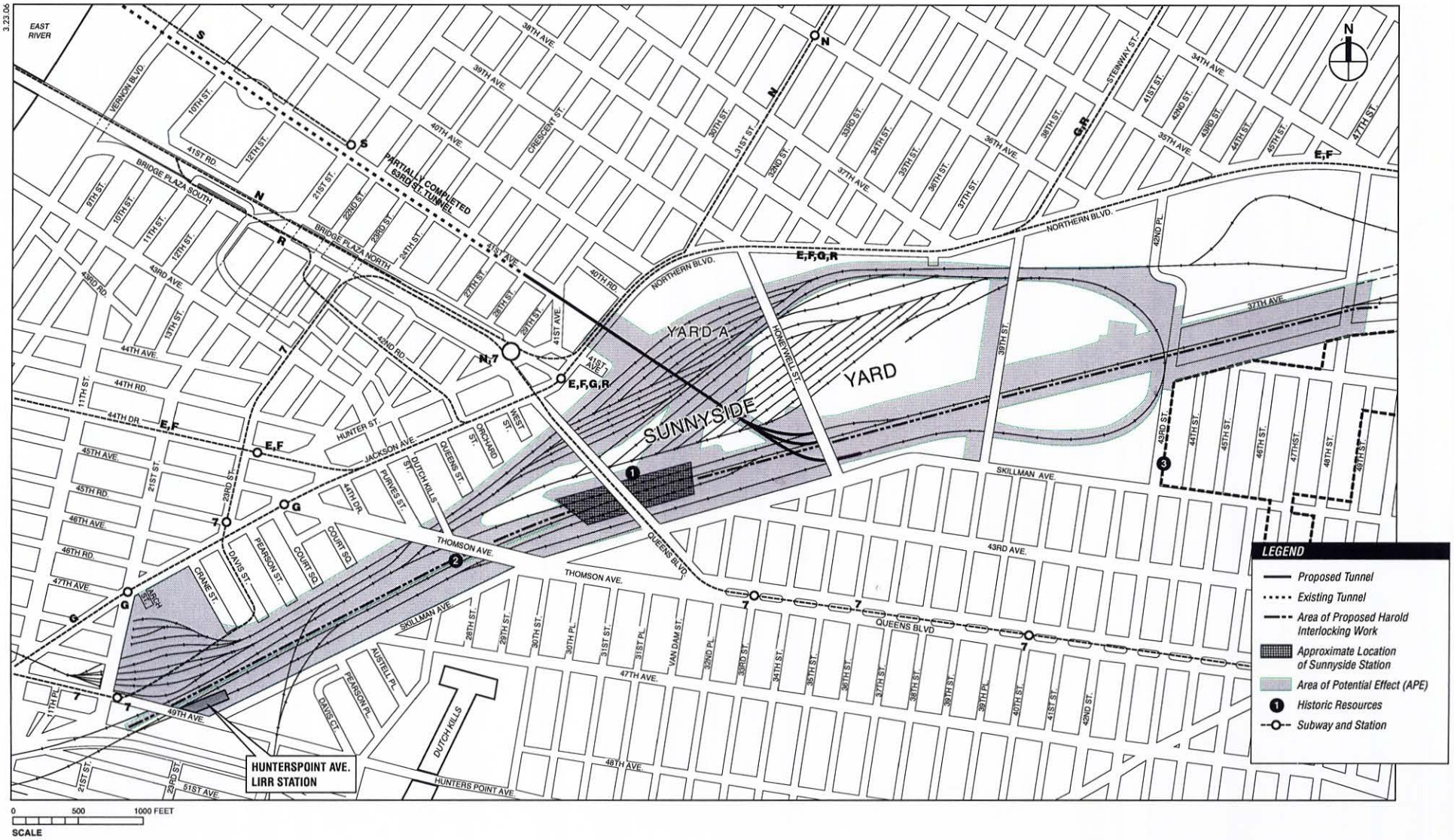
3.23.06



Area of Potential Effect and Locations of Historic Resources/Structures - Manhattan

Exhibit D

3.23.06



Area of Potential Effect and Locations of Historic Resources/ Structures
Sunnyside Rail Yard
Exhibit D

EAST SIDE ACCESS

Attachment C:
Construction Protection Plan

April 2006 (Rev 3)

UNDER SEPARATE COVER

Attachment D:

Measures to Minimize Harm

for
the MTA/LIRR East Side Access 50th Street Facility Project

July 2006

Attachment D
Measures to Minimize Harm

1. The 50th Street facility shall be built in accordance with the attached Schematic Drawings prepared for Preferred Alternative D, including without limitation, the loading dock configuration, the size, design and location of the open space, and the general massing of the building.

2. Noise and vibration control measures that are included in the design and described in the April 2006 Revised EA (e.g., silencer, spring isolator, and concrete absorbers) will be implemented in order to minimize noise and vibration generated by the facility.

3. MTA will coordinate with adjacent property owners on emergency preparedness and response planning.

4. A minimum of two lanes of traffic will be maintained on weekdays between 7 AM and 7 PM on 50th Street between Park and Madison Avenue and NYCDOT-approved Maintenance and Protection of Traffic Plans will be implemented. Construction activities will be scheduled so that lane closures will not take overlap with the September to January holidays, and therefore will not take place during these months. MTA will not exceed the lane closure schedule as described in the April 2006 Revised EA.

5. MTA will use low sulfur diesel fuel to reduce emissions from the emergency generators and ultra-low sulfur diesel fuel with diesel oxidation catalysts and/or diesel particulate filters on all non-road construction equipment to minimize emissions during construction.

6. Measures to minimize dust, noise, vibration, and community disruption in general will be enforced during construction. Dust control measures include wheel wetting, tarping trucks, and wetting the site and sidewalk.

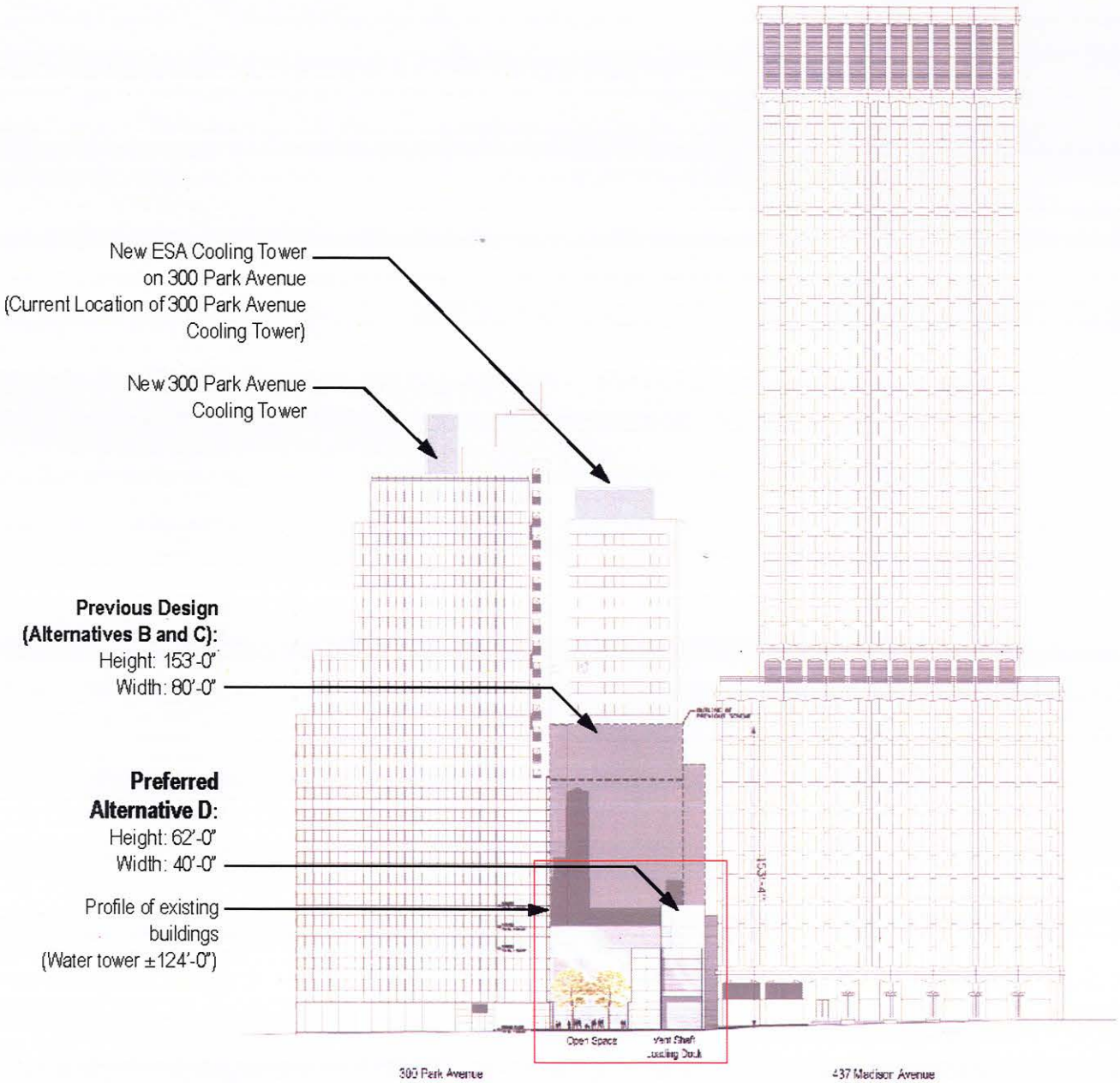
7. Contractor plans and specifications will be shared with the Palace Hotel (and other interested stakeholders), upon request.

8. MTA will adhere to the requirements of the Uniform Relocation Assistance and real Property Acquisition Policies Act (Uniform Act) and the New York State Eminent Domain Procedure Law for any private properties that will be acquired.

9. Steps to be taken to protect historic resources are set forth in the Amended Programmatic Agreement for the East Side Access Project, dated July 2006, (Amendment B) that has been executed by the FTA, the New York State Historic Preservation Office (SHPO), and the MTA. The 50th Street facility will be designed and constructed in accordance with the Amended Programmatic Agreement.

10. A Construction Protection Plan, dated April 2004, for the East Side Access Project (Attachment C) has been developed to protect historic resources located near construction areas. The 50th Street facility will be designed and constructed in accordance with the Construction Protection Plan.

