

A. INTRODUCTION

This chapter describes activities required for construction of Alternative A (the no action alternative) and the three build alternatives: Alternatives B, C, and Preferred Alternative D. The chapter also analyzes the environmental impacts that may result from those construction activities.

B. DESCRIPTION OF CONSTRUCTION ACTIVITIES**ALTERNATIVE A (NO ACTION ALTERNATIVE)**

As described in Chapter 2, "Project Alternatives," Alternative A would include a ventilation facility at the northern end of the existing Grand Central Terminal concourse. Fresh air intakes would be located along 49th Street for the entire length of the street between Madison and Park Avenues, a distance of approximately 500 feet. Exhaust grates would be located along 50th Street, for the entire length of the street between Madison and Park Avenues, also a distance of approximately 500 feet. Cut-and-cover construction techniques and limited controlled blasting would be used to build the underground shafts. Some sections of the vent plant would be mined, using controlled blasting, from the tunnels below. 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. 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.

Equipment that would be used during the excavation and construction on 49th and 50th Streets would include a hydraulic crane, several backhoes/loaders, compressors, drill rigs, a small welding machine, and several dump trucks during excavation.

For the areas of the street to be excavated, work would occur on one side of the street at a time. A single traffic lane and the adjacent sidewalk would be closed to allow initial excavation of the area below. Once the top portion of the excavation is complete, the work area would be covered with temporary panels so that work could continue below. A portion of the traffic lane would remain closed to traffic, for construction staging and deliveries. The panels would be removed occasionally to allow delivery of large materials by cranes to the work area.

When work is complete, permanent decking would cover the new intake and exhaust shafts and the street would be rebuilt to allow it to be re-opened for traffic. Construction of the sidewalk intake and exhaust grates would require the partial sidewalk and street closures described above for approximately 15 months total for each street.

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Construction work on both streets would occur between approximately 7 AM and 11 PM. Most work would be performed on weekdays, but certain activities (such as delivery of very large equipment) may be conducted on weekends to avoid disruption to traffic.

ALTERNATIVE B (50TH STREET FACILITY WITHOUT THROUGH DRIVE)

For the 50th Street facility, five different types of construction activity would occur: (1) demolition of the buildings on the site, (2) excavation of the site and construction of the shafts and underground connection to Grand Central Terminal, (3) use of the site as an access point and staging area for construction of the new concourse at Grand Central, (4) construction of the new facility’s superstructure, and (5) installation of equipment and completion of the new facility. Most work would be performed on weekdays, but certain activities (such as delivery of very large equipment) may be conducted on weekends to avoid disruption to traffic. The activities occurring in each of these phases are described below, and the estimated construction schedule for the phases is shown in Table 15-1.

**Table 15-1
Preliminary Schedule of Construction Activities for the 50th Street Facility**

Phase	Description	Duration	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1	Building demolition	9 mos.	■	■	■				
2	Street excavation/ Shaft construction	21 mos.	■	■	■	■	■	■	■
3	Access usage for concourse	30 mos.			■	■	■	■	■
4	Construction of building superstructure	6 mos.					■	■	■
5	Building fit-out	15 mos.						■	■

PHASE 1 — BUILDING DEMOLITION (9 MONTHS)

During this initial phase of construction, the existing four buildings on the project site would be demolished. Construction equipment would include several backhoes with hydraulic hammers, a compressor and several dump trucks. A portion of the sidewalk in front of the project site and the adjacent curb lane of 50th Street would be closed for the duration of this construction period.

During demolition, the party wall between the project site and the building at 437 Madison Avenue would be removed. The East Side Access Project is working with the owners of 437 Madison Avenue to develop plans for replacement of that wall.

During this construction phase, subsurface archaeological testing would be conducted in the backyards of the four buildings on the site to identify the presence or absence of archaeological resources. If any resources are identified, a data recovery plan would be implemented for those resources in this phase.

PHASE 2 — 50TH STREET EXCAVATION/SHAFT CONSTRUCTION (21 MONTHS)

During this phase of construction, which would overlap with Phase 1, the project site and a portion of 50th Street would be excavated to permit the construction of the tunnel ventilation shaft, the underground service corridor, and the underground fresh air intake and exhaust ducts. The portion of 50th Street to be excavated would be approximately 125 feet long, extending from the western edge of the project site to the existing exterior wall (bulkhead) of the Grand

Central Terminal trainshed below. The trainshed wall of the existing terminal is located just east of the loading dock entrance for the Colgate-Palmolive Building at 300 Park Avenue. Along the 125-foot-long excavation area, the entire width of 50th Street would be excavated, a half-width at a time. Cut-and-cover construction techniques would be used to remove soil from the street and demolished building lots on the project site, and limited controlled blasting would be used to remove the rock below the soil. The area to be excavated is much smaller than required for Alternative A. Utilities would be relocated or supported in place as the work proceeds in this excavation area. In contrast, Alternative A would require excavation of the full width of 49th and 50th Streets. As noted in Chapter 2, "Project Alternatives," subsequent to the FEIS, more detailed ventilation analyses and utility surveys were performed, indicating the need to place sidewalk ventilation grates on each side of both 49th and 50th Streets between Madison and Park Avenues in Alternative A. 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.

As part of design development, geotechnical investigations would be conducted at the project site and all measures necessary to protect neighboring buildings during excavation would be developed and implemented.

Construction equipment would include a hydraulic crane, several backhoes/loaders, compressors, drill rigs, a small welding machine, and several dump trucks. A portion of the southern sidewalk, which is adjacent to the project site, would be closed for the duration of this construction period. Lane closures would be required within the approximately 125-foot-long construction zone on 50th Street during the first 6 months. For the remaining 15 months, some sporadic lane closures would be required. Detailed MPT plans will be developed in coordination with New York City Department of Transportation (NYCDOT).

PHASE 3 — ACCESS FOR ESA CONCOURSE CONSTRUCTION (2½ YEARS)

During this phase of construction, the vacant project site would be used as an access point for the delivery of materials and workers to the concourse and caverns below. While workers may arrive at the site 24 hours a day, truck trips to and from the site would occur on weekdays between 7 AM and 11 PM, with deliveries of larger materials occasionally occurring on weekends to avoid disruptions to Midtown traffic.

Construction equipment would include a hydraulic crane for moving larger materials (such as steel) and, possibly, a concrete pump. Materials to be delivered would include consumable hardware supplies, such as nails, shovels, garbage bags, and air and gas cylinders for welding; larger items, such as wood framing material, and reinforcing and structural steel; and concrete to support construction of the northern end of the concourse and caverns. All other materials would be delivered to the concourse by rail from the Bronx and to the caverns from Queens, as they would in Alternative A.

Using the 50th Street site as a construction access and staging point would help to reduce the risk of delays to the project's overall construction schedule. If all materials must be transported to Grand Central Terminal from Queens (as in Alternative A), delivery of materials would be limited by the capacity of the rail tunnels, and delays could result.

During Phase 3, the project site would be fenced and gated to limit views into the site and maintain security. Concrete trucks and other trucks making deliveries and pickups would pull completely into the site. This phase of construction would not require any closures of sidewalks

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or vehicular travel lanes. When multiple trucks arrive at the site, however, some trucks may need to wait in the curb lane on 50th Street.

