

3.1 INTRODUCTION

This chapter of the Environmental Assessment (EA) describes the construction activities required for each entrance alternative at the 72nd Street and 86th Street Stations, and how those activities may differ from the construction activities discussed in the Final Environmental Impact Statement (FEIS). This chapter focuses on the means and methods of construction, and the following chapters of this EA (Chapters 4 through 11) consider the temporary environmental impacts of construction activities as well as the permanent environmental impacts once the subway is operational.

3.2 DESCRIPTION OF CONSTRUCTION ACTIVITIES IN THE FEIS

The Final Environmental Impact Statement (FEIS) for the Second Avenue Subway project describes the construction activities required for the overall project and for individual elements, such as station entrances, in Chapter 3, “Description of Construction Methods and Activities.” As described in that chapter of the FEIS (see page 3-6), Tunnel Boring Machines (TBMs) will be used to excavate the subway tunnels beneath Second Avenue between approximately 92nd Street and 4th Street, with excavated materials removed from the north end of the tunnel. Subway stations to be constructed in rock, like the 72nd Street and 86th Street Stations, will be excavated using conventional mining techniques, which involve the use of controlled drilling and blasting. Mining will be used for the station caverns and for adjacent caverns containing interlockings (see page 3-9 in Chapter 3 of the FEIS).

As discussed on page 3-11 of the FEIS, some cut-and-cover construction will be required at every station, where vertical circulation elements (such as escalators and elevators) rise to the surface. Cut-and-cover construction will also be required at each end of the stations, to create shafts through which excavated materials can be removed during mining of the station cavern. Cut-and-cover construction involves excavating from the surface downward.

Construction for the areas to be excavated would begin with relocation of any utilities that are present and that cannot be supported in place to areas outside the area of excavation. This would require excavation of trenches within the street and sidewalk to allow connection to existing utilities and laying of new pipes, cables, etc. Within the work zone, after the utilities have been relocated, temporary excavation support walls would be installed around the perimeter of the area to be excavated to form the entrance. These walls would support the soils above the top of rock. As described in the FEIS (see page 3-13), these support walls could include steel sheeting, secant pile, or soldier piles and lagging.

Once an excavation area has been opened and retaining walls installed, a deck is installed above at street level, and work continues below-ground. When construction is complete, the excavation above the finished structure is backfilled and the streets above repaved and fully reopened for traffic (see page 3-10 of the FEIS, “Cut-and-Cover Method,” for more information.)

**Supplemental EA to the Second Avenue Subway FEIS:
72nd Street and 86th Street Station Entrance Alternatives**

In each case, station construction would be expected to affect a three- to five-block-long length of Second Avenue for three to five years. Based on current information, the total duration for construction work at the 72nd Street and 86th Street Stations is currently estimated at approximately five years.

As described in the FEIS (see page 3-12), during construction it might be necessary to close off portions of side streets to through traffic adjacent to the station construction zones. This would accommodate limited construction on these side streets for retaining walls, and would allow portions of these streets to be used if needed to store construction materials that are trucked to the site, accommodate worker support areas, accommodate utility diversions, and other similar activities. It is currently assumed that on all side streets adjacent to station construction, areas of up to 100 feet in length may be required for staging and construction activities. On streets where entrances are proposed, such as 72nd Street and 86th Street, this construction zone will extend farther, typically up to 200 feet in the FEIS design. At all construction locations for the Second Avenue Subway, a Maintenance and Protection of Traffic (MPT) Plan will be developed in coordination with NYCDOT to maintain traffic flow near the construction zones and to ensure that a seven-foot sidewalk is maintained at all times. The MPT Plans developed may entail the use of parking lanes, and potentially the use of portions of the sidewalk, for moving traffic to allow traffic to be rerouted around the construction zone.

3.2.1 FEIS DESCRIPTION OF CONSTRUCTION AT THE 72ND STREET STATION

As detailed in Table 3-1 of the FEIS (see page 3-54), the 72nd Street Station will be constructed primarily by mining underground in the rock. After the TBMs have bored the tunnels for the northbound and southbound trains, controlled drilling and blasting will be used to excavate the station cavern and adjacent interlocking caverns to the north and south of the 72nd Street Station. Construction shafts will be created at the north and south ends of the station, for use in bringing construction materials to the work area and to remove excavated rock from the caverns below. The southern shaft will be on the east side of Second Avenue just north of 69th Street, and the northern shaft will be on the east side of Second Avenue just north of 72nd Street.