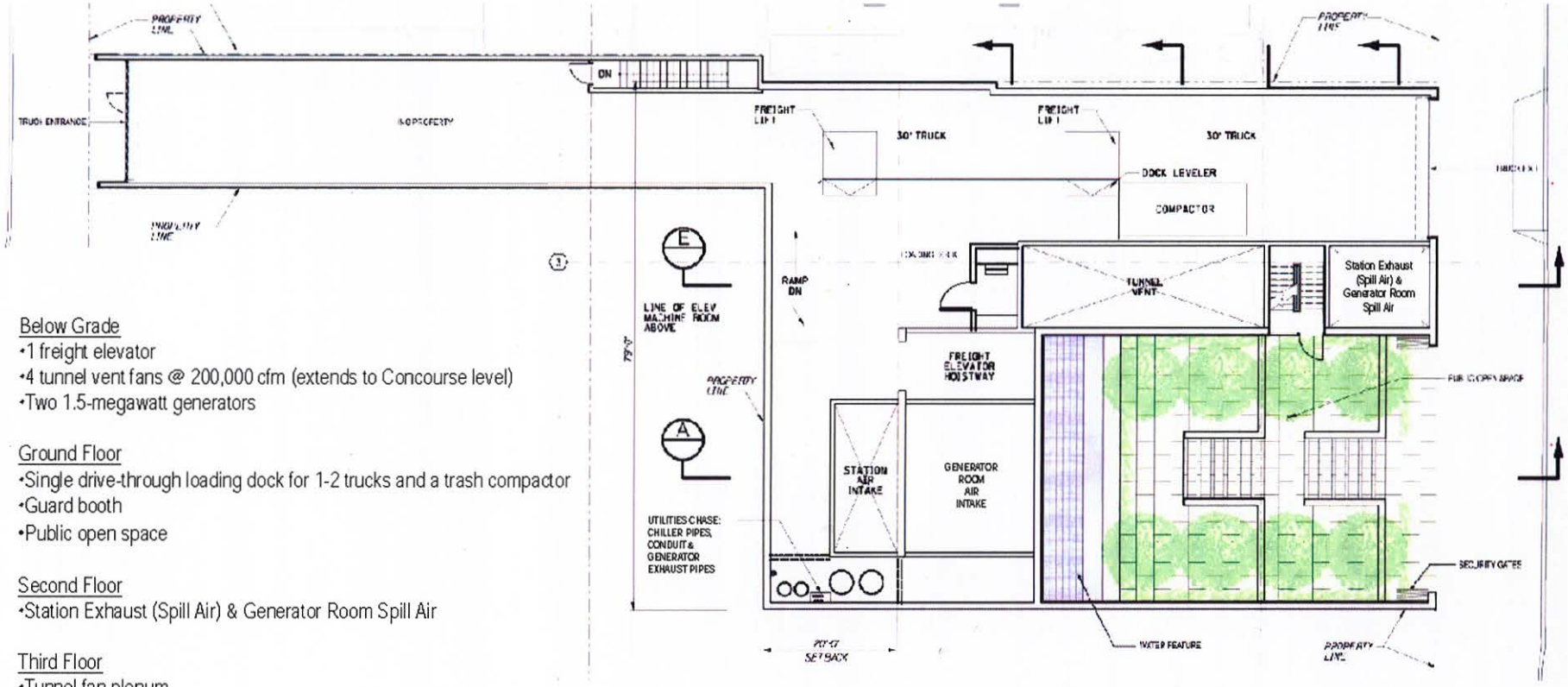
3.30.06



Context Elevation Looking South

Preferred Alternative D - Context Elevation

3.30.06



Ground-Floor Plan

Below Grade
- 1 freight elevator
- 4 tunnel vent fans @ 200,000 cfm (extends to Concourse level)
- Two 1.5-megawatt generators

Ground Floor
- Single drive-through loading dock for 1-2 trucks and a trash compactor
- Guard booth
- Public open space