PHASE 4 — 50TH STREET FACILITY SUPERSTRUCTURE CONSTRUCTION (6 MONTHS)

During this phase of construction, the superstructure of the 50th Street facility would be built. Construction equipment would include a crane, a concrete pump, and welding machines. The sidewalk adjacent to the project site would be closed for the duration of this construction period, but no closures of vehicular travel lanes would be required. Trucks delivering material, such as steel, to the site, however, may need to wait in the curb lane on 50th Street.

PHASE 5 — 50TH STREET FACILITY FIT-OUT (15 MONTHS)

During this phase of construction, the interior of the 50th Street facility would be completed. Construction equipment would include a small hydraulic crane and a variety of small hand-held tools. Limited closures of sidewalks or the curb lane may be required to facilitate the placing of some material and equipment.

ALTERNATIVE C (50TH STREET FACILITY WITH THROUGH DRIVE)

Construction activities for this alternative would be the same as those for Alternative B, described above, with the exception that one additional building, located at 45 East 49th Street, would be demolished during Phase I to permit construction of the 49th Street entrance to the loading dock that would be part of this alternative. The demolition of this additional building would be completed in parallel with the proposed demolition of the buildings on 50th Street, and would therefore not alter the construction schedule.

The proposed demolition of the building on 49th Street would provide additional space for truck loading and unloading at the construction site. It would also provide for a smoother flow of construction vehicles into and out of the site, by allowing trucks to enter from 49th Street and exit from 50th Street.

The East Side Access engineering team will conduct all necessary geotechnical and structure engineering analyses and monitoring necessary to protect structures located adjacent to the 50th Street facility and ensure that adverse effects to the foundation and structural integrity of nearby buildings would not occur.

PREFERRED ALTERNATIVE D (50TH STREET FACILITY WITH THROUGH DRIVE AND PUBLIC OPEN SPACE)

In response to public comments regarding the length of the construction period and use of the 50th Street site for East Side Access construction access and staging, the construction sequencing for Preferred Alternative D has been changed. In this alternative, access and staging for the new LIRR concourse construction would not occur on the vacant site after demolition of the five buildings on the site. Instead, the 50th Street facility structure would first be completed, and worker access and deliveries to the underground concourse would be carried out within the enclosed structure. During this time, the facility would function similarly to the completed facility. The loading dock would be used to accept deliveries related to construction activities occurring below for the new Long Island Rail Road (LIRR) concourse at Grand Central Terminal. Materials would be moved from the dock to the concourse level via cranes within the facility, using the facility's freight elevator shaft. Once the concourse is complete, some final

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are constructed throughout the city. Finally, this alternative would also use the project site as an access point for construction activities occurring elsewhere. This use would not be particularly disruptive, since it would involve delivery of materials, but it would mean that the site would appear as a construction site for a longer duration than would otherwise be necessary. As noted below in the discussion of visual and aesthetic considerations, the project site would be surrounded by a sturdy fence during this period to block views into the site and limit disruptions to the surrounding area. Overall, construction would last longer on 50th Street in Alternative B than in Alternative A.

The most disruptive construction activities for the 50th Street facility would be the cut-and-cover and excavation work for the project site and adjacent street, which would have a duration of approximately 21 months. Most of the land uses immediate to the construction area are office uses, which are less sensitive to noise and other disruptions than residences or schools or other such uses. The East Side Access Project would work closely with the Palace Hotel, which is directly across 50th Street from the project site, to limit disturbances to the hotel.

When lane closures are in effect, access to the Colgate-Palmolive Building loading dock on the south side of 50th Street and the loading dock on the north side of 50th Street would be more difficult, but access would be maintained during daytime hours to both docks. As described in more detail under "Traffic and Transportation," below, one through lane would remain on 50th Street at all times (except for limited, extraordinary circumstances), and pedestrian access would be maintained along the block at all times.

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 construction of the project. The construction of the project would be similar to construction at any other site in Manhattan and would have similar impacts related to street closures.

Alternative B may require temporary easements during construction from neighboring properties to allow access for required construction work, such as temporary supports and work on the party wall at 437 Madison Avenue. Temporary easements may be required from the properties at 35 East 50th Street, 437 Madison Avenue, 300 Park Avenue, and 320 Park Avenue.

Based on the above information, no significant adverse impacts to land use, zoning, public policy, or social conditions are expected to result from the construction activities associated with Alternative B.

ALTERNATIVE C

Construction disruptions in this alternative would generally be the same as those described above for Alternative B. Although one additional building, located at 45 East 49th Street, would be demolished under this alternative, construction-related impacts would still be temporary in nature and comparable to other construction occurring in Manhattan. The presence of the through drive in Alternative C would allow trucks to access the construction site via 49th Street, eliminating some construction-related activities from 50th Street and reducing the disruption to surrounding businesses. Alternative C may require temporary easements from the same neighboring properties as Alternative B.

Based on the above information, no significant adverse impacts on land use, zoning, public policy, or social conditions are expected to result from construction activities associated with Alternative C.

PREFERRED ALTERNATIVE D

The type of construction disruptions under Preferred Alternative D would generally be the same as those described above for Alternative C. However, under Preferred Alternative D, access and staging activities for the new LIRR concourse would take place within the enclosed 50th Street facility structure, and would therefore be hidden from view. As a result, the time during which noticeable construction activities would occur at the site under the preferred alternative would be reduced from approximately 6 years to less than 2½ years. This would reduce potential disruptions and conflicts with surrounding land uses compared to Alternatives B and C.

Like Alternatives B and C, Preferred Alternative D may require temporary easements during construction from neighboring properties to allow access for required construction work, such as temporary supports and work on the party wall at 437 Madison Avenue. Temporary easements may be required from the properties at 35 East 50th Street, 437 Madison Avenue, 300 Park Avenue, and 320 Park Avenue.

Based on the above information, no significant adverse impacts on land use, zoning, public policy, or social conditions are expected to result from construction activities associated with Preferred Alternative D.

SOCIOECONOMIC CONDITIONS

ALTERNATIVE A

As noted in the FEIS, the disturbance associated with extensive cut-and-cover construction required in Manhattan could affect the economic conditions of businesses nearby. Alternative A would affect the full length of East 49th and 50th Streets between Park and Madison Avenues, a distance of approximately 500 feet each, for approximately 15 months each. Excavation of each street would include sidewalks and the full width of the streetbed. The lane closures and sidewalk narrowings could affect pedestrian and shopping patterns and make deliveries and drop-offs for stores and businesses difficult. As described below under “Transportation,” the project would implement a Maintenance and Protection of Traffic (MPT) plan to manage traffic flow on affected streets during the construction period, and to minimize effects of construction on surrounding stores and businesses.

ALTERNATIVE B

The most disruptive construction activities under Alternative B—excavation of the project site and adjacent area of 50th Street—would last approximately 21 months, and would affect a 125-foot-long stretch of the block located in front of and just east of the project site. Traffic and pedestrian access along 50th Street would be maintained throughout construction, similar to any other construction project in Manhattan. The nearest businesses—the restaurant across 50th Street and the Palace Hotel—would be subject to some disruption, but access would be maintained to those businesses.

The project would implement an MPT Plan, which would be designed to allow through traffic to move along the block even when lanes are closed. Alternative delivery zones would be established when curbside truck standing zones are affected. Access to businesses—including the hotel and the restaurant—would be maintained at all times. Potential impacts would be further limited by the relatively short duration of the construction work and the small area of

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50th Street affected, particularly in comparison to the no action alternative (see above). The construction activity associated with the project is typical of construction projects in Manhattan.

