Chapter 1: Project Purpose and Need

A. INTRODUCTION AND IDENTIFICATION OF PROPOSED ACTION

The Federal Transit Administration (FTA) and the Metropolitan Transportation Authority (MTA), in cooperation with the Long Island Rail Road (LIRR), are proposing to modify the East Side Access Project to include construction of a new building at 50th Street between Park and Madison Avenues (referred to throughout this document as the "50th Street facility" or "the facility"). The 50th Street facility is needed to provide adequate ventilation for the East Side Access Project's new tunnels and terminal at Grand Central and to provide a loading dock for deliveries and waste removal for the new terminal.

The 50th Street facility is proposed for a site on the south side of 50th Street, midway between Park and Madison Avenues in Midtown Manhattan, and includes a through drive from 49th Street, as well as underground spaces beneath a portion of 50th Street and the adjacent building at 300 Park Avenue for ventilation shafts and a freight corridor (see Figure 1-1). At this location, five existing low-rise buildings on 50th Street and one on 49th Street would be acquired and demolished, and the 50th Street facility would be constructed.

The preliminary design for the East Side Access Project was analyzed in the Final Environmental Impact Statement (FEIS) prepared for the East Side Access Project in 2001, which did not include an above ground 50th Street facility. In the FEIS design, a ventilation facility was included below ground in the vicinity of 50th Street. Since the FEIS was published and the ROD was issued, the design of the East Side Access Project has progressed. In the course of design development, the need for modifications to the project's ventilation facility near 50th Street was identified. In addition, at the time of the FEIS, it was assumed that the new terminal would be supported by an existing loading dock at Depew Place. However, this loading dock is currently operating near capacity and it was determined that it would not support the needs of increased activity resulting from the LIRR service. As a result, a site for an above-ground structure to house the necessary ventilation functions and a new loading dock was identified.

In order to maximize the property's use and provide other support functions for the East Side Access Project, the new design included additional elements. A comprehensive list of the program elements for the design of the 50th Street facility is as follows:

- Station and tunnel ventilation shafts and tunnel ventilation fans (station ventilation fans would be located in the concourse);
- A loading dock and freight elevator to support the retail space in the LIRR concourse and trash removal from the LIRR trains;
- Cooling tower to provide cooling functions for the new East Side Access terminal at Grand Central;

- Emergency generators and associated fuel tank 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 is proposed for use as a construction access point to facilitate delivery of workers and materials to the construction of the East Side Access Project's new passenger terminal at Grand Central.

This revised supplemental EA analyzes three build alternatives for a new 50th Street facility—the two alternatives included in the January 2005 EA and a new preferred alternative developed in response to public comments on that document—incorporating ventilation shafts, a loading dock, and public open space, while relocating the cooling tower, fuel tank and substations to other locations not at the 50th Street site.

This chapter describes the purpose and need for the 50th Street facility design modification. Chapter 2, "Project Alternatives," describes the alternatives considered and identifies the preferred alternative. It also discusses other alternatives that were found not to be reasonable, and describes why those alternatives were eliminated. The remaining chapters of the revised supplemental EA describe the affected environment and evaluate the potential impacts during construction and operation of the FEIS design and the feasible and reasonable alternatives, including the preferred alternative.