Second Floor
- Station Exhaust (Spill Air) & Generator Room Spill Air

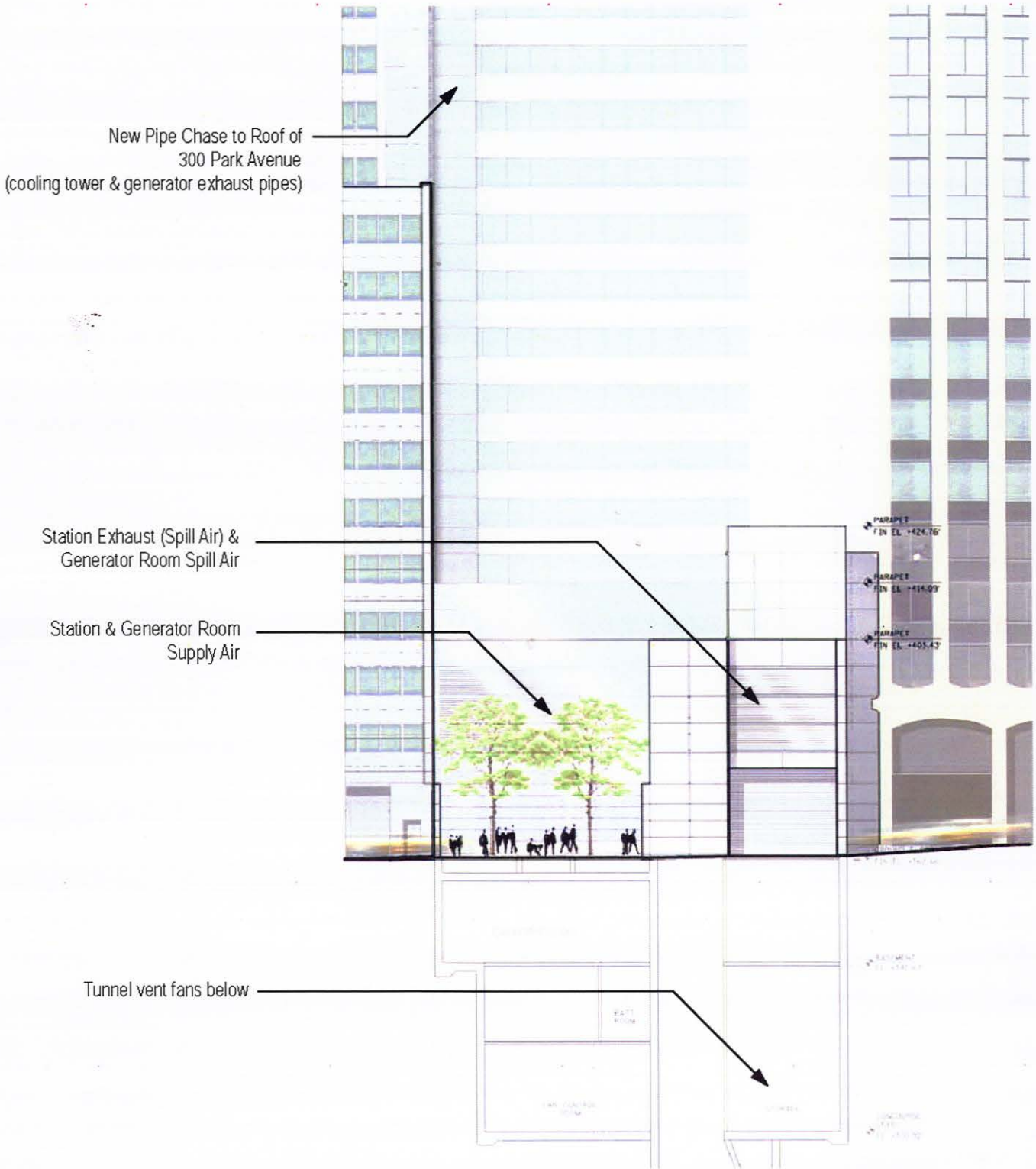
Third Floor
- Tunnel fan plenum

Building Height
- Approximately 62 feet

Note: 3 Cooling towers and generator exhaust on roof of 300 Park Avenue

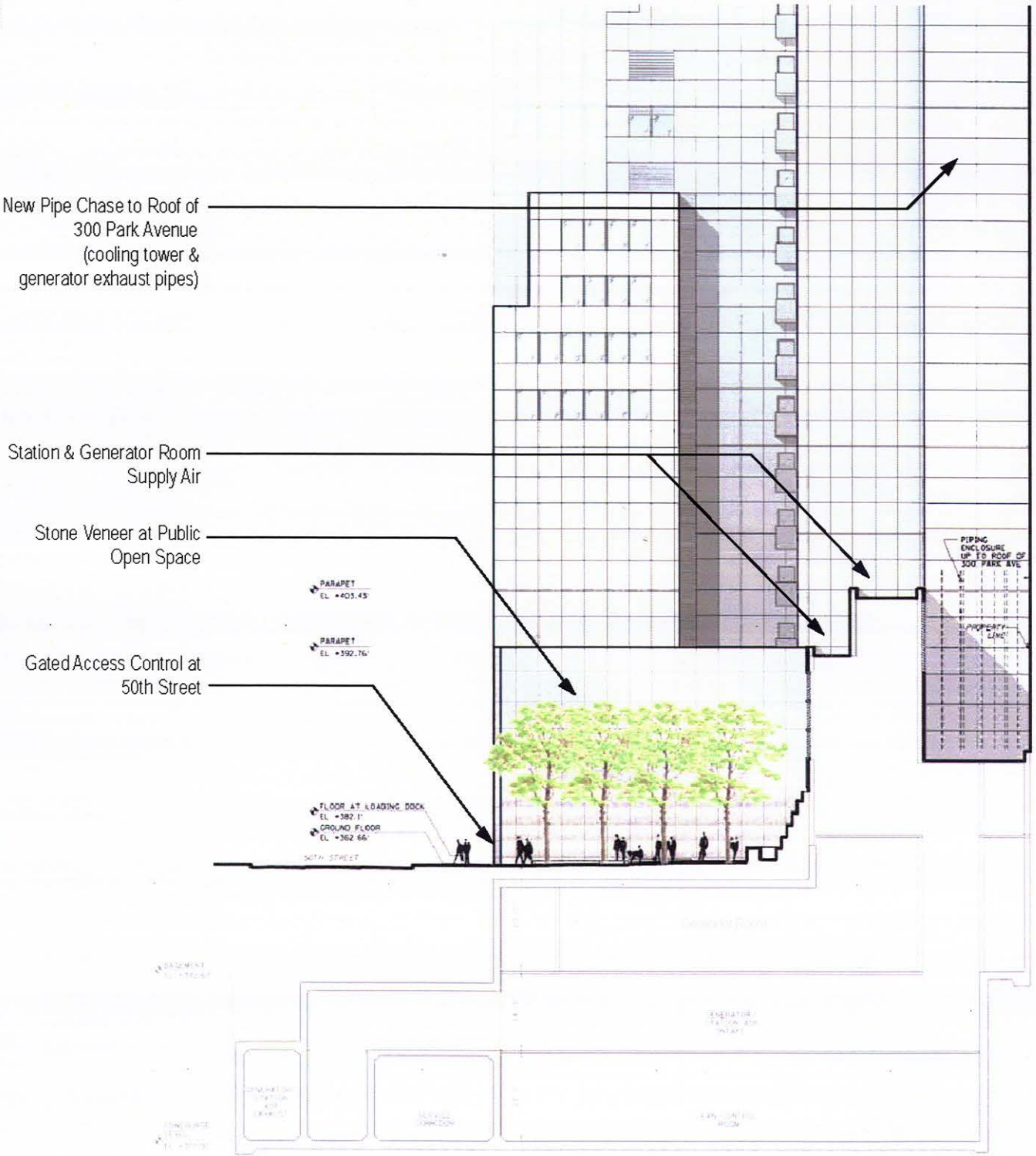
Preferred Alternative - D Plan View

3.30.06



Preferred Alternative D
Section Elevation Looking South

3.30.06



Preferred Alternative D
Section Elevation Looking East

3.30.06

Preferred Alternative D
Location of Key Building Elements

AMENDED PROGRAMMATIC AGREEMENT
AMONG THE
FEDERAL TRANSIT ADMINISTRATION,
METROPOLITAN TRANSPORTATION AUTHORITY,
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF THE
MTA/LIRR EAST SIDE ACCESS PROJECT

WHEREAS, the Federal Transit Administration ("FTA") has identified through an Final Environmental Impact Statement ("FEIS") prepared in 2001 under the National Environmental Policy Act ("NEPA") that the MTA/LIRR East Side Access Project would have an effect on properties included in or eligible for inclusion in the National Register of Historic Places; and

WHEREAS, the FTA has consulted with the Advisory Council on Historic Preservation ("the Council") and the New York State Historic Preservation Officer ("SHPO") pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act; (16 USC 470f), and Section 110(f) of the same Act (16 USC 470h-2(f)); and

WHEREAS, following consultation with the Council in 2000, FTA, MTA/LIRR, and SHPO entered into a Programmatic Agreement in 2001 ("2001 Programmatic Agreement"); and

WHEREAS, subsequent to the issuance of the FEIS and Record of Decision for the MTA/LIRR East Side Access Project in 2001, new project elements and modifications have been identified through the 50th Street Revised Supplemental Environmental Assessment to the FEIS, dated April 2006 ("EA"), through Queens Revisiou 14-4M Environmental Analysis, dated November 2005 ("Queens Revision"), and through the Technical Memorandum Assessing Potential Design Changes, dated February 2002 ("2002 Tech Memo") prepared under NEPA; and

WHEREAS, the revised MTA/LIRR East Side Access Project may have an effect on additional historic and archaeological resources not identified in the FEIS; and

WHEREAS, the Metropolitan Transportation Authority ("MTA") has participated in the consultation and has been invited to execute this Amended Programmatic Agreement; and

WHEREAS, the New York City Landmarks Preservation Commission ("LPC") has been included in the consultation as a consulting party; and

WHEREAS, pursuant to 36 CFR Section 800.8(c), FTA is utilizing the process under the NEPA to comply with its requirements under Section 106 of the National Historic Preservation Act; and

WHEREAS, the 2001 Programmatic Agreement pertained to potential project effects on archaeological and historic properties/structures in Areas of Potential Effect (APEs) that were evaluated in the FEIS; and

WHEREAS, the APEs were further defined through development of a construction protection plan; and

WHEREAS, the MTA has progressed project engineering subsequent to the FEIS and has identified additional archaeological and historic properties/structures in areas not covered by the former APEs in the Manhattan and Queens alignment of the MTA/LIRR ESA project; and

WHEREAS, the parties have determined that it is appropriate to enter into an Amended Programmatic Agreement to identify the APEs of the current project alignment as specified in the FEIS and through subsequent engineering identified in the EA, Queens Revision, and 2002 Tech Memo; and

WHEREAS, Exhibit A provides a list of areas of archaeological sensitivity within the redefined APE, and Exhibit B depicts the approximate locations of these areas; and

WHEREAS, Exhibit C provides a list of known historic properties/structures within the redefined APE, and Exhibit D depicts the approximate locations of these properties/structures; and

WHEREAS, Exhibits B depicts the redefined APE for Archaeological resources and Exhibit D depicts the redefined APE for Historic resources; and

WHEREAS, the APEs depicted in Exhibits A, B, C, and D reflect the APEs of the current project alignment; and

WHEREAS, this Amended Programmatic Agreement replaces the 2001 Programmatic Agreement;

NOW, THEREFORE, FTA, MTA, and SHPO agree that the MTA/LIRR East Side Access Project (the "East Side Access Project") shall be administered in accordance with the following stipulations to ensure that potential effects on historic and archaeological resources are taken into account and to satisfy FTA's Section 106 responsibility for all aspects of the MTA/LIRR East Side Access project.

STIPULATIONS

FTA, MTA, AND SHPO AGREE THAT THE FOLLOWING STEPS HAVE BEEN UNDERTAKEN IN CONNECTION WITH THE EAST SIDE ACCESS PROJECT AND THAT FTA INCLUDED THE OBLIGATIONS SET FORTH IN THIS AGREEMENT AS PART OF ITS RECORD OF DECISION AND AS A CONDITION OF FTA's APPROVAL OF A GRANT(s) ISSUED FOR THE PROJECT, AND WILL MANDATE THAT THESE REQUIREMENTS BE MET AS PART OF OTHER ENVIRONMENTAL REVIEWS TO ENSURE THAT THESE MEASURES ARE IMPLEMENTED AS PART OF THE COMPLIANCE WITH THE SECTION 106 PROCESS AND THE SUBSEQUENT PLANNING, DESIGN, AND CONSTRUCTION OF THE EAST SIDE ACCESS PROJECT .

I. ARCHAEOLOGICAL RESOURCES

The FEIS, EA, Queens Revision, and 2002 Tech Memo prepared under NEPA identify several areas that may be archaeologically sensitive within areas of potential effect ("APEs") for the project. The following measures will be carried out in connection with implementation of the East Side Access Project for all areas within those APEs that MTA in consultation with SHPO identified as potentially archaeologically sensitive and in which construction activities will occur. Those areas are listed in Exhibit A and depicted in Exhibit B.

A. Soil Borings

At all sites where the potential for archaeological sensitivity was identified through Stage 1A evaluation and where soil borings were determined to be appropriate, MTA in consultation with SHPO will develop and implement a soil boring program to better delineate the filling and grading that have occurred and determine archaeological sensitivity. At all sites where borings confirm the potential for archaeological resources to exist, MTA will conduct further subsurface testing, in consultation with SHPO, in accordance with Paragraph I.B, below.

B. Field Testing

At all sites where the potential for archaeological resources to exist is confirmed by soil borings conducted under Paragraph I.A above, MTA, in consultation with SHPO, will perform further subsurface testing and/or field monitoring to identify the presence or absence of archaeological resources. The field evaluation and testing program has been developed by MTA in consultation with SHPO and at a level sufficient to determine if sites meet the criteria for listing in the National Register. In consultation with FTA and SHPO, MTA will apply the National Register criteria and reach one of the following conclusions:

1. The site does not meet the National Register criteria; no further action is required.
2. The site does meet the National Register criteria, in which case the site will be treated in accordance with Paragraph I.C below.
3. A dispute exists regarding whether the criteria are met, in which case the opinion of the Keeper of the National Register of Historic Places at the National Park Service ("the Keeper") will be sought to resolve disagreements, and the site treated in accordance with the Keeper's findings.

MTA will notify SHPO and FTA of conclusions regarding evaluation of all sites for National Register eligibility.

C. Mitigation and Data Recovery

MTA, in consultation with SHPO, will consider measures for avoidance of archaeological sites, such as design modification, rather than data recovery. For those sites determined to be eligible for inclusion in the National Register where MTA determines, in consultation with FTA and SHPO, that avoidance is not practicable, MTA, in consultation with SHPO, shall develop and implement a data recovery plan that is consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* and *Standards and Guidelines for Archeological Documentation* and the Council's *Treatment of Archeological Properties* and subsequent amendments.

The plan will be designed to recover data sufficient to address significant research issues and test assumptions and thus substantially preserve the archaeological value of National Register eligible or listed sites; allow for addressing unanticipated resources or site conditions; include a process for consultation with SHPO; and include a schedule of proposed data recovery efforts.

D. Professional Standards

MTA shall ensure that all archaeological research, testing, and analysis conducted pursuant to this Agreement are carried out by or under the direct supervision of a person or persons meeting the Secretary of Interior's Professional Qualifications Standards and certified by the Register of Professional Archeologists. FTA shall ensure that all final archaeological reports are responsive to the New York Archaeological Council's Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State and to the Department of the Interior's *Format Standards for Final Reports of Data Recovery Program.*

E. Curation

MTA shall develop, in consultation with SHPO, and in accordance with 36 CFR Part 79, a plan for the analysis and curation of material and records from any archaeological excavations. MTA shall be responsible for the implementation of such a plan.

F. Phasing of Construction Activities and Archaeological Field Work

MTA will ensure that all steps practical to ensure that archaeological field analysis and data recovery, if required, will be completed prior to construction activities in the vicinity of affected resources. The MTA, in consultation with FTA and SHPO, will develop a plan to appropriately phase the archaeological field analysis and data recovery with construction activities.