Based on the information presented above, Alternative B is not expected to result in significant adverse impacts to nearby businesses, or other significant adverse socioeconomic impacts.

ALTERNATIVE C

The effects of Alternative C on socioeconomic conditions during construction would overall be similar to those of Alternative B, described above. Some additional disruption would occur to businesses on 49th Street because of the demolition of one small building on that street, but this activity would be similar to many other construction projects throughout the city. The additional trucking activity on 49th Street that would occur under Alternative C would not result in significant adverse impacts to nearby businesses. Further, the presence of the through drive in Alternative C would allow trucks to access the construction site via 49th Street, eliminating some construction-related activities from 50th Street and reducing the disruption to surrounding businesses.

Based on the information presented above, Alternative C is not expected to result in significant adverse impacts to nearby businesses, or other significant adverse socioeconomic impacts.

PREFERRED ALTERNATIVE D

As noted above, under Preferred Alternative D, access and staging activities for the new LIRR concourse would take place within the enclosed 50th Street facility structure, and would therefore be hidden from view. As a result, the time during which noticeable construction activities would occur at the site under the preferred alternative would be approximately 2½ 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.

VISUAL AND AESTHETIC CONSIDERATIONS

ALTERNATIVE A

The cut-and-cover work required for Alternative A would require construction sites on both 49th and 50th Streets that would last up to 15 months on each street. Work at these sites would be most visible in the early stages, when excavation is occurring. During the first few months, these locations would be open excavation areas surrounded by plywood fencing. Construction equipment would likely be visible behind the fences. Traffic and pedestrian patterns would be diverted as well (see discussion below under “Traffic and Transportation”). Once the excavation areas are covered with concrete decking panels, construction would be less visible at street level. However, there would still be areas of sidewalk and street used by contractors as construction staging areas.

The construction activity on both blocks would be similar to what occurs at construction sites throughout Manhattan. Given the temporary nature of this disruption, no significant adverse impacts to visual quality, visual resources, or urban design would result.

ALTERNATIVE B

This alternative, like Alternative A, would require cut-and-cover construction and excavation of rock, but the area affected would be much smaller (a 125-foot-long stretch of 50th Street rather than full blocks of both 49th and 50th Streets). Alternative B would also involve demolition of existing structures and construction of a new one.

Following demolition, the site on 50th Street would be enclosed by sturdy fencing and shielded from public view. For the 2½ years when the site is used to provide access to the concourse at Grand Central, it would remain fenced. Trucks would pull completely into the site to make deliveries and pick-ups. Trucks entering and leaving the site would be visible, as would construction equipment on the site. The site would also be visible from above, from the windows of surrounding office buildings and the hotel across the street.

Once the 50th Street facility is under construction, it would be visible from the sidewalk and street to passersby as well as the adjacent buildings. It would appear like any other construction site in Manhattan. During Phase 4 of the construction period, in which the facility's superstructure would be erected, the building columns, floors, and façade elements being set into place would be visible, as well as construction equipment including a crane, concrete pump, and welding machines. During Phase 5, in which the facility would be fitted out, most construction activities would take place inside and would not be visible from the sidewalk, street, or adjacent buildings.

For most of the construction period, the site's fencing would block views into the site, and the site would appear as an open area between two large buildings. The final phases of construction, in which the 50th Street facility is constructed, would be similar in appearance to construction of any other building in Midtown Manhattan.

Based on the information presented above, this alternative would not result in any significant adverse impacts to visual quality, visual resources, or urban design.

ALTERNATIVE C

The visual effects of construction for this alternative would in most respects be the same as those of Alternative B except that this alternative would also bring visible construction activities to 49th Street, where a small building would be demolished and a driveway created for use during the construction period. Trucks would pull into the construction site from 49th Street for the 2½-year period when the site would be used for concourse access.

The proposed demolition of the building on 49th Street would provide additional space for truck loading and unloading at the construction site. This would lessen the possibility that trucks would have to queue on 49th or 50th Street, thereby providing an improvement to visual conditions over those for Alternative B.

Based on the information presented above, this alternative would not result in any significant adverse impacts to visual quality, visual resources, or urban design.

PREFERRED ALTERNATIVE D

The smaller size of the building under Preferred Alternative D and the revision to the construction staging plan would reduce the visual effects of construction at the 50th Street facility under this alternative. Access and staging activities for the new LIRR concourse would take place within the enclosed 50th Street facility structure, using internal cranes and the

building's freight elevator shaft, as described above. As a result, these activities would not be visible from above, from the windows of surrounding office buildings or from the hotel across the street, and would generally be hidden from view. Overall, Preferred Alternative D would not result in any significant adverse impacts to visual quality, visual resources, or urban design.

HISTORIC AND ARCHAEOLOGICAL RESOURCES

ALTERNATIVE A

No archaeological resources are believed to exist beneath the streetbed of 49th or 50th Street between Park and Madison Avenues, based on the extensive research conducted for the East Side Access FEIS. Therefore, construction on those streets would not affect any archaeological resources.

Construction activities would occur within 200 feet of a historic structure, the Villard Houses, which is listed on the State and National Registers of Historic Places and designated as a New York City Landmark. Construction activities would be conducted in accordance with the specifications of a construction protection plan developed for the East Side Access Project in coordination with New York's State Historic Preservation Office (SHPO). In a Programmatic Agreement for the Metropolitan Transportation Authority (MTA)/LIRR East Side Access Project, executed March 2001, it was agreed that a construction protection plan will be developed and implemented to protect historic and archaeological resources located within the area of potential physical effects resulting from project construction. This plan, the *MTA/LIRR East Side Access Construction Protection Plan* (March 2004), was approved by SHPO in a letter dated April 5, 2004.

In accordance with the specifications of the construction protection plan, a detailed inspection would be carried out for both the interior and exterior of the Villard Houses structure prior to commencement of construction activities on 50th Street for Alternative A. During construction, the structure would be monitored for movement, settlement, and construction-induced vibration. Results of the monitoring would be continually reviewed. If any data exceed the values set forth in the construction protection plan, an immediate review of the excavation and construction work methods would take place to mitigate further effects.

ALTERNATIVE B

Chapter 6, "Historic Resources," identifies certain areas on the 50th Street project site (on rear portions of Lots 43, 45, and 46, at 50, 46, and 44 East 50th Street, respectively) that may have buried archaeological resources. Prior to any excavation in this area, archaeological field testing would be undertaken in these areas to identify whether they exist, and if so, whether they are eligible for the State and National Registers. In that event, data recovery would be undertaken in coordination with SHPO before construction begins.

No demolition or alteration of any historic structures is proposed. To avoid accidental damage to the historic structure located within 200 feet of the construction zone, the Villard Houses, the protection measures specified in the *MTA/LIRR East Side Access Construction Protection Plan* approved by SHPO will be implemented prior to and during project construction. The purpose of the Construction Protection Plan is to avoid adverse impacts to nearby historic structures, such as those from dust or vibration, during construction of the 50th Street facility. In accordance with the specifications of the construction protection plan, a detailed inspection would be carried out for both the interior and exterior of the Villard Houses structure prior to commencement of

construction activities on 50th Street. During construction, the structure would be monitored for movement, settlement, and construction-induced vibration. Results of the monitoring would be continually reviewed. If any data exceed the values set forth in the construction protection plan, an immediate review of the excavation and construction work methods would take place to mitigate further effects.