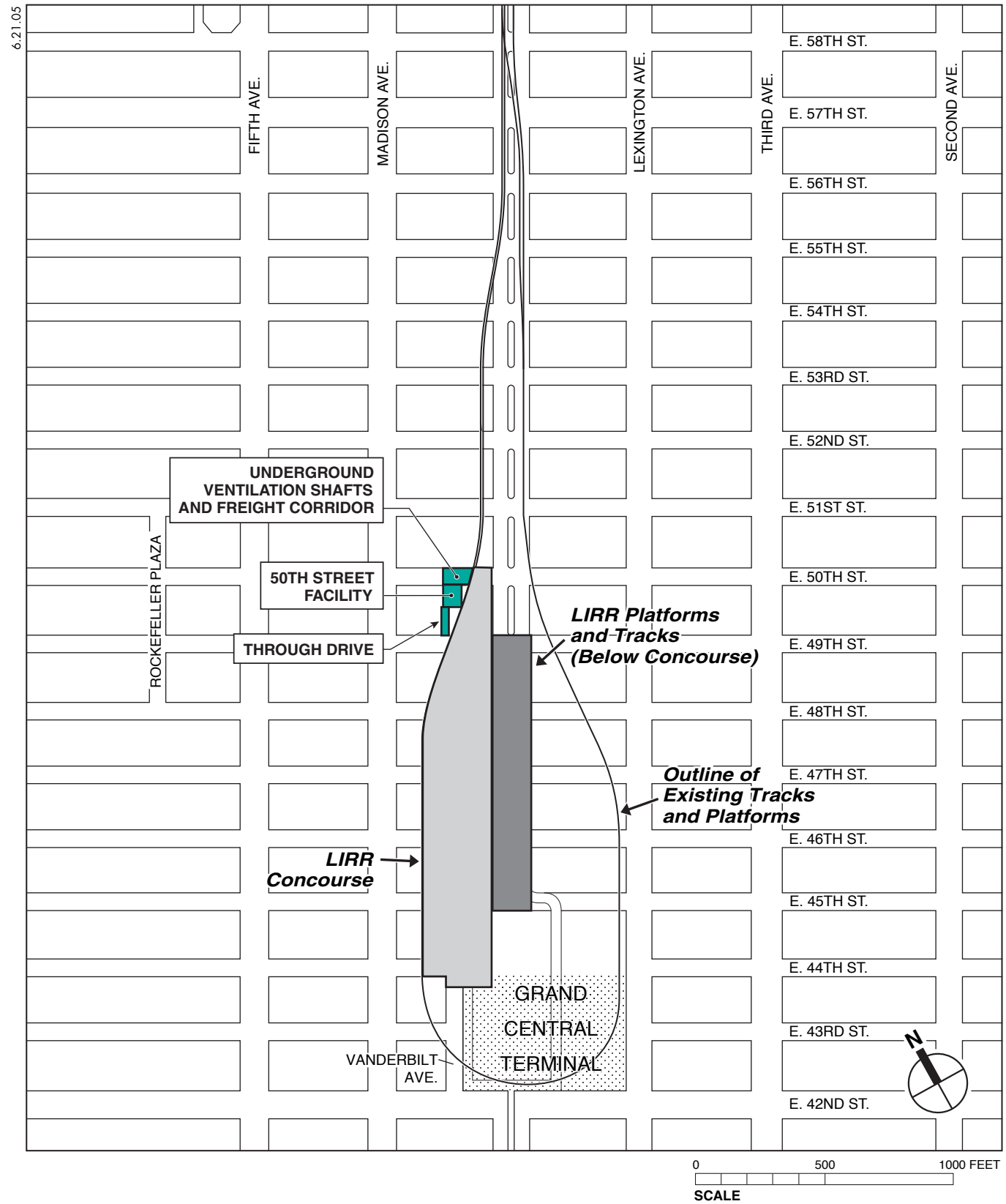
B. PURPOSE AND NEED FOR THE 50TH STREET FACILITY

OVERVIEW: EAST SIDE ACCESS PROJECT

The East Side Access Project will provide direct access for LIRR passengers to Grand Central Terminal. As shown in Figure 1-2, the East Side Access Project will bring passengers to Grand Central Terminal by constructing connections for LIRR trains from Queens through the existing 63rd Street Tunnel under the East River and from there to Grand Central Terminal. The connecting tunnel in Manhattan will curve southward from the existing tunnel at 63rd Street and approximately Second Avenue toward Park Avenue, where it will continue to Grand Central Terminal and to tracks extending past Grand Central Terminal ("tail tracks") to 38th Street.

The East Side Access Project tunnels will curve south under Park Avenue (and beneath the Metro-North tracks that run below Park Avenue) in multiple tubes that converge at approximately 51st Street. At that point (known as an "interlocking"), the tracks will split and enter the caverns that will house the new LIRR platforms, below the existing lower level of Grand Central Terminal. Two levels of platforms will be provided. Above the platforms, a new passenger concourse area will be created on the lower level of Grand Central Terminal, just north of the existing Dining Concourse. This area will have ticketing windows, public circulation spaces, and passenger amenity areas. It will also include service areas that are not open to the public, such as hallways for transport of deliveries and trash in the terminal.