II. HISTORIC PROPERTIES/STRUCTURES

The FEIS, EA, Queens Revision, and 2002 Tech Memo prepared under NEPA identify known historic properties in the redefined APE (see Exhibits C and D). In consultation with SHPO, the physical and contextual impacts on the historic properties/structures of the current project alignment were assessed and potential adverse effects identified. It was determined that the East Side Access Project would have the potential for impacts on all resources listed in Exhibit C. A comprehensive program for treatment of historic properties/structures will be developed and implemented by MTA in the manner set forth below.

A. Construction Protection Plan

The MTA, in consultation with SHPO, has developed and is implementing a construction protection plan to ensure the protection of known historic resources located within the redefined APE from damage due to the construction of the East Side Access Project. The MTA shall ensure that any construction conducted within the redefined APE of an identified historic resource will be included in the construction protection plan.

B. Design Specifications

The MTA, in consultation with SHPO, has developed design specifications to ensure that new elements constructed as part of the East Side Access Project inside Grand Central Terminal are compatible with the terminal's historic and architectural qualities. The MTA, in consultation with SHPO, will also develop design specifications to ensure that new above-ground structures constructed as part of the East Side Access Project (such as the proposed 44th Street Vent Plant (adjacent to the Yale Club) and 50th Street Vent Plant (across from the Villard Houses) within the contextual APE (i.e., within visual range of a resource)are compatible with the historic and architectural qualities of those resources and any other historic resources listed on or eligible for the National Register or New York City Landmarks The design and specifications for those elements of the East Side Access Project will be developed in consultation with the SHPO and submitted to the SHPO for approval.

III. REPORTING

MTA shall ensure that all final archaeological reports and all final historic resources reports resulting from the actions pursuant to this Agreement shall be provided to SHPO.

Annual reports about archaeological resources and historic structures will be completed and provided by MTA to FTA and the SHPO one year from the date this Agreement is fully executed and every year thereafter until project completion. The signatories to this Agreement will review implementation of the Agreement and determine whether revisions are needed at the time the reports are submitted. If revisions are needed, the parties to this Agreement will consult to make such revisions.

IV. DISPUTE RESOLUTION

Should the SHPO object within 30 days to any action proposed pursuant to this agreement, FTA shall consult with the objecting party to resolve the objection. If FTA determines that the objection cannot be resolved, FTA shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will provide FTA with recommendations or comments, which FTA will take into account in reaching a final decision regarding the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; FTA's responsibility to carry out all actions under this agreement that are not the subject of the dispute will remain unchanged.

V. OTHER

The SHPO and FTA may monitor activities carried out pursuant to this Programmatic Agreement, and will review such activities if so requested. MTA will cooperate with the FTA and SHPO in carrying out their monitoring and review responsibilities.

Any party to this Programmatic Agreement may request that it be amended, whereupon the parties will consult to consider such amendment.

If the East Side Access Project does not proceed, this Agreement shall be terminated.

VI. PROJECT STATUS

To date, no archaeological resources have been physically identified and therefore, no mitigation measures have been implemented.

Archaeologists have reviewed geotechnical borings taken in the areas of archaeological sensitivity. This review has yielded information about the soil and fill layers that will, or have been, used to prepare the testing protocols to be included in the contract documents as they become available. This information has also been used to identify the archaeologically sensitive areas and screen out areas of prior disturbance that would have no potential for intact remains.

At Highbridge Yard, the project archaeologists completed a Topic Intensive Study related to a roundhouse and other historic railroad elements at the site. The study concluded and SHPO concurred that these artifacts are not eligible for listing on the register.

For historic architectural resources, the designs of the 44th Street Ventilation Building (adjacent to the historic Yale Club), concourse plans affecting the GCT Dining Concourse, and the 50th Street Facility (across the street from the historic Villard Houses) have been reviewed with SHPO at the conceptual or later level of design. As each of these designs progress toward 60 percent completion and a greater amount of architectural detail is defined, a second review by SHPO will be solicited.

EXECUTION AND IMPLEMENTATION OF THIS PROGRAMMATIC AGREEMENT EVIDENCES THAT FTA HAS SATISFIED ITS SECTION 106 RESPONSIBILITIES FOR ALL INDIVIDUAL UNDERTAKINGS OF THE PROGRAM.

FEDERAL TRANSIT ADMINISTRATION

By: Letitia Thompson **Date:** 07/27/06

Letitia Thompson
Regional Administrator, Region II

METROPOLITAN TRANSPORTATION AUTHORITY

By: _____ **Date:** 6/27/06

Christopher Boylan
Deputy Executive Director, Corporate and Community Affairs

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By: _____ **Date:** 7/19/06

Bernadette Castro
Commissioner

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT A

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT A

MTA/LIRR East Side Access Project
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref. [1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered [2]	Proposed Construction
1	Area between Northern Blvd. & Yard A (Block 239, Lots 35 & 48)	Precontact Resources	Below approximately 4-20 feet of fill. Resources potentially at elevations of 300-288 feet (based on soil boring profiles prepared for Contract CQ028)	Cut and cover tunnel excavation. Construction of Yard Services Building/Vent Structure.
		Historic period resources: mid 19th century Payntar Homestead	In the lowest levels and beneath approximately 4 to 20 feet of fill. The top of the sensitive area ranges from elevations of 310-305 feet at Northern Blvd to 299-297 feet near Yard A	
2	Northern edge of Yard A	Precontact resources	Below approximately 4 to 8 feet of fill . Resources potentially at elevations of 307-293 feet	Construction in Yard A for new storage yard facility and construction of new yard systems including lighting and power
3	Northern edge of Yard A	Precontact resources	Below approx. 4-8 feet of fill between Thomson Ave & Queens Blvd. near 41st Ave. Resources potentially at elevations of 307-293 feet	Yard A storage yard facility
4, 5	Area in Yard A extending southwest from old LIRR trackbed to proposed tunnel alignment	Precontact resources	Below approximately 8-13 feet of fill. Resources in Area 4 potentially at elevations of 303-288 feet. Resources in Area 5 potentially at elevations of 306-289 feet in Yard A and 306 to 296 in the area of Amtrak bldgs 3 & 4	Cut and cover tunnel excavation. Construction in Yard A.
6a[3]		Precontact resources	Below approximately 0-12.75 feet of fill. The top of the sensitive area would be at and below an elevation of approx. 320 feet, declining to below 307.75 feet from east to west.	
		Historic period resources:	In the lowest levels and beneath approximately 0-10.25 feet of fill. The top of the sensitive area would be between elevations of approximately 312.75-to 327 feet, declining from east to west.	None.

MTA/LIRR East Side Access Project (cont'd)
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref.[1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[2]	Proposed Construction
6b	Area near Queens Boulevard	Precontact resources	Below approximately 2-17.5 feet of fill. Resources potentially at elevations of 317-307 feet on the rail embankments and 313-303 feet in Yard A.	Harold Interlocking Reconfiguration. New Sunnyside Station.
		Historic period resources: 19th-early 20th century residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and beneath approximately 2-17.5 feet of fill. The top of the sensitive area ranges from an elevation of 317 feet on the rail embankments to one of 313 feet in Yard A	
6c[3]	Area near Queens Boulevard at Skillman Avenue	Precontact Resources	Below approximately 2 feet of fill. Resources potentially at elevations of 335-302.75 feet, increasing from east to west	Proposed new storm sewer.
7	Triangular area of tracks bounded by north edge of Yard A, Dutch Kills St. and Thomson Ave. Bridge	Historic period resources: late 19th-early 20th cent. Residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation, including for new utilities
8	Area adjacent to and east of Dutch Kills St. and the Thomson Ave Bridge	Historic period resources: late 19th-early 20th cent. residential lot features (e.g., shafts from privies, cisterns, and wells)	In the lowest levels and below approximately 3.5 feet of fill. The top of the sensitive area is approximated at an elevation of 308 feet	Yard A excavation including for new utilities. Harold Interlocking Reconfiguration.
9	Subsequent to the FEIS, a review of boring logs and re-analysis of sensitivity has resulted in the removal of this sensitive area, which was located along the LIRR Main Line between the 39th Street Bridge and 43rd Street.			
10	Northern edge of Yard A	Precontact Resources	Below approx. 11-17 feet of fill. Resources potentially at approximately at elevations of 297-288 feet	Cut and cover tunnel excavation. Yard A storage yard facility.
		Historic period resources: ca.1650 grist mill between 41st Ave. and 40th Road	In the lowest levels and beneath approx. 11-17 feet of fill. The top of the sensitive area is approximated at an elevation of 297 feet	
11	L-shaped area adjacent to western end of loop track	Historic period resources: British & Hessian Revolutionary War troop occupation	In and below fill. Some areas may have up to 6.75' of surface removed, others up to 14' of fill added. The top of the sensitive area is approximated at an elevation of 346 feet	Harold Interlocking Reconfiguration
12	Portions of the area bounded by 43rd and 46th Sts, and 37th and Barnett Avenues	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 10 –20 feet of fill. The top of the sensitive area is approximated at an elevation of 340 feet	Harold Interlocking Reconfiguration, including filling and construction of retaining walls
13	Northern edge of Yard A between former Crane Street and former Nott Avenue (44th Drive)	Precontact Resources	Below approximately 5-10 feet of fill. Resources potentially at elevations of 293-303 feet near Crane Street and at elevations of 298-308 feet near former Nott Avenue.	Excavation in Yard A, including for new utilities.

MTA/LIRR East Side Access Project (cont'd)
Queens Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

Map Ref.[1]	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[2]	Proposed Construction
14[3,4]	Area 0-50 feet west of the 39th St Bridge and 0-278 feet north of the LIRR Main Line	Historic period resources: British & Hessian Revolutionary War troop occupation	In the lowest levels and below approximately 0-15 feet of fill. The top of the sensitive area is approximated at an elevation of 345 feet.	New sewer to be built parallel to the 39th Street Bridge. Present engineering indicates that sewer will be excavated outside the area of potential sensitivity.
15[3]	Area north of the LIRR Main Line between the Honeywell Street and 39th Street Bridges	Historic period resources: late 19th – early 20th cent. Residential lot features ((e.g., shafts from privies, cisterns, and wells)	Just beneath the surface to the lowest levels of, and beneath approximately 9 feet of fill. The top of the sensitive area is approximated at elevations of between 342 and 347.75 feet.	Proposed new sanitary sewer.
16[3]	Area north of LIRR Main Line east of Area No. 15	Historic period resources: late 19th – early 20th cent. Residential lot features ((e.g., shafts from privies, cisterns, and wells)	Just beneath the surface to the lowest levels of, and beneath approximately 10 feet of fill. The top of the sensitive area is approximated at elevations of between 342 and 347.75 feet.	Proposed new sanitary sewer, Central Instrument Location (CIL) Building, and storm and seepage basin.
17[3,4]	Woodside Interlocking: rear lots of former Lots 57/58, 59, and 60 of Block 1342	Historic period resources: 19th century residential shaft features (e.g., privies)	Anticipated just beneath the surface	Excavation for signal hut and retaining wall. Present engineering indicates that excavation will occur approximately 10 feet away from sensitive area.