Cut-and-cover construction activities will be required for the construction shafts and for the station entrances. The FEIS anticipated one entrance to 72nd Street Station at the northeast corner of the intersection, within 305 East 72nd Street, which would require cut-and-cover construction at the corner, affecting areas within the building at 305 East 72nd Street and areas of the adjacent sidewalk for 150 feet east of the intersection with Second Avenue. The FEIS design would also require cut-and-cover excavation across the width of 72nd Street east of Second Avenue, to construct the new escalator bank that was to connect from the entrance within the building at 305 East 72nd Street to the mezzanine level below. In addition to the cut-and-cover work, the escalator bank located within an inclined shaft descending beneath 72nd Street would also be constructed through the rock using controlled blasting.

Where cut-and-cover construction is required, utility relocation will also be required. The FEIS design would require relocation of utilities that run beneath 72nd Street, which include a transformer (relocation of transformers is more complicated than relocation of many other utilities). It was anticipated that the utility work might last 9 months to a year. The specific area to be disturbed for utility relocation would depend on the final utility diversion plans approved by the utility companies. Once the utilities are relocated, the construction work zone would be delineated through the use of temporary barricades.

When utility relocation is under way, the MPT Plan may eliminate the parking lane alongside and beyond the work zone, in order that two moving lanes could be maintained in each direction on East 72nd Street throughout the construction period. In the FEIS design, the construction work zone on East 72nd Street may have extended along East 72nd Street up to 500 feet east of Second Avenue. This work zone would include the area where cut-and-cover excavation would occur as well as utility relocation, a work zone, and areas that could be affected by the MPT Plan. As noted above, the MPT Plan may involve use of a portion of the sidewalk for vehicular traffic, to route traffic around other construction activities.

Access to the buildings alongside the construction zone would be maintained at all times. The awnings for the residential building entrances alongside the construction zone would have to be removed during construction but could be reinstalled upon NYCDOT approval once construction is complete.

3.2.2 FEIS DESCRIPTION OF CONSTRUCTION AT THE 86TH STREET STATION

As detailed in Table 3-1 of the FEIS (see page 3-54), the 86th Street Station will be constructed primarily by mining underground in the rock. After the TBMs have bored the tunnels for the northbound and southbound trains, controlled drilling and blasting will be used to excavate the station cavern. Construction shafts will be created at the north and south ends of the station, for use in bringing construction materials to the work area and to remove excavated rock from the caverns below. The southern shaft will be on the east side of Second Avenue at East 83rd Street, and the northern shaft will be on the east side of Second Avenue mid-block between East 86th and East 87th Streets.

Cut-and-cover construction activities will be required for the construction shafts and for the station entrances. The FEIS anticipated two entrances to 86th Street Station at the intersection of 86th Street and Second Avenue: one at the northeast corner of the intersection (in the existing building at 305 East 86th Street) and one at the southeast corner of the intersection in a new entrance building. The entrance at the northeast corner would require cut-and-cover construction at the corner, affecting areas within the building at 305 East 86th Street and areas of the adjacent sidewalk. This entrance would also require cut-and-cover excavation and mining across the width of 86th Street east of Second Avenue, to construct the new escalator bank that was to connect from the entrance within the building at 305 East 86th Street to the mezzanine level below. The entrance at the southeast corner would require cut-and-cover construction at the corner, affecting areas currently occupied by the buildings at 300-302 East 86th Street, 304 East 86th Street, and 1654 Second Avenue.

Where cut-and-cover construction is required, utility relocation will also be required. The FEIS design would require relocation of utilities that run beneath 86th Street. It is anticipated that the utility work might last 9 months to a year. The specific area to be disturbed for utility relocation would depend on the final utility diversion plans approved by the utility companies. Once the utilities are relocated, the construction work zone would be delineated through the use of temporary barricades.

When utility relocation is under way, the MPT Plan may eliminate the parking lane alongside and beyond the work zone, in order that two moving lanes could be maintained in each direction on East 86th Street throughout the construction period. In the FEIS design, the construction work zone on East 86th Street may have extended along East 86th Street up to 500 feet east of Second Avenue. This work zone would include the area where cut-and-cover excavation would

**Supplemental EA to the Second Avenue Subway FEIS:
72nd Street and 86th Street Station Entrance Alternatives**

occur as well as utility relocation, staging areas, and areas that could be affected by the MPT Plan. As noted above, the MPT Plan may involve use of a portion of the sidewalk for vehicular traffic, to route traffic around other construction activities.

3.3 CONSTRUCTION ACTIVITIES FOR THE 72ND STREET STATION ENTRANCE ALTERNATIVES

Under the No Action Alternative or any of the other 72nd Street Station entrance alternatives, construction duration of the 72nd Street Station is anticipated to take approximately five years—the same as described in the FEIS. Although the construction duration would take five years, under the No Action Alternative, MTA New York City Transit believes that complex property acquisition and agreements on building utility relocation would result in extensive delays to commence construction. In all of the alternatives, as in the FEIS design, a shaft would be located on the east side of Second Avenue north of 72nd Street to facilitate the excavation of the station cavern below. The construction activities required for the station alternatives would occur during the five-year construction period.