The East Side Access Project is critical for the future of the region. It will allow LIRR to substantially increase service to Manhattan, accommodating a growing demand for train service. This additional service will reduce crowding and delays on trains. At the same time, LIRR customers bound for Manhattan's East Side will see substantial time savings in their daily commutes. These improvements will bring additional commuters to LIRR, removing automobiles from the roads during rush hours and improving overall regional air quality.



EAST SIDE ACCESS

50th Street Facility EA

Figure 1-1

Project Location

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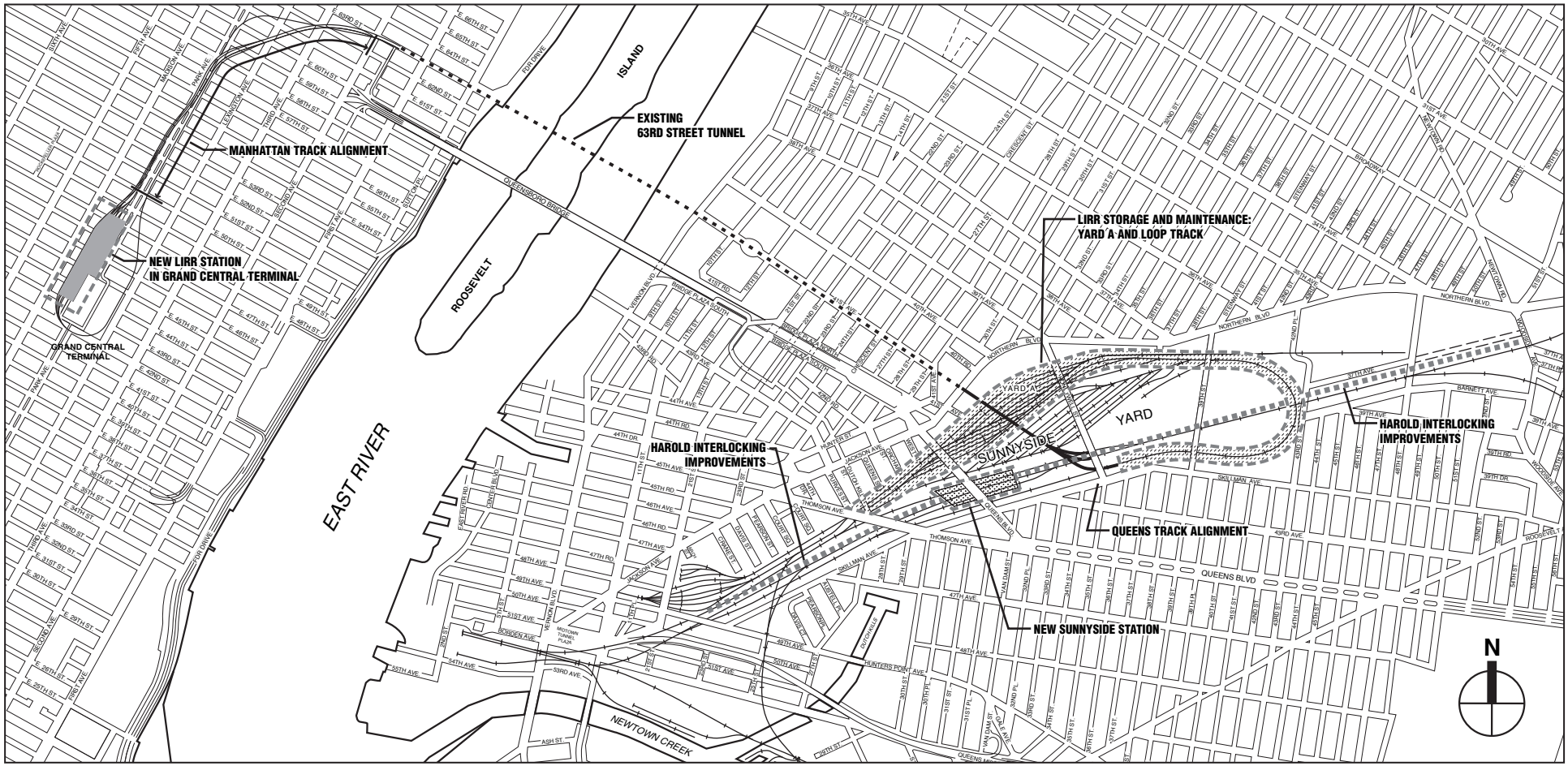

EAST SIDE ACCESS

50th Street Facility EA

Figure 1-2

East Side Access Project Elements in Manhattan and Queens

PROJECT HISTORY

The analysis of the East Side Access Project's environmental effects began in 1995, concurrent with the preparation of a Major Investment Study (MIS) to identify alternatives that would meet the transportation goals for the Long Island Transportation Corridor (LITC). In 1995, a Notice of Intent to prepare an Environmental Impact Statement (EIS) under NEPA was published and a public scoping process was undertaken. Three public scoping meetings were held in July 1995.