With the ongoing coordination with SHPO established by the project's Programmatic Agreement and the implementation of the project's Construction Protection Plan, no significant adverse impacts to archaeological or historic resources would result from the construction activities associated with the 50th Street facility.

ALTERNATIVE C AND PREFERRED ALTERNATIVE D

Potential effects on archaeological resources and historic structures from construction activities associated with these two alternatives would be the same as for Alternative B. No additional archaeological resources or historic structures would be potentially affected. Accordingly, no significant adverse impacts to archaeological resources or historic structures would occur as a result of construction activities with these two alternatives.

TRANSPORTATION

ALTERNATIVE A

This alternative would require sidewalk and street closures along 49th and 50th Streets to permit the installation of an underground ventilation plant beneath those streets. Continuous lane closures would occur for the full length of both streets on the blocks between Park and Madison Avenues, for a total duration of approximately 15 months on each block.

The project would implement an MPT Plan, which would be developed in consultation with NYCDOT, to manage traffic flow on affected streets. As part of this plan, during all periods when a sidewalk would be closed, a temporary sidewalk adjacent to the construction zone would be maintained to accommodate pedestrian flow. During all periods when roadway width would be reduced, parking would be prohibited and "No Standing" regulations would be enforced to ensure continued vehicular flow.

Access to loading areas and driveways would be maintained during construction, and an alternative loading zone immediately west or east of the construction area would be established for the restaurant directly across from the project site, so that operations at this restaurant would not be adversely affected by lane closures.

Construction workers reporting to the 50th Street construction site are expected to arrive via public transportation, given the site's proximity to many different subway, bus, and train routes, and since parking in Midtown Manhattan is constrained and expensive and no parking would be provided for workers at the site.

Trucks would bring deliveries to the construction area throughout the construction period. Approximately 20 trucks would arrive at and depart from the site over the course of a typical day. This number of trucks would not result in any significant adverse traffic impacts. As described in Chapter 7, "Traffic and Transportation," this number is not large enough to result in significant adverse impacts to traffic conditions, as per New York City Environmental Quality Review (CEQR) guidance (see below).

ALTERNATIVE B

Lane Closures

As discussed above, construction of the 50th Street facility would require more limited lane and sidewalk closures than Alternative A, and thus represents an improvement over Alternative A. During demolition of the buildings on 50th Street (Phase 1, for approximately 9 months), the sidewalk area and curb lane in front of the site would most likely be closed, as is typical of construction projects throughout the city. During Phase 2 (approximately 21 months), the cut-and-cover work and rock excavation needed to build the underground connection between the project site and Grand Central Terminal, an approximately 125-foot-long area of 50th Street in front of and immediately east of the project site would have some continuous lane closures during the first 6 months (to install the deck), with some periodic partial lane closures during the remaining 15 months. At all times between 7 AM and 7 PM during weekdays, two moving lanes of traffic would be maintained on 50th Street (which has three lanes in total). This alternative substantially reduces the effect on 50th Street during construction, compared to Alternative A, since excavated material would be taken out via the project site once the roadway deck was installed. The structure that would be built in the streetbed would be excavated beneath the installed temporary deck. Periodic partial lane closures would be required once the deck is installed for material delivery and removal. Continuous closures of a portion of one lane at a time would be required for another few months toward the end of the construction period to remove the deck. The sidewalk in front of the building and the curb lane would continue to be used for construction activities.

During the 2½ years when the site is being used for construction access (Phase 3), no lane or sidewalk closures would be needed. During the final 2 years when the 50th Street facility is under construction, the sidewalk and curb lane could be affected, as is typical of any construction project throughout the city.

As described above for Alternative A, the project would implement an MPT Plan, which would be developed in consultation with NYCDOT and would be designed to ensure that traffic continues to operate on 50th Street. During all periods when the southern sidewalk would be closed, a temporary sidewalk adjacent to the construction zone would be maintained to accommodate pedestrian flow. During all periods when roadway width would be reduced, “No Standing” regulations would be enforced in the construction zone so that two effective moving lanes could be maintained.

Access to loading areas and driveways would be maintained during construction, and alternative loading zones would be established for businesses whose loading area would be affected by the lane closures.

Trucking Activities

Trucks would bring materials to the site and remove debris throughout the day during each of the construction phases. During demolition and excavation (Phases 1 and 2), 20 trucks would 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 would typically arrive at and depart from the site each day, except when certain activities are occurring:

- During Phase 3 (use as an access point): when concrete deliveries occur, up to 50 trucks would arrive at and depart from the site each day.

- During the 6-month period when the superstructure is constructed (Phase 4): when structural steel is delivered, up to 20 trucks would arrive at and depart from the site each day.

As noted for Alternative A, construction workers reporting to the 50th Street construction site are expected to arrive via public transportation, given the site's proximity to many different subway, bus, and train routes, and since parking in Midtown Manhattan is constrained and expensive and no parking would be provided for workers at the site. The concrete and structural steel deliveries expected to take place on discrete days would be very similar to those required for typical high-rise construction sites in Manhattan, with a duration of approximately 30 minutes per delivery.

This level of trucking activity is typical of construction projects throughout the city and is not large enough to result in a significant adverse impact to traffic conditions. The threshold cited in New York City's *CEQR Technical Manual* as warranting detailed analysis for potential traffic impacts is 50 passenger car equivalents (PCEs) in a peak hour. With each truck arrival and departure counted as a separate truck trip, and each of those trips constituting 2 PCEs, the highest regular truck trip generation, 40 truck trips per day, would translate into 80 PCEs per day. Assuming that 15 percent of those trips occur during the peak hour means that 12 PCEs would occur during the peak hour, which is well below the threshold of 50 PCEs warranting a detailed analysis.

The peak truck trip generation of 100 trips per day (50 arrivals and 50 departures), which would occur during concrete deliveries for the concourse below, would also not be large enough to warrant a detailed traffic analysis. Assuming 15 percent of those trips arrive during the peak hour (a standard assumption for traffic analyses conducted in New York City, as described in Chapter 7) would result in 30 PCEs during the peak hour, which is below the 50-trip threshold established by the City of New York for environmental review for projects in the city.

Based on the information presented above and implementation of the project's MPT Plan, construction activities for this alternative are not expected to result in any significant adverse impacts to traffic conditions.

ALTERNATIVE C

Construction activities in this alternative would be similar to those described above for Alternative B. The demolition of one additional building, on 49th Street between Park and Madison Avenues, would involve limited temporary lane closures for the adjacent curb lane and sidewalk during the 3-month demolition period.

The proposed demolition of the building on 49th Street would provide additional space for truck loading and unloading at the construction site. It would also provide for a smoother flow of construction vehicles into and out of the site, by allowing trucks to enter from 49th Street and exit from 50th Street.

This alternative, like Alternative B, would not result in significant adverse impacts to traffic conditions during the construction period.