Notes:

1 Areas 1-17 correspond to Exhibit B, "Area of Potential Effect and Archaeologically Sensitive Areas."

2 Except for the contract for the cut and cover tunnel excavation, which affects Areas 1, 4, 5, and 10, the estimated depth of potential archaeological sensitivity is based on geotechnical information contained in early design submittal packages (pre-50% design completion), and is expected to be refined as engineering proceeds and additional geotechnical information is compiled. Since much of the potentially affected area was formerly an alluvial area (a marsh), the area of potential precontact sensitivity has been approximated to extend for a depth of 10 feet (except Areas 1 and 10 where current geotechnical profiles based on boring logs taken in preparation for contract for the cut and cover tunnel were reviewed). The East Side Access Project is using a datum of 0=300.

3 Areas 6a, 6c, 14, 15, 16, and 17 have not yet been reviewed by the New York State Historic Preservation Office (SHPO).

4 Areas 6a, 14, and 17 are conservatively included in the event that the locations of the proposed work need to be adjusted and these sensitive areas are taken into account.

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT A (CONTINUED)

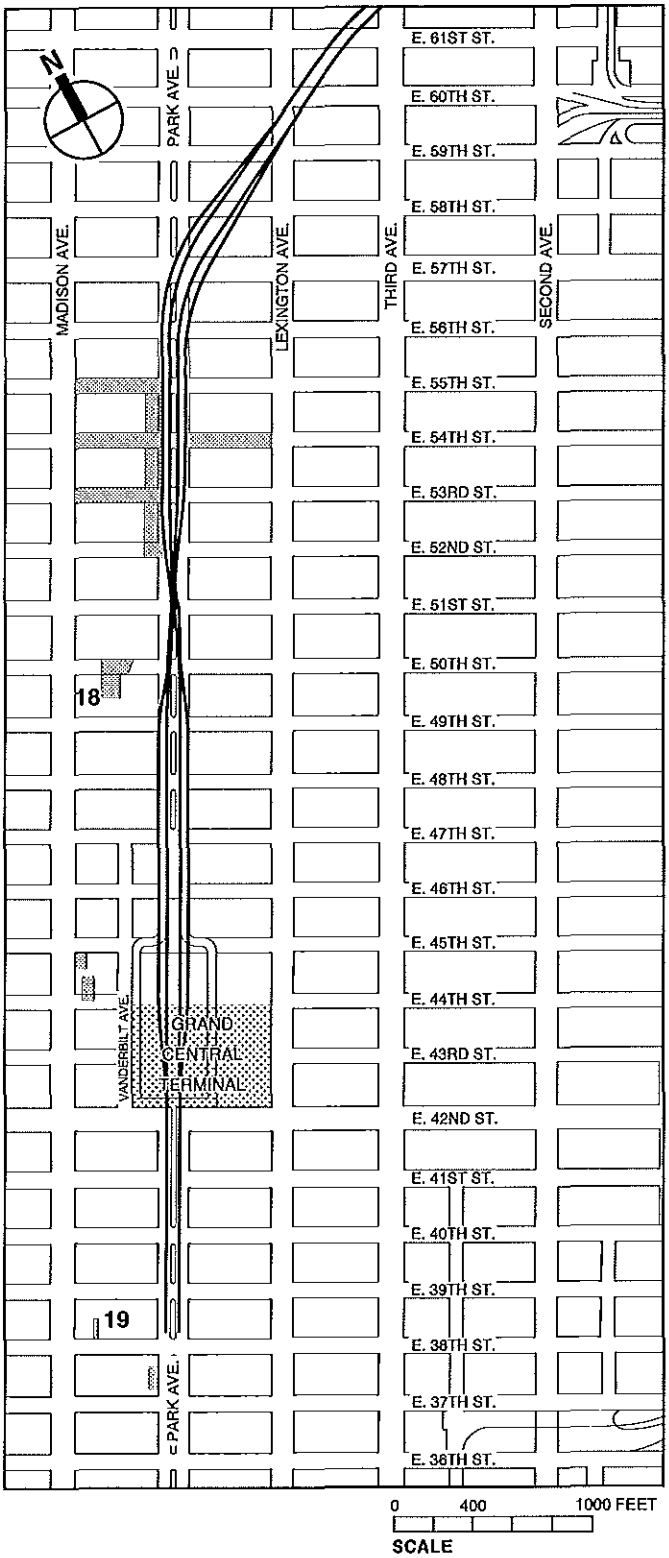
MTA/LIRR East Side Access Project
Manhattan Alignment-
Areas of Archaeological Sensitivity and Potential Project Effects

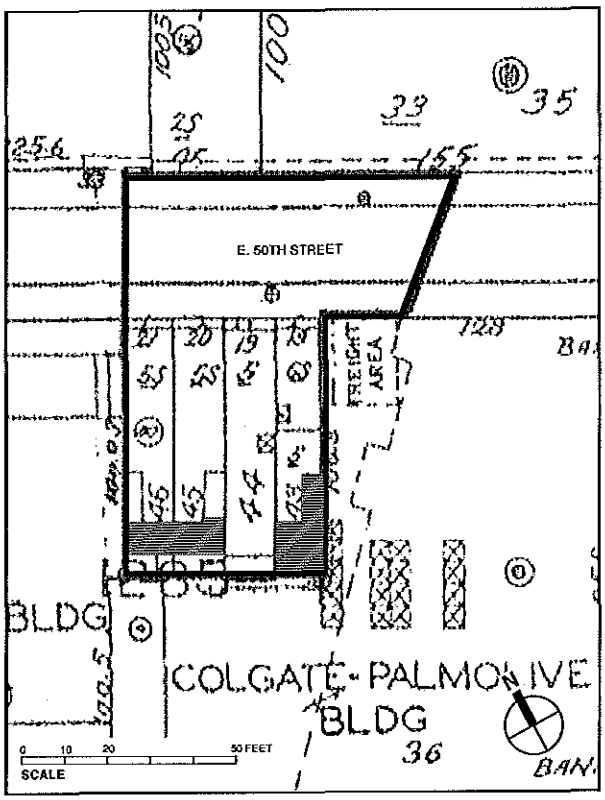
Map Ref.	Area of Sensitivity	Potential Resource Type	Approximate Elevation Resource May be Encountered[1]	Proposed Construction
18	South side of East 50th Street between Park and Madison Avenues (rear portions of Lots 43, 45, and 46 of Block 1285)	Historic period resources: subsurface shaft features associated with the early to mid-19th century Institute for the Deaf and Dumb	Unknown	Excavation associated with construction of the East 50th Street Facility
19	North side of East 38th Street between Park and Madison Avenues (rear portion of Block 868, Lot 53)	Historic period resources: Subsurface shaft features associated with 19th century homelot deposits	Unknown	Excavation associated with construction of the East 38th Street Vent Plant in prior design

Note: Corresponds to Exhibit B, "Area of Potential Effect and Archaeologically Sensitive Areas"

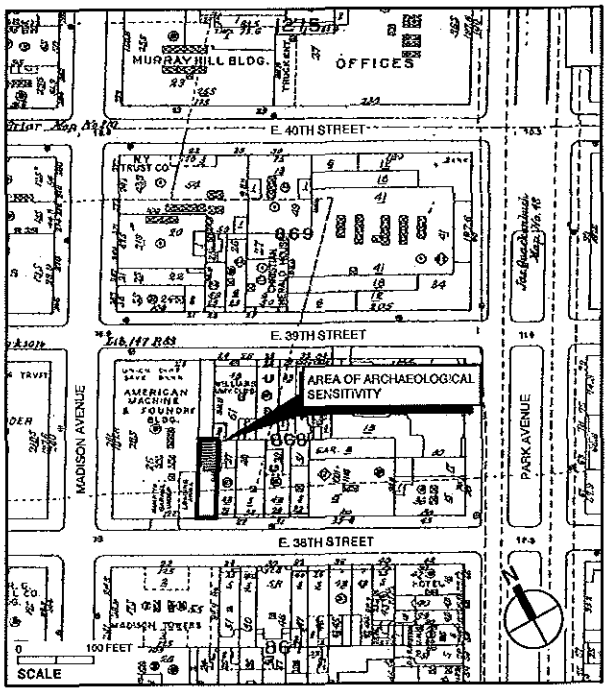
AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT B

3.23.06





18 **AREA OF ARCHAEOLOGICAL SENSITIVITY – EAST 50TH STREET VENT PLANT**
(Areas of potential historic archaeological sensitivity are located at the back of lots 43, 45 and 46 and are shown in black)