During preparation of the MIS, a wide range of alternatives were evaluated against project goals and objectives and other criteria to identify a preferred alternative. An alternative that introduces new LIRR service to Grand Central Terminal via the LIRR's Main Line was selected as the preferred alternative in 1998, and a Draft EIS (DEIS) was published for the East Side Access Project in May 2000, analyzing the preferred alternative (including two different engineering options for the alternative's Manhattan terminal), a Transportation Systems Management alternative, and a no action alternative.

FTA and MTA held a public hearing on the DEIS on June 15, 2000, in Manhattan. Notice of the public hearing was published in the Federal Register and in newspapers of general circulation as well as community and minority newspapers throughout the area. The public comment period was held open until July 12, 2000; however, comments were accepted following that period through December 1, 2000. The FEIS was prepared, after receipt and evaluation of more than 300 comments on the DEIS, and published on March 6, 2001. The FEIS was published in March 2001 and FTA issued the ROD in May 2001, approving East Side Access Project funding and implementation.

Since the FEIS was published and the ROD was issued in 2001, the design of the East Side Access Project has progressed. In the course of design development, the need for modifications to this project's ventilation facilities near 50th Street and its loading dock were identified. In addition, when the FEIS was prepared, the East Side Access Project's design envisioned use of rooftop space at Grand Central Terminal for a new cooling tower, but that rooftop space is no longer available. Therefore, a new design for the ventilation facilities and loading dock was developed that also incorporated space for the cooling tower. Other ancillary elements of the East Side Access Project were located in the new facility to maximize its use and reduce operating and maintenance costs.

A 50th Street facility that incorporated modifications to the design of the ventilation facility, loading dock, and cooling tower was evaluated in a Technical Memorandum prepared in February 2002. This Technical Memorandum, prepared by MTA, concluded that the proposed modifications would not result in any significant adverse environmental impacts (see Chapter 2, "Project Alternatives," for details on this interim design).

Since preparation of the Technical Memorandum in February 2002, design of the 50th Street facility has evolved further, as described in Chapter 2. Two new alternatives for the 50th Street facility were developed and presented in an EA published in January 2005. A public hearing was held to receive input and comments on those alternatives in February 2005. In response to those public comments, a new design for the 50th Street facility has been developed that substantially modifies the preferred alternative identified in the January 2005 EA. This revised supplemental EA evaluates the potential for environmental impacts of the three build alternatives for the 50th Street facility—the two alternatives presented in the January 2005 EA (Alternatives B and C) and the new Preferred Alternative D—in comparison to the design for these critical support functions presented in the FEIS.

PURPOSE AND NEED FOR THE PROPOSED 50TH STREET FACILITY

NEED FOR NORMAL AND EMERGENCY VENTILATION, AND LOADING DOCK FOR DELIVERIES AND WASTE REMOVAL

The East Side Access Project requires various mechanical and electrical systems to support the train operations and passenger spaces that will be located at Grand Central Terminal. These systems include ventilation for the new terminal, including caverns where the train platforms will be located and the new East Side Access concourse, where ticketing, public circulation, and passenger amenity areas will be housed. Ventilation is also needed for the East Side Access Project's tunnels as they approach the new LIRR terminal at Grand Central Terminal. The project also requires loading dock space for deliveries to retailers and railroad functions in the terminal as well as trash pick up from the terminal. The 50th Street facility is proposed to house these functions.

Ventilation functions in the facility would include normal ventilation for the northern half of the East Side Access caverns and for a portion of the East Side Access concourse; and normal and emergency ventilation for the southern section of the train tunnels, between 50th and 55th Streets. The ventilation system would perform three functions: it would provide fresh air to all passenger areas in the new terminal; exhaust excess heat from train tunnels during congested conditions and on hot days; and clear smoke from tunnels and passenger areas during an emergency to preserve safe egress routes for LIRR passengers and employees, and safe ingress routes for emergency service personnel.