PREFERRED ALTERNATIVE D

Preferred Alternative D reduces the period when noticeable construction would occur from approximately 6 years to less than 2½ years. Some type of traffic lane closure would be required over a 2-year period, however, most of the time only periodic partial lane closures would be

required. In addition, at a minimum, two travel lanes would be maintained at all times on 50th Street between the hours of 7 AM and 7 PM on weekdays to maintain adequate flow on the Thru Street. As with the 50th Street facility with through drive, either the north or south curb lane would be closed to traffic during peak hours (the center lane might also be closed during off-peak hours) for utility relocations and installation/removal of the deck (Phases 2 and 4) for about 6 months and 4 months, respectively. For the remainder of the 2-year period during which lane closures would be required (14 months), intermittent curb lane closures would be required for material delivery and removal while construction would occur beneath the deck. South curb lane closures would occur east of the bus stop and would not adversely affect transit operations. While commercial parking lanes would be affected by this work, the contractor would be required to maintain access to businesses and provide for local deliveries during the proposed construction period.

Partial sidewalk closures would be required: for building demolition on both 49th and 50th Streets for a 2- or 3-month period; to complete the landscaped public park and building construction on 50th Street over a 3-month period; and during deck installation/removal for a total of about 10 months. In each case, a pedestrian walkway of adequate width would be provided to accommodate the relatively light pedestrian flow on 49th and 50th Streets. Pedestrian volumes on the south sidewalk of East 50th Street, in front of the proposed site, were recorded at approximately 800 pedestrians/hour (see Appendix D-5), which corresponds to a level of service B. Pedestrian volumes on East 49th Street are comparable to those on East 50th Street, based on field observations.

Since the January 2005 EA, the project team and the NYCDOT have been working together to reduce the extent and duration of lane closures required to build the new facility. At this time, an alternative construction method and a design modification are being explored in conjunction with NYCDOT to determine whether weekday lane closures between 7 AM and 7 PM could be further reduced during construction of the 50th Street facility and new public open space. All measures that would be required to maintain adequate pedestrian and vehicular flows on both 49th and 50th Streets would be identified in an MPT plan developed in conjunction with NYCDOT prior to construction.

AIR QUALITY

ALTERNATIVE A

Construction activities associated with Alternative A on 49th and 50th Streets would result in dust and increased mobile source emissions from construction vehicles and construction equipment. Appropriate control measures for fugitive dust would be employed, including watering exposed areas and using dust covers on trucks. In addition, at all construction sites, the East Side Access Project will require the use of diesel emission controls for off-road and non-road equipment. These controls require the use of ultra-low sulfur diesel (ULSD) fuel and diesel particle filters and/or other reduction technologies for particulate matter. In addition, idling time for non-road and on-road equipment must be limited to 3 consecutive minutes, except in certain limited circumstances.

ALTERNATIVE B

Similar to Alternative A, construction of the 50th Street facility in Alternative B would increase the level of dust in the immediate vicinity of the construction site during the building demolition

and 50th Street excavation phases of construction. Air quality may also be affected by mobile source and non-road equipment emissions. Mobile sources include worker vehicles, additional truck traffic and disruptions in local traffic due to site activities. Off-road equipment sources include hydraulic cranes, backhoes/loaders, compressors, welders, drill rigs and concrete pumps. The pollutants of concern from these engine exhausts include NO_x, CO, PM, and VOCs (for more information on air pollutants, please see Chapter 8, “Air Quality”).

The highest truck trip generation during construction of the 50th Street facility would be 100 trips per day (50 arrivals and 50 departures), during the concrete delivery portion of Phase 3. Truck trip generation during other phases of construction would be lower. Assuming 15 percent of these trips arrive during the peak hour would result in 15 truck trips. This level of trip generation is below the 75 peak hour trip threshold cited in New York City’s *CEQR Technical Manual* as warranting detailed analysis for potential air quality impacts. It is also below the 21 peak hour truck trip threshold specified by the New York City Department of Environmental Protection (NYCDEP) as warranting detailed analysis of potential PM_{2.5} impacts.

Based on this information, the fact that construction workers reporting to the 50th Street construction site are expected to arrive via public transportation, as discussed in the traffic section of this chapter, and the implementation of the project’s MPT Plan to keep traffic moving during construction, the proposed project’s construction activities are not expected to result in any significant adverse mobile source air quality impacts.

Potential increases of air pollutants from non-road equipment may occur during various phases of the construction period. During the building demolition and street excavation phases (less than 2 years in total duration), on-site equipment may include a hydraulic crane, several backhoes or loaders, compressors, drill rigs, and a small welding machine. During the remaining phases of construction, on-site equipment may include a hydraulic crane, a concrete pump, and welding machines. Due to the temporary nature of construction activities using non-road equipment and the limited number of such pieces of equipment, no significant adverse air quality impacts would result from their use. As in Alternative A, the East Side Access Project will require the use of diesel emission controls for off-road and non-road equipment. These controls require the use of ultra-low-sulfur diesel fuel and diesel particle filters and/or other reduction technologies for particulate matter. In addition, idling time for non-road and on-road equipment must be limited to 3 consecutive minutes, except in certain limited circumstances.

Fugitive dust emissions from construction activities can occur from excavation, dumping, grading, and compacting of soil and/or overburden. Fugitive dust can also be generated by vehicles traveling on unpaved surfaces and from wind erosion of stockpiled materials. The actual quantity of emissions would depend on the extent and nature of the activities, including such factors as soil transfer/excavation rates, types of equipment used, duration of activities, and type of dust control methods employed. For this project, appropriate fugitive dust control measures such as watering of exposed areas, installation of dust covers on trucks, and use of tracking mats to reduce dust emissions from truck tires would be utilized to minimize effects on nearby pedestrians and buildings. In addition, as is typical at construction sites, much of the fugitive dust is expected to contain relatively large particles that would settle within a short distance from the site activities.

Based on the information provided above, no significant adverse air quality impacts would result during the construction period for this alternative.

ALTERNATIVE C AND PREFERRED ALTERNATIVE D

These two alternatives would have the same truck trip generation as Alternative B, and would employ the same measures to limit fugitive dust emissions and emissions from off-road construction equipment. Under Preferred Alternative D, access and staging activities would take place within the enclosed 50th Street facility, which would further limit fugitive dust emissions to the surrounding area. Finally, these two alternatives would provide for a smoother flow of construction vehicles into and out of the site, by allowing trucks to enter from 49th Street and exit from 50th Street and would provide additional space for truck loading and unloading. Based on this information, no significant adverse air quality impacts would result during the construction period for these two alternatives.

NOISE AND VIBRATION

INTRODUCTION

This section analyzes the effects of project construction activities on ambient noise and vibration levels. Noise can be generated by stationary pieces of construction equipment, referred to as “stationary sources,” and by moving sources, such as trucks, referred to as “mobile sources.”

A quantitative analysis of the stationary source noise levels that would result from project construction activities was conducted and is presented in this section. Based on this analysis, the proposed construction activities would not result in any significant adverse stationary source noise impacts.