19 **AREA OF ARCHAEOLOGICAL SENSITIVITY – EAST 38th STREET VENT PLANT IN PRIOR DESIGN**

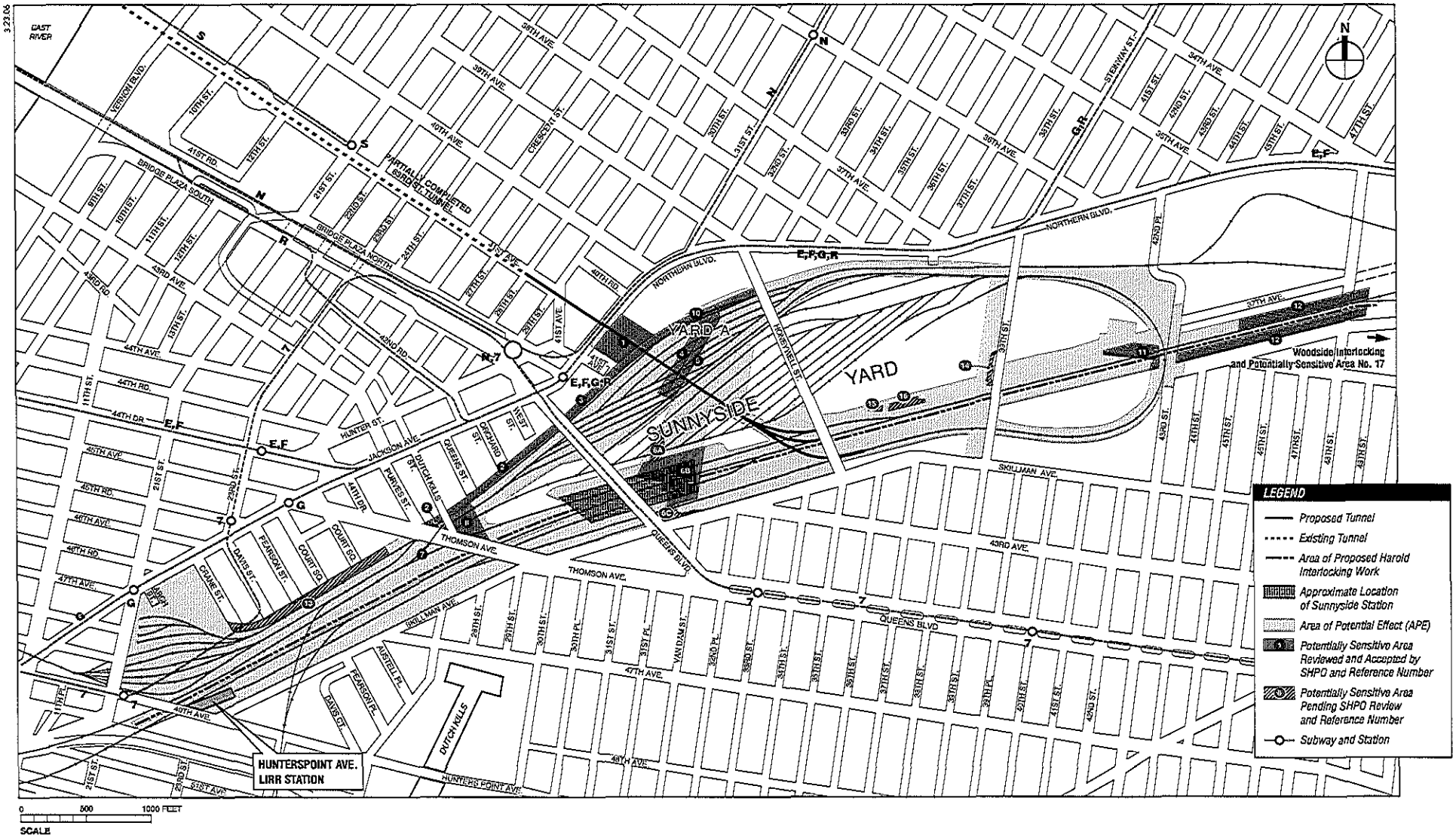
LEGEND

Area of Potential Effect (APE)

Potentially Sensitive Area Reviewed and Accepted by SHPO

Area of Potential Effect and Archaeologically Sensitive Areas - Manhattan Alignment

Exhibit B



Area of Potential Effect and Archaeologically Sensitive Areas - Sunnyside Rail Yard

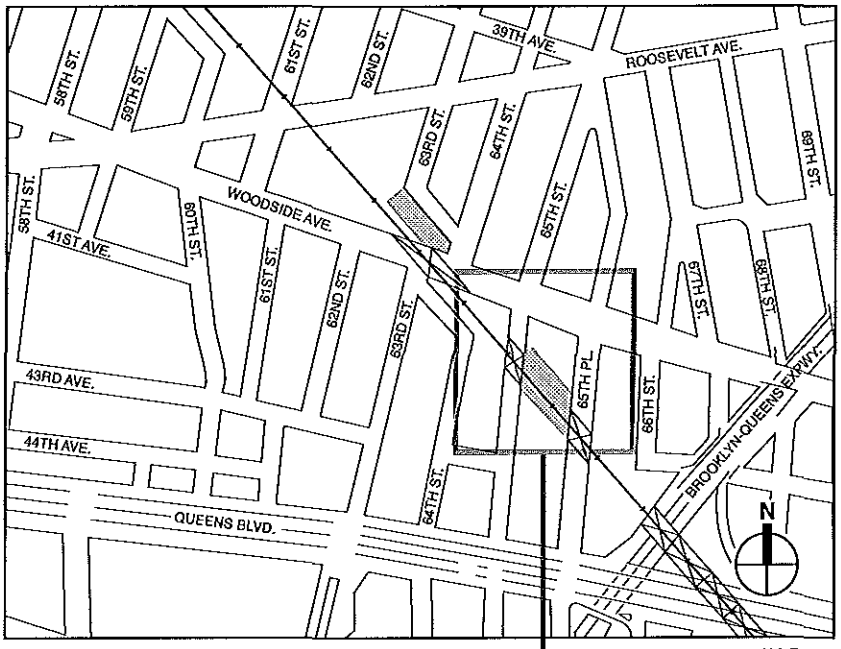
Exhibit B

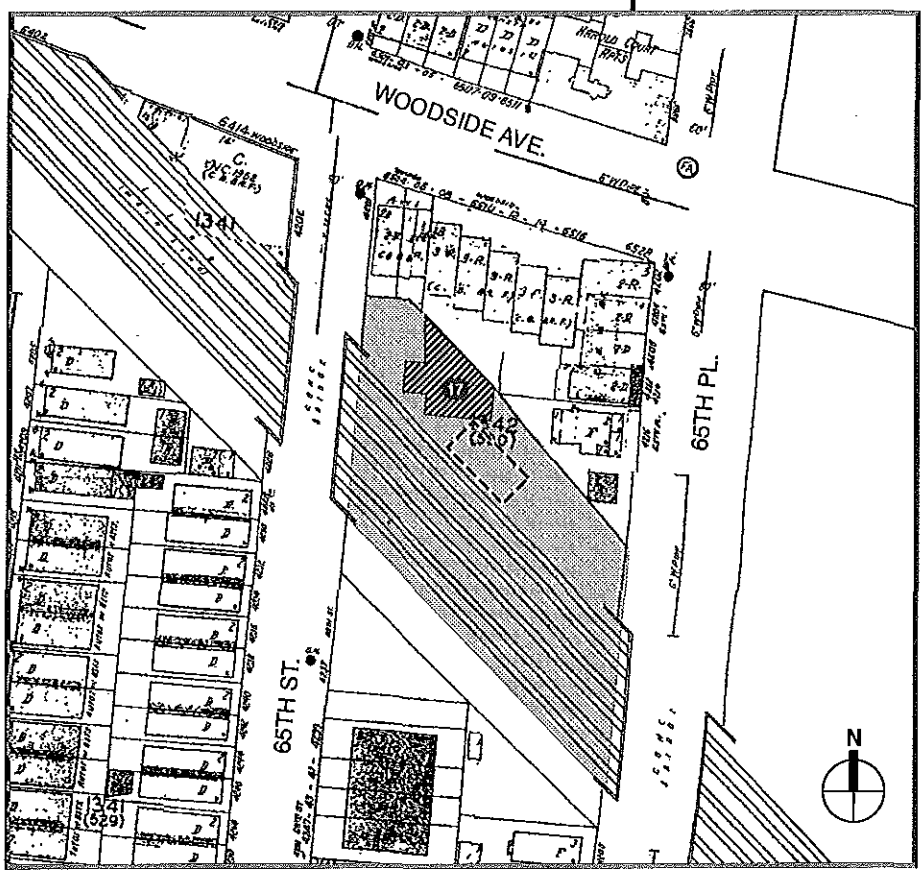
3.23.06

LEGEND

- Area of Potential Effect
- Limits of Excavation, Proposed Signal Hut

  Note: The Location of the signal hut, shown here at approximately 10 feet from the potentially sensitive area, has been moved to avoid disturbance. The location of the proposed excavation is now 30 feet away.
- 17 Potentially Sensitive Area Pending SHPO Review and Reference Number





Area of Potential Effect and Archaeologically Sensitive Areas - Woodside Interlocking

Exhibit B

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT C

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT C

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Queens

Resource No.	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL
1	Switch Tower Q (formerly Signal Cabin Q, Yardmaster's Office)	East of Queens Boulevard Viaduct			X		
2	Office (formerly Signal Cabin F)	West of Thomson Avenue			X		
3	Sunnyside Gardens Historic District	Approximately 16 blocks located east of 43rd Street and south of Barnett Avenue		X			

Notes:

- Corresponds to Exhibit D, "Area of Potential Effect and Locations of Historic Resources/Structures"

NHL: National Historic Landmark.
SR: New York State Register of Historic Places.
NR: National Register of Historic Places.
S/NR Eligible: Site has been found eligible for listing on the New York State and National Registers of Historic Places.
NYCL: New York City Landmark.
Pending NYCL: Site has been calendared for a public hearing or heard for designation by the New York City Landmarks Preservation Commission.