As analyzed in the FEIS, a total of five ventilation facilities are proposed for the East Side Access Project in Manhattan, including the 50th Street facility; the others are to be located at 38th Street, 44th Street (which would provide ventilation to the south half of the new terminal), 55th Street, and 63rd Street in an existing MTA ventilation facility at Second Avenue. Additional ventilation shafts would be provided in existing shafts at the Roosevelt Hotel at 46th Street and in the building at 383 Madison Avenue (at 47th Street) that have been reserved for use by the East Side Access Project. In addition, existing ventilation structures on Roosevelt Island and in Queens and a new structure in Queens will comprise the East Side Access project's ventilation system. The general location of the 50th Street facility is dictated by spacing requirements along the alignment and the overall ventilation design for East Side Access and its proximity to the northern end of the new concourse.

To serve the new passenger concourse and the growing needs of Grand Central Terminal, the 50th Street facility would also house a new loading dock that can accommodate goods delivery and waste removal services. Deliveries and trash pickups would serve the passenger spaces and LIRR support spaces in the concourse and caverns. A truck loading dock and freight elevators to the concourse are required to serve the trucks that will deliver goods and remove waste.

REASONS FOR DESIGN MODIFICATIONS SINCE FEIS

Since completion of the FEIS in May 2001, the East Side Access Project's design has advanced past the preliminary phase. As the design evolved, it became apparent that implementation of the concepts for an underground ventilation facility near 50th Street and use of the existing loading dock at Depew Place to serve the new East Side Access Terminal presented significant difficulties. In addition, the location envisioned for the East Side Access Project's cooling tower was no longer available. As a result of these problems, the engineering team sought to identify

other locations that would be suitable to house a new ventilation facility with elevated air intakes, a new loading dock, and a rooftop cooling tower to serve the East Side Access Project.

Ventilation Facility

The FEIS design placed the ventilation facility for the northern portion of the concourse and caverns and the southern portion of the tunnels underground near 50th Street. The ventilation fans for the tunnel and station were located together in the lower level of Grand Central Terminal between 48th and 49th Streets. Grates in the sidewalks along 49th and 50th Streets between Park and Madison Avenues were planned for intake and exhaust of air (see FEIS pages 2-22 and 2-23 in Chapter 2, and page 17-10 in Chapter 17). In this design, the tunnel ventilation fans would operate in two conditions: during emergencies, to clear smoke from a fire in the southern section of the tunnels; and during normal conditions on warm days or when the tunnels were congested with train traffic, to maintain an acceptable temperature within the tunnels. The station ventilation fans would operate continuously under normal conditions.

In the FEIS design, the tunnel ventilation fans, which generate high-velocity air flow, and the station ventilation fans, which generate relatively low-velocity air flow, would share the same exhaust shaft. This would compromise the performance of the station ventilation system during times when both the tunnel ventilation and station ventilation systems would have to operate simultaneously. Such simultaneous operation would occur on warm days or days when the tunnels are congested with train traffic. The size of the common exhaust shaft could not be increased to accommodate separate tunnel and station ventilation ducts, however, because there is not enough underground space in the new East Side Access concourse between 48th and 49th Streets for a large enough shaft. As a result, separate locations for these two systems were sought.

Subsequent to the FEIS, as the East Side Access Project design developed, more detailed ventilation analyses and utility surveys were performed by East Side Access Project design engineers. Field inspections were conducted and building plans and utility maps were reviewed, and airflow requirements for the station and tunnel ventilation systems (normal and emergency systems)were re-analyzed. Using this more refined information, the design team identified a need for air flows greater than were anticipated in the FEIS. To facilitate these larger air flows, the project would require sidewalk grates extending over a larger area than anticipated in the FEIS. In addition, the utility surveys determined that Consolidated Edison vaults housing large transformers are located beneath the sidewalks on both the north and south side of 49th Street, presenting a sizable constraint to construction on 49th Street since such transformers are difficult to relocate. To accommodate the need for greater airflow and the need to avoid disturbing the transformers, the project would need to place sidewalk ventilation grates on each side of both 49th and 50th Streets between Madison and Park Avenues. This design would require excavation of the full width of the streetbeds in addition to the sidewalks on 49th and 50th Streets, necessitating traffic lane closures for a period of about two years.