Regarding mobile source noise, as described in the transportation section above, construction workers reporting to the 50th Street construction site are expected to arrive via public transportation, given the site’s proximity to many different subway, bus, and train routes, and the absence of parking for workers at the site. The proposed construction activities would generate 20 trucks per day during Phases 1 and 2 and a portion of Phase 4, 10 trucks per day during the rest of the construction period, and up to 50 trucks per day during Phase 3 concrete deliveries. This level of trip generation would not double the passenger car equivalents (PCEs) on any streets affected by the proposed construction activities. Doubling of PCEs is the threshold for detailed mobile source noise analysis specified in the *CEQR Technical Manual*. Projects that do not meet or exceed this threshold, by definition, do not have the potential to cause significant adverse mobile source noise impacts. In the absence of any National Environmental Policy Act (NEPA) or Federal Transit Administration (FTA) thresholds for detailed noise analysis, the *CEQR Technical Manual* provides relevant guidance for when detailed analysis should be performed for projects located in New York City. Based on this information, the proposed construction activities would not result in any significant adverse mobile source noise impacts.

CONSTRUCTION NOISE

Standards and Criteria for Airborne Noise

Airborne noise and vibration levels associated with the construction of the East Side Access Project are subject to the noise criteria defined by the FTA in its guidance document, *Transit Noise and Vibration Impact Assessment*, 1995. In addition, noise levels from some construction equipment are regulated by the Noise Control Act of 1972, 49 USC § 4901 *et seq.* Noise from construction equipment is also regulated by noise emission standards of the U.S. Environmental Protection Agency (EPA). These federal requirements mandate that: (1) certain types of

construction equipment and motor vehicles meet specified noise emission standards; and (2) construction materials are handled and transported so as not to create unnecessary noise. These regulations would be followed during construction activities for the proposed East Side Access facility in any of the alternatives.

The FTA noise criteria specify levels that, if exceeded, may result in adverse community reaction. These criteria are a function of the land use of the affected areas near a transit project, day and night 1- and 8-hour L_{eq} noise levels, and L_{dn} noise levels. L_{eq} is the constant equivalent sound level of a fluctuating noise source, usually for one hour, while L_{dn} is a descriptor for the cumulative 24-hour day-night noise level that accounts for greater nighttime sensitivity for noise. (For more information on noise metrics, please see Chapter 9, “Noise and Vibration.”) Table 15-3 shows the FTA general assessment impact criteria for construction noise.

Table 15-3
FTA General Assessment Impact Criteria for Construction Noise

Land Use	Maximum Noise Level	
	Day	Night
Residential	90 $L_{eq(1)}$	80 $L_{eq(1)}$
Commercial	100 $L_{eq(1)}$	100 $L_{eq(1)}$
Industrial	100 $L_{eq(1)}$	100 $L_{eq(1)}$

Methodology

Noise from construction activities was estimated following the methodologies set forth in the FTA guidance manual, *Transit Noise and Vibration Impact Assessment*, April 1995. This FTA guidance document sets forth methodologies for analyzing airborne noise during construction. The procedure uses an equation to calculate noise levels from operation of a single piece of construction equipment that accounts for the noise emissions of the construction equipment, the amount of time the equipment is in use, and the distance between the equipment and the receptor. Typical noise levels for construction equipment, measured at a nominal distance of 50 feet from the noise source, are presented in Table 15-4.

The equation used to calculate noise levels is as follows:

$$L_{eq} = E.L. + 10 \log (U.F.) - 20 \log (D_1/D_2) - A_{shielding}$$

where:

- L_{eq} is the noise level at a receiver of the equipment over a specified time period;
- E.L. is the noise emission level of the equipment at a reference distance of 50 feet;
- $A_{shielding}$ is the attenuation due to shielding;
- D_1 is the distance from the receiver to the piece of equipment;
- D_2 is the reference distance at which equipment noise level data is known; and
- U.F. is a usage factor that accounts for the fraction of time that the equipment is in use over the specified time period.

Table 15-4
Construction Equipment Noise Emission Levels
(in dBA)

Equipment	Typical Noise Level (dBA) 50 Feet from Source
Air compressor ¹	80
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Bulldozer	85
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Drill Rig ¹	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader ¹	80
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck (dump) ¹	84
Welding Machine ²	70
<p>Notes: Values do not incorporate potential noise reduction measures. 1 Noise levels obtained from Massachusetts Big Dig Noise Control Law, Section 721.560 Construction Noise Control. 2 Noise level obtained from Final Supplemental EIS, Croton Water Treatment Plant, NYCDEP (June 2004).</p> <p>Sources: Except as otherwise noted, source of equipment noise levels is the FTA guidance document <i>Transit Noise and Vibration Impact Assessment</i> (April 1995).</p>	

The combination of noise resulting from all pieces of equipment operating during the same time period was obtained by logarithmically adding the L_{eq} values for each piece of equipment. The 1-hour L_{eq} values were calculated assuming appropriate usage factors for the specified time periods, for each element of construction. For the general airborne noise assessment, it was assumed that the two noisiest pieces of equipment operate continuously at the same time.

For purposes of this analysis, truck deliveries were assumed to occur during daytime hours only. Since locations of site-specific construction activities were not available, a conservative analysis was performed placing the equipment cluster at the center of the proposed construction site.

Construction Noise Impacts: Alternative A

As described earlier, Alternative A would require relocation of Consolidated Edison underground vaults and other utilities, as well as cut-and-cover construction and controlled blasting on both 49th and 50th Streets to create the new below-grade ventilation plant. This alternative would require excavation of the full length of both blocks for approximately 15 months on each block. The cut-and-cover construction and blasting activities would be noisy and disruptive, even though quieted equipment and barriers would be used to reduce noise levels where practicable.

A quantified analysis of the noise levels during construction of Alternative A was not conducted as part of the East Side Access FEIS, because of the short duration of the disruption on these two blocks. More information on the noise levels associated with excavation on 50th Street is provided below in the discussion of the build alternatives.