Under any of the station entrance alternatives, including the No Action Alternative, the time periods in which construction would occur would also remain the same as discussed in the FEIS. The FEIS describes when various construction activities would occur in Chapter 12, “Noise and Vibration” (see in particular page 12-10 and Table 12-9, page 12-22). Most above-ground construction operations for the 72nd Street Station would occur between 7 AM and 10 PM, Monday through Friday, and 10 AM and 7 PM on Saturday, as required by the NYCDOT project stipulations incorporated into the current construction contract and expected under subsequent contracts. However, other entities, including the utility companies that have work in the area associated with the Second Avenue Subway project, may elect to work earlier or later hours in order to minimize the disruption of service to their customers.

3.3.1 72ND STREET STATION NO ACTION ENTRANCE ALTERNATIVE

As described in the FEIS, in the No Action Alternative the 72nd Street Station would be constructed over an approximately five-year period, and the northern entrances would be completed during that time. However, as noted above, MTA New York City Transit believes that construction of the No Action Alternative would be difficult to commence.

In the No Action Alternative, cut-and-cover excavation would be required for the entrance within 305 East 72nd Street and for the new elevator entrance in the sidewalk on the south side of 72nd Street east of Second Avenue. Cut-and-cover excavation across 72nd Street would also be required just east of Second Avenue to extend the escalator bank across 72nd Street. In addition, the deeper portions of the escalator bank and elevator shaft would be constructed using mining. These are the same activities that were anticipated for this entrance in the FEIS.

As described in Chapter 1 of this EA, “Purpose and Need” (section 1.3.1.4), construction of an elevator entrance in the sidewalk on the south side of 72nd Street east of Second Avenue in the No Action Alternative would also require extensive disruption associated with relocation of a 48-inch high-pressure steam main that runs beneath the south side of 72nd Street. Substantial construction activities, including abatement of asbestos on the steam main, would likely be likely beyond the subway construction zone if the steam main must be relocated.

Not including any steam main relocation activities, the area of cut-and-cover construction would extend along 72nd Street approximately 150 feet east of the intersection of Second Avenue. In addition, the construction zone would extend up to 500 feet east of Second Avenue to allow for staging and maintenance and protection of traffic. Street trees would be removed where cut-and-cover would occur; they may also need to be removed to allow implementation of the MPT Plan (this depends on the final MPT Plan implemented). As a result, construction of the No Action Alternative would result in the removal of up to 29 street trees. As described in Chapter 4 of this EA, “Environmental Analysis,” trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with the New York City Department of Parks and Recreation (NYCDPR), once construction is complete.

In the No Action Alternative, utilities to be relocated would include a transformer that supplies 305 East 72nd Street, and the associated transformer vault. This effort would require extensive coordination between NYCT, Consolidated Edison, and the management of 305 East 72nd Street.

When station entrances are constructed, excavated materials (“spoils”) would be removed from the excavation zone. In the No Action Alternative, it is estimated that construction of the station entrances on the east side of Second Avenue near 72nd Street, which are the subject of this EA, would generate 14,980 cubic yards of spoils. Assuming 10 cubic yards of loose fill per truck, this would translate to 1,498 truck loads of spoils removal over the duration of the construction period. As described on page 3-30 of the FEIS, construction of the 72nd Street Station would result in an average of 60 to 70 truck loads of spoils removal per day. This projected daily volume of 60 to 70 truck loads represents the maximum anticipated excavation rate on a typical day. Thus, the removal of spoils for the station entrances under the No Action Alternative would require approximately 23 days (assuming an average of 65 truck loads of spoils removal per day). This would occur within the overall five-year construction period for the 72nd Street Station.

In addition, as noted in Chapter 1, “Purpose and Need,” construction activities for the No Action Alternative would also include modifications to the building at 305 East 72nd Street to relocate the building’s laundry room and main service utility and distribution equipment from one portion of the basement to another location.

3.3.2 72ND STREET STATION ENTRANCE ALTERNATIVE 1 (ELEVATORS AT THE SOUTHEAST CORNER AT 300 EAST 72ND STREET)—PREFERRED ALTERNATIVE

In Alternative 1, no construction would be required in 305 East 72nd Street and cut-and-cover construction would no longer be required in 72nd Street east of Second Avenue except for utility diversion around 300 East 72nd Street. Utility diversions are expected associated with the demolition of 300 East 72nd Street and construction of an elevator entrance. Traffic diversion or establishment of a 150-foot-long construction zone for staging and implementation of the MPT plan would be required. A staging area or construction zone may still be required on East 72nd Street, as discussed in the FEIS, to facilitate construction of other components of the station. Cut-and-cover excavation would also be required into the sidewalk of Second Avenue for the length of the building at 300 East 72nd Street. This alternative, unlike the No Action Alternative, would not require relocation of a large steam main that runs beneath 72nd Street.