Raising the air intake point from the street level to a point many feet higher would provide cleaner air for the public spaces in the station compared to street-level grates. The advantages of elevating the air intake for ventilation of the public spaces of the new terminal became particularly compelling after September 11, 2001. The new East Side Access terminal will be a large public space located deep underground that will serve nearly 160,000 people every day. Air will be circulated in the terminal through an “active” (or forced) ventilation system, driven by the continuous operation of fan equipment (located in the new East Side Access concourse at Grand Central Terminal at 48th/49th Streets) designed to continuously draw in fresh air. A new

space of this nature should have a reliable source of fresh air that maximizes the quality of the air provided. To protect against identified security risks, the East Side Access Project is now proposing an elevated air intake as a modification to the FEIS design. Providing elevated air intakes located within a facility owned and operated by the MTA would increase protection against the possible introduction of harmful substances into the air supply of the new terminal.

Loading Dock

In the FEIS design, the East Side Access Project would use the existing Grand Central Terminal 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 would result from the East Side Access Project.

There are four existing exclusive MTA loading bays on Depew Place serving Grand Central Terminal. Based on operational data collected by MTA, the dock currently operates at 90 percent of its capacity. To estimate the number of trucks expected at the loading bays once East Side Access is in place in the FEIS design, the number of trucks associated with each existing activity in Grand Central Terminal (e.g., retail, Metro-North storeroom, garbage, etc.) was increased proportionally to account for how that type of space would be increased by the East Side Access Project as follows:

- *Retail space*—Deliveries associated with retail space at Grand Central would increase 28 percent, based on an increase in retail floor area at Grand Central of 28 percent.
- *MTA general storeroom*—Increase of 62 percent, based on an increase in overall floor area at Grand Central of 62 percent.
- *MTA general deliveries*—Increase of 62 percent, based on an increase in overall floor area at Grand Central of 62 percent.
- *MTA garbage*—Increase of 76 percent, based on an increase in train service at Grand Central of 76 percent.
- *MTA other*—Increase of 62 percent, based on an increase in overall floor area at Grand Central of 62 percent.

Therefore, accounting for the number of deliveries associated with each type of space, the overall effect of these increases will be to increase the number of deliveries by 35 percent, causing total delivery demand to exceed the existing capacity of the Depew Place loading dock. (For more information on the number of existing truck trips at Depew Place and the number projected to occur with the East Side Access Project, see Chapter 7 of this revised supplemental EA, "Traffic and Transportation.") Since there is no physical space to expand the Depew Place loading dock, additional loading space must be constructed at a new location.

An estimated 23 trucks per day would need to be accommodated at a facility to support the new LIRR terminal at Grand Central (see Chapter 7). To handle this number of trucks, the loading dock must have two bays for trucks and one bay for a trash dumpster/compactor.

Other Program Elements

While the need for the 50th Street facility is driven by the ventilation and loading dock functions described above, other program elements are included in the 50th Street facility design to maximize the use of the property and provide support functions to the East Side Access Project.

When the FEIS was prepared, the East Side Access Project's design envisioned placing the cooling tower for the heating, ventilation, and air conditioning (HVAC) system of the new East Side Access terminal on the roof of the North Court of Grand Central Terminal. However, following completion of the FEIS, Metro-North completed a simulation modeling study in 2003 to address ventilation problems in Grand Central Terminal. Very high temperatures resulting from a build-up of heat from idling trains exist on the platforms and in the train yards, particularly on the lower level. As a result of Metro-North's 2003 study, Metro-North is proceeding with a permanent ventilation strategy that will utilize the North Court roof of Grand Central Terminal, precluding use of this space for the East Side Access cooling tower, as was assumed in the FEIS. This rooftop space is the closest and most appropriate space to address Metro-North's pressing need. Consequently, a new rooftop location is needed for the East Side Access Project's cooling tower.

When the FEIS was prepared, the design of the East Side Access Project had not advanced sufficiently to include details on the placement of emergency generators, fuel tank or electrical substations, other than the substations providing traction power for trains.