AMENDMENT TO THE PROGRAMMATIC AGREEMENT

EXHIBIT C (CONTINUED)

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
4	Treadwell Farm Historic District	East 61st and 62nd Streets between Second and Third Avenues		X		X		A,B
5	Bloomingdale's	743-765 Lexington Avenue, between 59th and 60rh Streets			X			A,C
6	New York Genealogical and Biographical Society	122-126 East 58th Street, between Park and Lexington Avenues			X			A,C
7	Ritz Tower Apartment Hotel	465 Park Avenue (between 57th and 58th Streets)				X		A,C
8	East 54th-East 55th Streets Historic District	North side of East 54th and south side of East 55th Street, between Park and Lexington Avenues			X			A, G
9[1]	Lever House	390 Park Avenue		X		X		E
10[1]	Racquet & Tennis Club	370 Park Avenue		X		X		E
11[1]	Seagram Building	375 Park Avenue		X		X		E
12[1]	Four Seasons Restaurant (Interior)	99 East 52nd Street		X		X		E
13[1]	St. Bartholomew's Church & Community House	Park Avenue at East 50th Street		X		X		E
14[1]	Waldorf-Astoria Hotel	301 Park Avenue			X	X		E
15[1]	Hotel Intercontinental (formerly Barclay Hotel)	111 East 48th Street			X			E
16[1]	Postum Building	250 Park Avenue			X			E
17[1]	New York Central (Helmsley) Building	230 Park Avenue			X	X		E
18[1]	Roosevelt Hotel	45 East 45th Street			X			E
19[1]	Vanderbilt Concourse Building	52 Vanderbilt Avenue			X			E
20[1]	Yale Club	50 Vanderbilt Avenue			X			E
21[1]	Vanderbilt Avenue Building	51 East 42nd Street			X			E
22[1]	Park Avenue Viaduct	Park Avenue between East 40th and 42nd Streets		X		X		E
23[1]	Grand Central Terminal	East 42nd Street at Park Avenue	X	X		X		E
24[1]	Graybar Building	420 Lexington Avenue			X			E

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
25[1]	Grand Central Terminal Post Office	Southwest corner of Lexington Avenue and East 45th Street			X			E
26	43-story Office Building	273-277 Madison Avenue			X			D
27[2]	Murray Hill Historic District (LPC and SHPO boundaries differ)	Roughly bounded by Park & Lexington Avenues and 39th and 35th Streets		X		X		D, H
28	Williams Club	24 East 39th Street			X			D
29	Rowhouse	31 East 38th Street			X			D
30[3]	Rowhouse	40 East 38th Street			X			D
31[3]	Rowhouse	38 East 38th Street			X			D
32[3]	Rowhouse	36 East 38th Street			X			D
33[3]	Rowhouse	34 East 38th Street			X			D
34[3]	Rowhouse	32 East 38th Street			X			D
35[4]	Church of our Savior	59 Park Avenue		X				D
36[4]	Adelaide L.T. Douglas House	57 Park Avenue		X		X		D
37[4]	15-story Apartment House	55 Park Avenue		X				D
38	Former Fraternity Clubs Building (now Jolly Hotel Madison Towers)	241-245 Madison Avenue			X			D
39	Former Duane Hotel (now Morgans Hotel)	237-239 Madison Avenue			X			D
40[5]	Rowhouse	29 East 37th Street			X			D
41[5]	Four Rowhouses	21-27 East 37th Street			X			D
42[5]	Rowhouse	19 East 37th Street			X			D
43[4]	James F.D. and Harriet Lanier House	123 East 35th Street		X		X		D
44	Villard Houses	Madison Avenue between East 50th and 51st Streets		X		X		F
45	13-story Apartment House	417 Park Avenue			X			G
46	Office Building	18-20 East 50th Street			X			F
47	Townhouse	39 East 51st Street			X			F
48	Former Institute of Physics	57 East 55th Street			X			A
49	Former Drake Apartment Hotel	434-442 Park Avenue			X			A
50	Townhouse	142 East 62nd Street			X			A
51	Lexington United Methodist Church	148-150 East 62nd Street			X			A
52	Rowhouse	171 East 62nd Street			X			A
53	Lincoln Building	60 East 42nd Street			X			H

MTA/LIRR East Side Access Project
Known Historic Resources/Structures in Manhattan

Ref. No.*	Name	Address	NHL	S/NR	S/NR Eligible	NYCL	Pending NYCL	Within APE (see Notes)
54	Former Pershing Square Building	125 Park Avenue			X			H
55	Former Chemists' Club	50-54 East 41st Street			X			H
56	Bowery Savings Bank Building	110 East 42nd Street				X		

Notes:

NHL: National Historic Landmark.
SR: New York State Register of Historic Places.
NR: National Register of Historic Places.
S/NR Eligible: Site has been found eligible for listing on the New York State and National Registers of Historic Places.
NYCL: New York City Landmark.
Pending NYCL: Site has been calendared for a public hearing or heard for designation by the New York City Landmarks Preservation Commission.

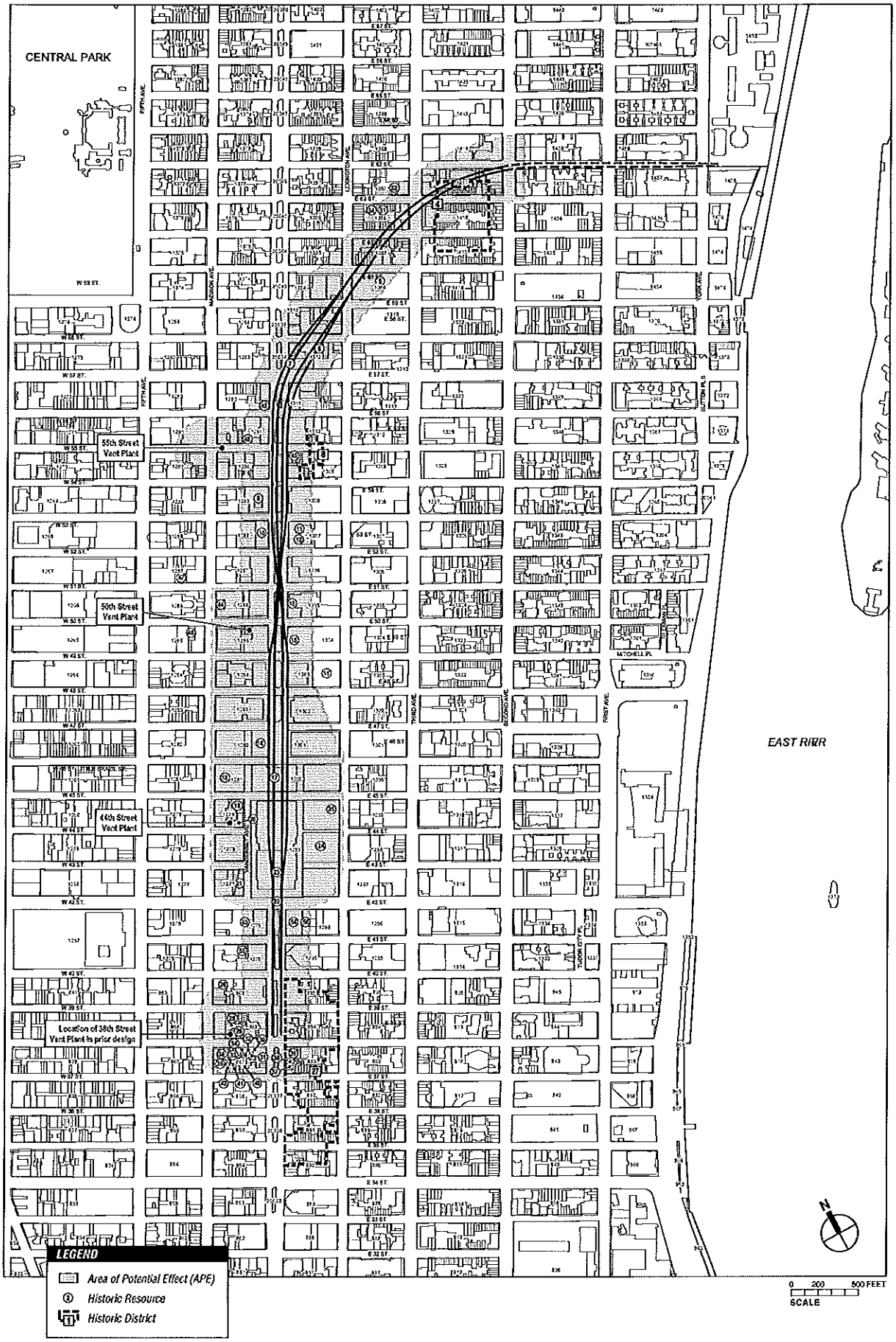
* Corresponds to Exhibit D, "Area of Potential Effect and Locations of Historic Resources/Structures"
[1] Included in March 2001 FEIS
[2] The boundaries for the New York City Historic District fall within those for the S/NR. Only the S/NR boundaries are mapped.
[3] Included in the NR-eligible "32-40 East 38th Street Historic District".
[4] Included in the NR-listed "Murray Hill Historic District". However, SHPO has indicated that the Church of Our Savior is not a contributing resource due to its age (1956-59).
[5] Included in NR-eligible "Rowhouses at 19-29 East 37th Street Historic District".

Within Area of Potential Effect (APE):
- A: 63rd Street Curve (200-foot APE)
- B: East 63rd Street Blasting Area (200-foot APE)
- C: Lexington Avenue Blasting Area (200-foot APE)
- D: East 38th Street Blasting Area (200-foot APE)
- E: FEIS analysis areas (50-100-foot APEs)
- F: East 50th Street Vent Plant (200-foot APE)
- G: Park Avenue Tunnel (200-foot APE)
- H: Grand Central Terminal Tail Tracks (200-foot APE)