Construction Noise Impacts: Alternatives B and C

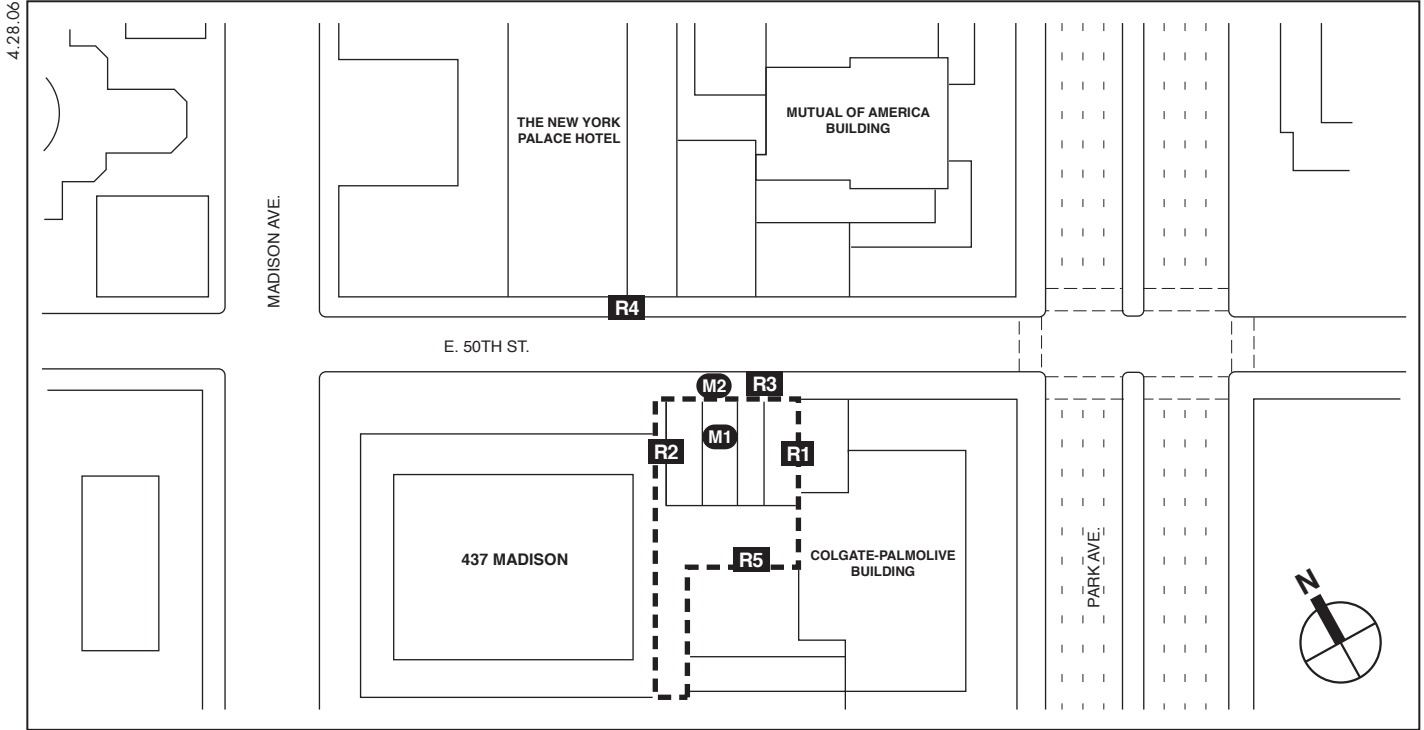
As with Alternative A, construction activities for these two alternatives would cause perceptible increases in existing noise levels at locations adjacent to the project site. The noisiest phase of the construction would be Phase 2, when excavation on 50th Street and on the project site would occur. It should be noted, however, that a much smaller area of 50th Street would be excavated than under the no action alternative analyzed in the FEIS.

Project-generated construction noise levels were estimated for each phase of construction, for daytime and nighttime hours, at the five receptors shown in Figure 15-1. As shown in Tables 15-5 and 15-6, FTA impact criteria would not be exceeded at any of the receptors. The noise levels include installation of a silencer on the compressor, and do not include blasting, which would be limited, occurring for a short period of time and not during late-night hours.

**Table 15-5
Maximum 1-Hour L_{eq} Noise Levels During Construction,
Alternatives B and C
Daytime Hours (in dBA)**

Receptor Site	Location	FTA Daytime Criteria ¹ $L_{eq(1)}$	$L_{eq(1)}$ During Each Construction Phase ²				
			1	2	3	4	5
1	East property line at-grade (Colgate-Palmolive Building)	100	86	92	86	86	85
2	West property line at-grade (437 Madison Avenue)	100	86	92	86	86	85
3	North sidewalk adjacent to project site	100	84	90	84	84	83
4	North sidewalk opposite project site (Palace Hotel)	90	77	84	77	77	76
5	South property line at-grade (Colgate-Palmolive Building)	100	84	90	84	84	83

Notes:
 1 FTA criteria based on affected land use (see Table 15-2).
 2 $L_{eq(1)}$ is the predicted hourly-equivalent noise level during the peak construction hour.



- Project Site Boundary
- M1** Noise Monitoring Location
- R1** Noise Modeling Location (Street-Level Receptor)

Table 15-6
Maximum 1-Hour L_{eq} Noise Levels During Construction,
Alternatives B and C,
Nighttime Hours (in dBA)

Receptor Site	Location	FTA Nighttime Criteria ¹ $L_{eq(t)}$	$L_{eq(t)}$ During Each Construction Phase ²				
			1	2	3	4	5
1	East property line at-grade (Colgate-Palmolive Building)	100	88	88	88	88	85
2	West property line at-grade (437 Madison Avenue)	100	88	88	88	88	85
3	North sidewalk adjacent to project site	100	86	86	86	86	83
4	North sidewalk opposite project site (Palace Hotel)	80	79	79	79	79	76
5	South property line at-grade (Colgate-Palmolive Building)	100	86	86	86	86	83

Notes:
 1 FTA criteria based on affected land use (see Table 15-2).
 2 $L_{eq(t)}$ is the predicted hourly-equivalent noise level during the peak construction hour.

An additional analysis was performed to estimate the project-generated construction noise levels during peak concrete deliveries, which would occur during Phase 3 and would involve 25 to 50 truck trips per day, occurring only during daytime hours. The results shown in Table 15-7 indicate that FTA criteria would not be exceeded at any of the receptors.

Table 15-7
Maximum 1-Hour L_{eq} Noise Levels
During Phase 3 Concrete Deliveries,
Alternatives B and C,
Daytime Hours (in dBA)

Receptor Site	Location	FTA Daytime Criteria $L_{eq(t)}$	Project-Generated Noise Levels $L_{eq(t)}$	FTA Compliance
1	East property line at-grade (Colgate-Palmolive Building)	100	89	Meet
2	West property line at-grade (437 Madison Avenue)	100	89	Meet
3	North sidewalk adjacent to project site	100	87	Meet
4	North sidewalk opposite project site (Palace Hotel)	90	80	Meet
5	South property line at-grade (Colgate-Palmolive Building)	100	87	Meet

Notes:
 1 FTA criteria based on affected land use (see Table 15-2).
 2 $L_{eq(t)}$ is the predicted hourly-equivalent noise level during the peak construction hour.

The noise levels shown in Tables 15-5 through 15-7 are based on the preliminary construction plan and schedule for Alternatives B and C. Modifications to the construction plan and schedule, such as the type and number of particular pieces of construction equipment, and/or their placement within the project site, would not be expected to result in any exceedances of the FTA impact criteria at any of the five receptor sites. Furthermore, the project would adhere to the construction noise specifications developed for the East Side Access Project as a whole. These specifications are summarized in Table 15-8.

**Table 15-8
East Side Access Project
Construction Noise Limits**

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
NIGHT-TIME (10 PM TO 7 AM)		
Residences and buildings where people normally sleep If Background < 70-dBA If Background \geq 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		

Based on the information presented above, there would be no significant adverse stationary or mobile source noise impacts during the construction period for Alternatives B and C.

Construction Noise Impacts: Preferred Alternative D

As noted earlier, a modified construction staging plan was developed for Preferred Alternative D in response to public comments raising concerns about the noise and disruption associated with construction on the project site.

The noise impacts for this alternative would be similar to those described above for Alternatives B and C, with one exception. During the portion of the construction period dedicated to access and staging activities for the new LIRR concourse, noise levels for this alternative would be substantially lower than the noise levels for Alternatives B and C. This is due to the fact that under the revised construction plan for Preferred Alternative D, these access and staging activities would take place within the enclosed 50th Street facility structure, using internal cranes and the facility’s freight elevator and ventilation shafts, as described above. The enclosed facility structure would provide substantial acoustic shielding, and would therefore reduce construction noise levels at all nearby receptors.

Based on the information presented above, there would be no significant adverse stationary or mobile source noise impacts during the construction period for Preferred Alternative D.