LOCATIONAL/SITING CRITERIA FOR DIFFERENT PROJECT ELEMENTS

Because of the complicated layout of the trainshed and existing train facilities at Grand Central Terminal, and because of the densely developed Midtown blocks above the trainshed, siting the new elevated ventilation intakes and exhausts, the new loading dock, and the rooftop cooling tower units for the East Side Access Project is difficult.

Grand Central Terminal's existing tracks and platforms, which are on two levels, occupy much of the area between Madison and Lexington Avenues from 44th to 50th Streets, as shown in Figure 1-3. The tracks are directly below Park Avenue, the side streets, and the buildings in that area, all of which were constructed after the railroad and form the roof above the railroad facilities. On the west side of Park Avenue, the tracks and terminal facilities (collectively referred to as the "trainshed") extend as far west as midway between Park and Madison Avenues, and up to 50th Street.

The new East Side Access passenger concourse will be created on the lower level of Grand Central Terminal, in an area now occupied by Metro-North's Tracks 116 through 125 (see Figure 1-3). On Grand Central Terminal's upper level, the Metro-North tracks above the new passenger concourse will remain in place and continue to operate. Below the new concourse, the new LIRR platforms and tracks will be located in a cavern that extends to approximately 50th Street.

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.

Ventilation Facility

The East Side Access Project's ventilation system is designed to include five ventilation facilities in Manhattan that provide fresh air to and exhaust air from the East Side Access concourse, caverns, and tunnels. These facilities will be located at or close to 38th Street, 44th Street, 50th Street, 55th Street, and 63rd Street. A facility is needed in the vicinity of 50th Street to ventilate the northern end of the caverns and a portion of the concourse, as well as the southern end of the Manhattan train tunnels. This ventilation facility must be located between East 48th and East 50th Streets, because it must be proximate to the portion of the caverns, concourse, and train tunnels to be ventilated. It must be west of the Metro-North trainshed bulkhead, because a location east of the bulkhead would mean that shafts would have to be constructed through active Metro-North tracks, permanently eliminating those tracks from service. It should be east of Madison Avenue, to avoid the need to construct long ventilation shaft tunnels, and a much larger facility to house the bigger, more powerful fans that would be required.

Loading Dock

The loading dock must be directly connected to the East Side Access Project facilities at Grand Central Terminal, to permit delivery of merchandise and removal of trash using the planned underground service corridors in the new terminal. As a consequence, the loading dock should be located between East 43rd and 50th Streets and between Madison Avenue and the Metro-North trainshed bulkhead so that it is as close as possible to the new East Side Access concourse without requiring construction through active Metro-North tracks. The north-south boundaries are dictated by the location of the new terminal.

In addition, a loading dock at the northern end of the concourse, near 50th Street, would best meet the demand for additional loading dock capacity, because it would be located at the opposite end of the terminal from the existing Depew Place loading dock (see Figure 1-3), and therefore would provide a balance between the two available loading docks at Grand Central Terminal, minimizing the distances required for deliveries and trash removal.

Advantages of 50th Street Site

As discussed in Chapter 2, "Project Alternatives," the 50th Street facility under any of the build alternatives would house a combination of facilities. This would allow improved operational and maintenance efficiency, and reduced costs resulting from the consolidation of project elements in one location. Moreover, as discussed in Chapter 2, acceptable separate locations for the ventilation facility and loading dock were not identified during design development.

The proposed site for the 50th Street facility on 50th Street between Park and Madison Avenues is located immediately west of the existing Grand Central Terminal trainshed and just west of the new East Side Access concourse area. It meets the siting criteria described above, and would meet the project's critical need for ventilation and loading dock space. Principal advantages of this site include:

- The 50th Street area was identified in the FEIS as an area to be used for station and tunnel exhaust.
- The proposed site is the ideal location for the East Side Access Project's loading dock, freight elevator, and air shafts.