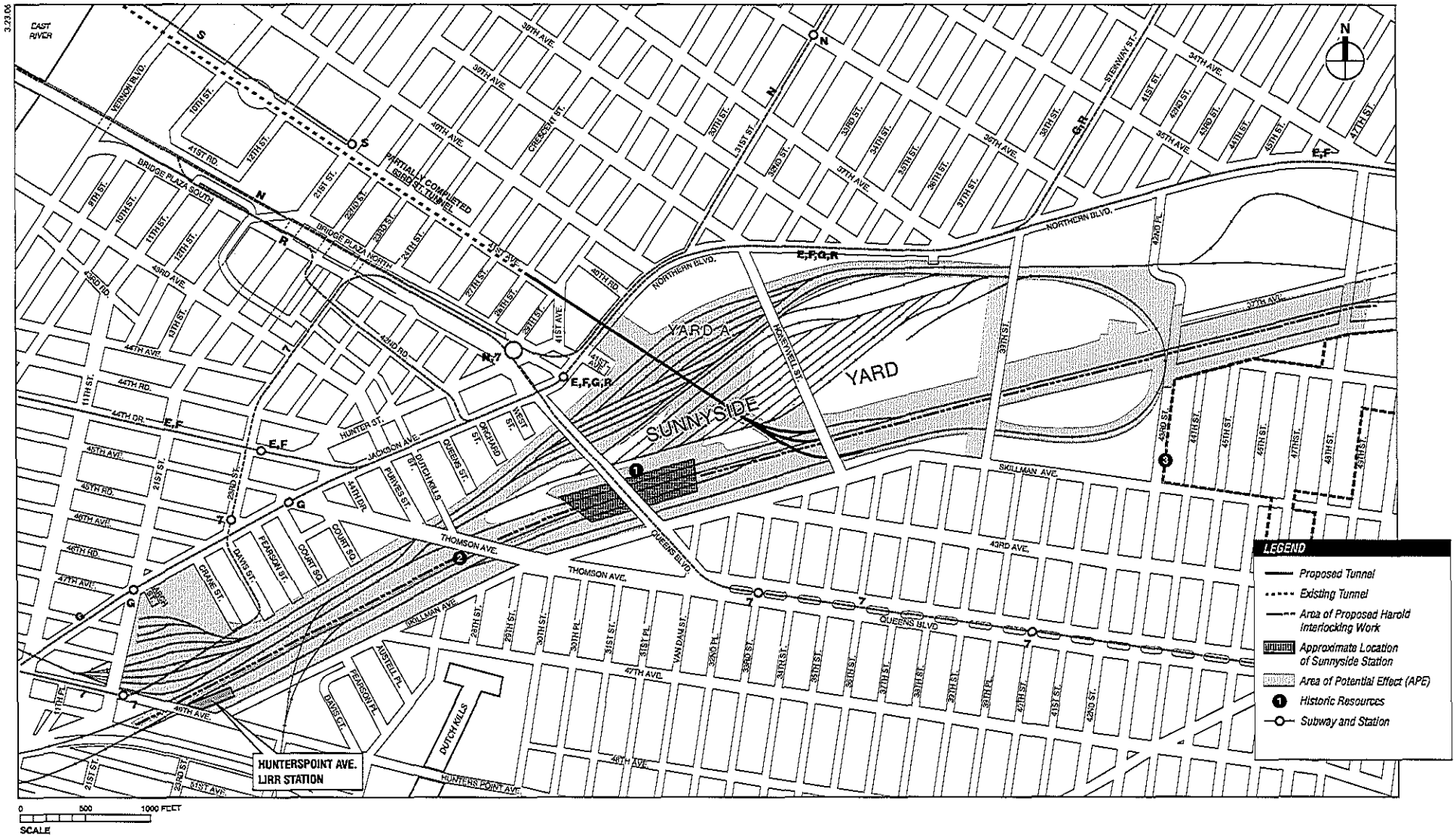
* No historic resources were identified in the East 55th Street Vent Plant APE (200-foot APE)

AMENDMENT TO THE PROGRAMMATIC AGREEMENT
EXHIBIT D

3.23.06



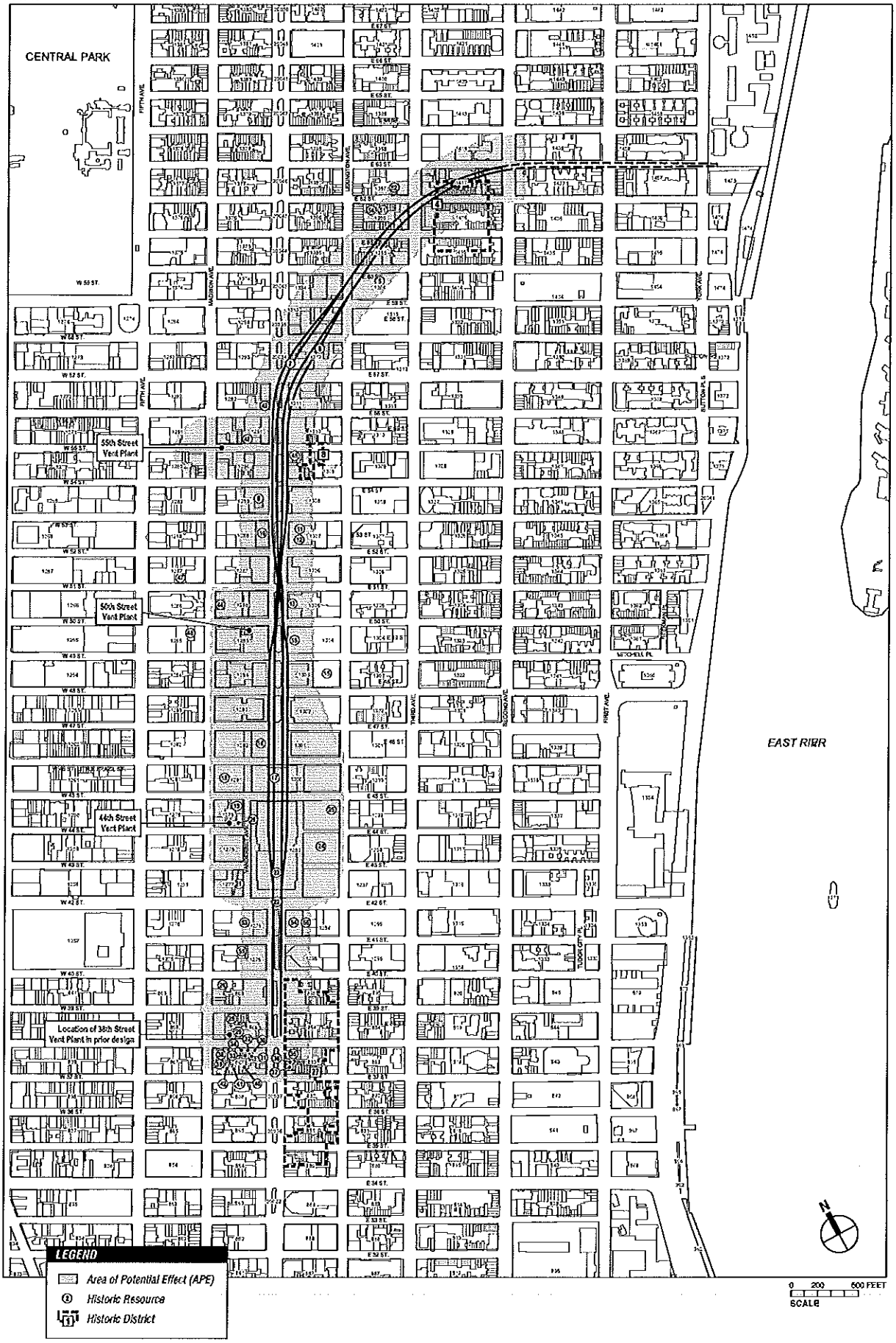
Area of Potential Effect and Locations of Historic Resources/Structures - Manhattan
Exhibit D



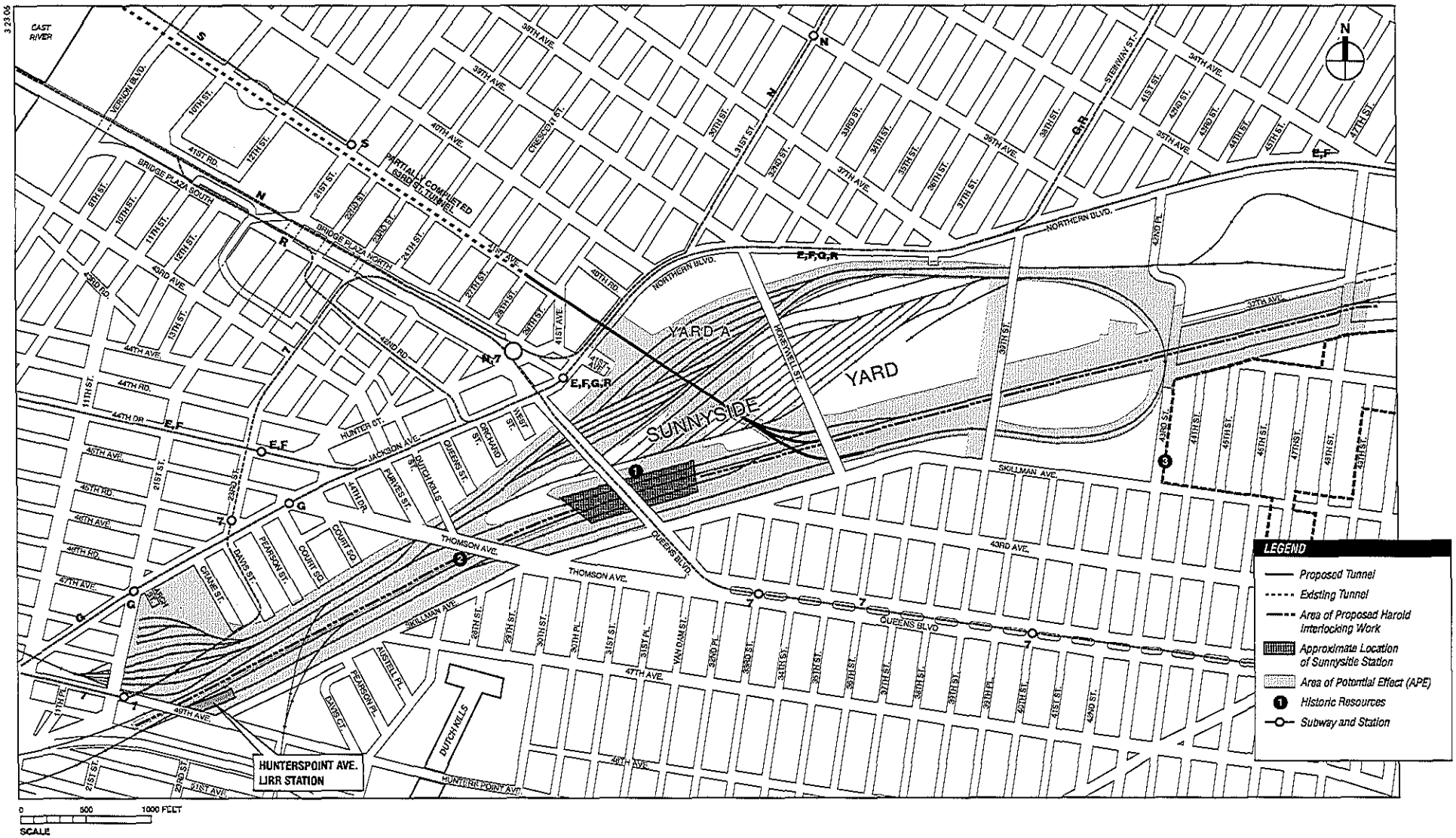
Area of Potential Effect and Locations of Historic Resources/ Structures
Sunnyside Rail Yard
Exhibit D

EAST SIDE ACCESS

3.23.06



Area of Potential Effect and Locations of Historic Resources/Structures - Manhattan
Exhibit D



Area of Potential Effect and Locations of Historic Resources/ Structures
Sunnyside Rail Yard
Exhibit D

EAST SIDE ACCESS