CONSTRUCTION VIBRATION

Standards and Criteria for Vibration

The FTA has set vibration-induced architectural damage thresholds at a peak particle velocity (PPV) of 0.20 inches per second (100 VdB) for fragile buildings and 0.12 inches per second (95 VdB) for extremely fragile buildings. Since no fragile structures were identified in the vicinity of the proposed facility, these criteria are not applicable.

Construction vibration specifications have been developed for the East Side Access Project as a whole, for all construction-related activities excluding blasting and pile driving. These specifications include a maximum construction-generated PPV of 1.92 inches per second at structures that are in good condition, and a maximum construction-generated PPV of 0.5 inches per second at historic structures.

Construction Vibration Impacts: Alternative A

Alternative A would adhere to the East Side Access Project construction vibration specifications described above.

Construction Vibration Impacts: Alternatives B, C, and Preferred Alternative D

The build alternatives would adhere to the East Side Access Project construction vibration specifications described above.

The East Side Access construction vibration protection plan as it relates to historic structures has been reviewed and approved by the State Historic Preservation Office. The construction protection plan sets forth a three-step process:

- For structures that could potentially 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 potentially 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.

Based on the information presented above, there would be no significant adverse vibration impacts during the construction period for either Alternative B, C, or Preferred Alternative D.

UTILITIES

ALTERNATIVE A

As described in Chapter 11, "Utilities," Alternative A would require extensive relocation of utilities, including three water lines, six gas lines, two fire hydrants, three street lights, two catch basins, and an electrical manhole, and Consolidated Edison underground vaults. Utilities would

be relocated prior to other construction activities, so that utility service could be maintained during construction. All necessary agreements would be executed with each utility company or governmental agency regarding the temporary or permanent relocation of any utilities.

ALTERNATIVES B, C, AND PREFERRED ALTERNATIVE D

As described in Chapter 11, the build alternatives would require excavation of a much smaller length of streetbed than Alternative A, and would not require excavation of sidewalks. In the area of the 50th Street streetbed to be excavated, utilities would have to be relocated or maintained in place until the street could be returned to service. Similar to Alternative A, all utility service would be maintained during construction, and all necessary agreements would be executed with each utility company or governmental agency regarding any required relocations. As with any utility work, short outages of service could occur, but these would be limited to only a few hours and would not result in significant adverse impacts to the occupants of surrounding buildings.

Based on the information presented above, there would be no significant adverse utility impacts during the construction period for either Alternative B, C, or Preferred Alternative D.

CONTAMINATED MATERIALS

ALTERNATIVE A

As detailed in Chapter 12, “Contaminated Materials,” based on the site history, review of regulatory databases, and site reconnaissance, no potential significant hazardous materials impacts are anticipated during soil disturbance activities under any of the project alternatives. However, it is possible that contaminated soil and/or groundwater may be identified. Prior to construction, site-specific requirements for handling, management, treatment, and disposal of contaminated materials encountered during construction would be developed in accordance with relevant local, state, and federal regulations. Each construction contractor would also be required to prepare and follow site-specific Health and Safety Plans (HASPs). 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.

If dewatering is required, testing and treatment prior to disposal to the sewer system or natural water body may be required. State and city regulations restrict the pumping of contaminated groundwater to rivers or sewers. The project specifications for dewatering would include testing, and potential treatment, to ensure that regulatory levels, including those for NYCDEP (sewer) or the New York State Department of Environmental Conservation (NYSDEC) (water body) criteria, are not exceeded.

ALTERNATIVE B, C, AND PREFERRED ALTERNATIVE D

As with Alternative A, site-specific protocols for handling contaminated soil and/or groundwater would be established, setting forth procedures to be followed in the event that contaminated soil or groundwater is encountered during excavation of the project site under any of the build alternatives. This plan will also provide procedures to be followed if any underground storage tanks are encountered on the project site. Site-specific HASPs would also be developed and implemented.

The subject buildings were likely constructed prior to 1910 and in 1958 and, therefore, lead-based paint and asbestos-containing materials (ACMs) may be present in the structures. 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 (OSHA) regulation (OSHA 29 CFR 1926.62 - *Lead Exposure in Construction*).

Because of the age of the buildings, fluorescent lights and lighting fixtures that may include polychlorinated biphenyl (PCB)- and/or mercury-containing components (including capacitors and potting compounds) may be present in the structures. Potential suspect mercury-containing fluorescent lights and suspect PCB-containing lighting fixtures do not currently present a potential hazard to human health. Unless there is labeling or test data that indicates that they are not mercury- and/or PCB-containing, if disposal is required, it would be performed in accordance with applicable federal, state, and local regulations and guidelines.

Based on the information presented above, there would be no significant adverse contaminated materials impacts during the construction period for either Alternative B, C, or Preferred Alternative D.

SAFETY AND SECURITY

During construction of the project under any of the alternatives, standard security measures would be followed. Public access to the construction site would be restricted through the use of fences and gates. When obstructions to the sidewalk are required, protective sidewalk sheds, barricades, warning signs, and other items to protect the public would be followed.

A site-specific HASP would be followed that delineates procedures to be followed for construction safety. Standard safety measures would be followed, and the most stringent provisions of the applicable statutes and regulations of New York City, New York State, and the Department of Labor, OSHA, pertaining to safe performance of the work would be followed. Contractors would use preventive measures in controlling hazards, including inspections, self-assessments, and trending to identify problem areas, and actions to remediate problem areas. The HASP would include specifications for protective measures to be implemented to protect workers, the public and the environment, protective equipment to be employed, and emergency response procedures to be followed.

Based on the information presented above, there would be no significant adverse impacts in the areas of safety and security during the construction period for any of the build alternatives.

CONCLUSIONS

All three build alternatives would result in construction-related disturbances typical of any construction project in Midtown Manhattan. The most disruptive construction activities for the 50th Street facility would be the cut-and-cover and excavation work for the project site and adjacent 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 construction of the project. The construction of the project would be similar to construction at any other site in Manhattan and would have similar impacts related to street closures. Most of the land uses immediate to the construction area are office uses, which

are less sensitive to noise and other disruptions than residences or schools or other such uses. The East Side Access Project would work closely with the Palace Hotel, which is directly across 50th Street from the project site, to limit disturbances to the hotel. Alternatives B and C would have a total construction period of approximately six years, including 3½ years of construction of the 50th Street facility and a 2½-year period when the vacant site would be used for construction access to the East Side Access construction at Grand Central. Alternative C would have a through drive, facilitating smoother truck delivery during construction.

Preferred Alternative D would reduce the time when noticeable construction activities would occur at the site from about 6 years to less than 2½ 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 would occur within the completed building superstructure, and therefore would not be similar to construction activities during this phase for Alternatives B and C. With a much shorter schedule for noticeable construction activity at the 50th Street site, Preferred Alternative D would result in less disruption to the surrounding area than Alternatives B and C. In addition, like Alternative C, Preferred Alternative D would have a through drive, facilitating smoother truck delivery during construction.

In conclusion, construction activities under each of the build alternatives would generate the disturbances typically associated with demolition and construction of buildings within an urban setting. Under all alternatives, the length of street to be affected would be much shorter than with Alternative A, affecting only 125 feet along 50th Street. Under Preferred Alternative D, the time during which noticeable construction activities would occur at the site would be approximately 2½ years. With the implementation of an MPT plan and a Construction Protection Plan (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 would result in significant adverse construction period impacts on any analysis area.

*