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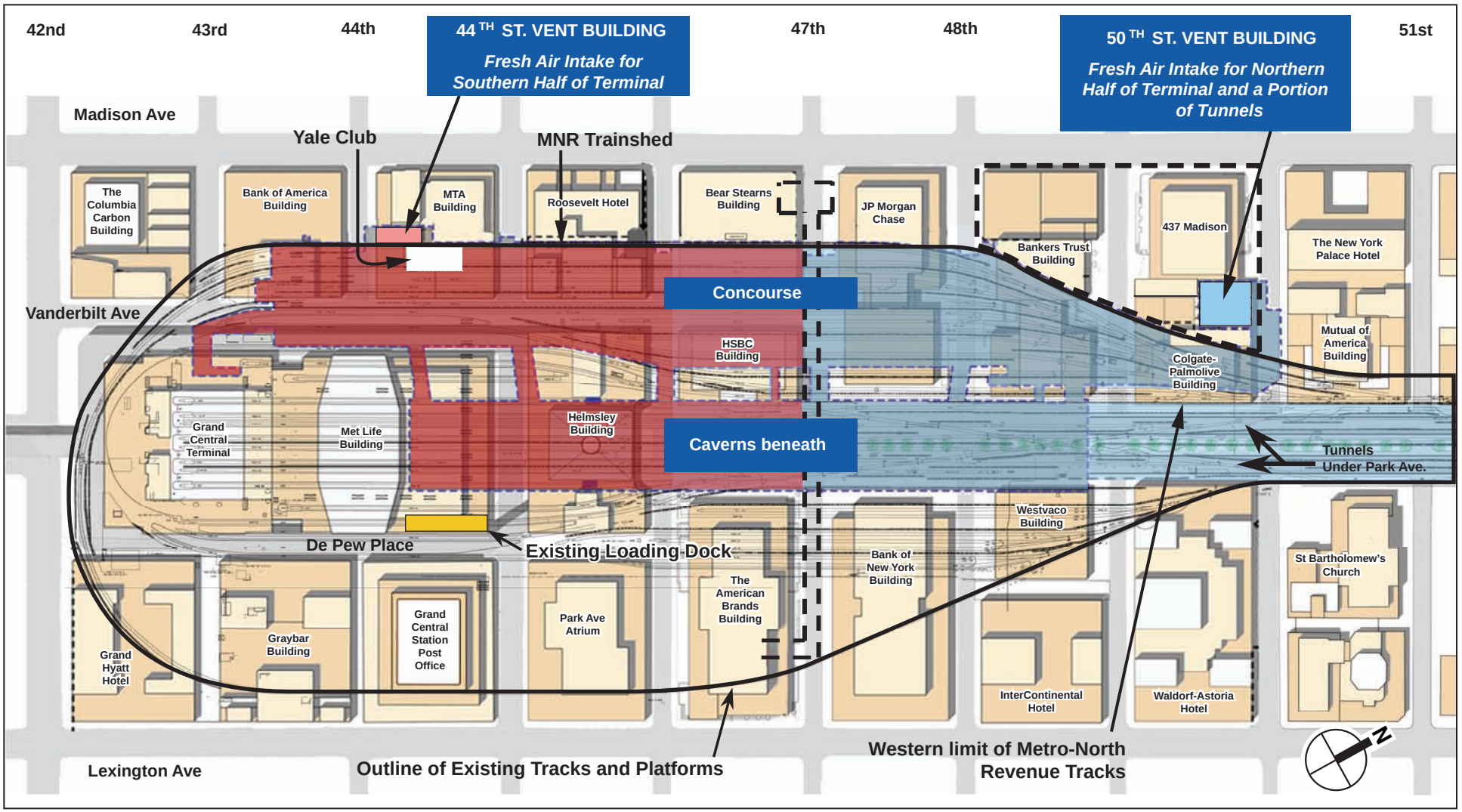

Grand Central Terminal

Area Satisfying Siting Criteria

EAST SIDE ACCESS

50th Street Facility EA

Figure 1-3

Siting Criteria for New Facility

- Providing a facility at this location would allow the project to provide fresh air for public spaces using elevated air intakes.
- The proposed site is the only location that meets the locational siting criteria that is not currently occupied by high-rise buildings.

The proposed site at 50th Street would also provide other benefits to the East Side Access Project:

- The site would provide an opportunity to locate the tunnel and terminal ventilation shafts in a single excavation area.
- The 50th Street facility would provide space for above-grade emergency generator air supply and exhaust.
- The 50th Street facility would enable the placement of the cooling tower on a rooftop in close proximity to the chillers (located in the concourse) to which they are connected.

These advantages are described in more detail in Chapter 2 of this revised supplemental EA.✷