**Supplemental EA to the Second Avenue Subway FEIS:
72nd Street and 86th Street Station Entrance Alternatives**

Even without consideration of the potential need to relocate the large high-pressure steam main, Alternative 1 would have less cut-and-cover excavation than the No Action Alternative, and therefore would require less utility relocation in 72nd Street than the No Action Alternative. The transformer that supplies 305 East 72nd Street would not need to be relocated.

Unlike the No Action Alternative, Alternative 1 would involve demolition of an existing, four-story building at the southeast corner of Second Avenue and 72nd Street and construction in its place of a new subway entrance building. Following demolition, the area where the new entrance building would be erected would first be excavated to create the deep elevator shafts that would connect to the subway station cavern below. This would require the use of controlled drilling and blasting to excavate rock beneath the building.

Three street trees may have to be removed to implement an MPT Plan for pedestrian access during construction of the elevator building, which is 26 fewer trees than would be removed for the No Action Alternative. As described in Chapter 4 of this EA, "Environmental Analysis," trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with the NYCDPR, once construction is complete.

Even without consideration of the potential need to relocate the large high-pressure steam main, Alternative 1 would have less cut-and-cover excavation than the No Action Alternative, and therefore would require less utility relocation in 72nd Street than the No Action Alternative. The transformer that supplies 305 East 72nd Street would not need to be relocated.

The excavation for the elevator entrance in Alternative 1 would generate 10,530 cubic yards or 1,053 truck loads of spoils, assuming 10 cubic yards of spoils per truck. As compared to the No Action Alternative, the amount of spoils would be reduced by 4,450 cubic yards or 445 truck loads. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change with Alternative 1, since those numbers represent the maximum anticipated excavation rate on a typical day. The reduction in the number of truck loads with Alternative 1 would shorten the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by six days (assuming an average of 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 72nd Street Station, which would be five years for the No Action Alternative or Alternative 1.

3.3.3 72ND STREET STATION ENTRANCE ALTERNATIVE 3 (ESCALATORS ON THE NORTH SIDE OF 72ND STREET EAST OF SECOND AVENUE)

In Alternative 3, no construction would be required in 305 East 72nd Street. As in the No Action Alternative, cut-and-cover construction would be required across the width of 72nd Street to construct the new escalator bank that would connect the entrance to the mezzanine level below. Like the No Action Alternative, this alternative would also require controlled drilling and blasting for the deeper excavation areas in rock associated with the entrance escalator shaft and elevator shafts. This alternative, unlike the No Action Alternative, would not require relocation of a large steam main that runs beneath 72nd Street.

Overall, the activities required for the construction of the escalator entrances in the widened sidewalk on the north side of 72nd Street would be essentially the same as those required for the construction of the No Action Alternative's entrance in 305 East 72nd Street. However, in this alternative, a larger area of cut-and-cover construction would be required than for the No Action Alternative. This excavation area would extend for approximately 270 feet from the corner of

Second Avenue on the north side of the street, which would be farther east on the block than the No Action Alternative. Similar to the No Action Alternative, it would also cross 72nd Street and would extend approximately 50 feet east of Second Avenue on the south side of the street. Like the No Action Alternative, this alternative would require utility relocation in 72nd Street, including relocation of the transformer that supplies 305 East 72nd Street. Overall, the utility relocation and related activities, such as traffic management, required on 72nd Street in Alternative 3 could extend 500 feet east of Second Avenue on East 72nd Street, like the No Action Alternative.

In addition to the new escalator entrance on the north side of 72nd Street, Alternative 3 would also require demolition of an existing, four-story building at the southeast corner of Second Avenue and 72nd Street and construction in its place of a new subway entrance building. Following demolition, the area where the new entrance building would be erected would first be excavated using controlled drilling and blasting to create the deep elevator shafts that would connect to the subway station cavern below.

Access to the buildings alongside the construction zone would be maintained at all times. The awnings for the residential building entrances adjacent to the construction zone (potentially including buildings on both sides of the street) would have to be removed during construction but could be reinstalled upon NYCDOT approval once construction is complete.

Upon completion of the excavation, the below-ground portions of the escalator entrances would be constructed in reinforced concrete and backfill placed over the roof and the road and sidewalk reinstalled. Concurrent with these latter activities, the entrance finishes, escalators, and the canopies would be installed.

Like the No Action Alternative, a total of 29 street trees may have to be removed to facilitate construction and implementation of an MPT plan in Alternative 3. As described in Chapter 4 of this EA, "Environmental Analysis," trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with the NYCDPR, once construction is complete.

The excavation associated with construction of the escalator entrances and elevator building in Alternative 3 would require removal of an additional approximately 11,890 cubic yards or 1,189 truck loads of spoils more than the No Action Alternative, assuming 10 cubic yards of spoils per truck. In total, Alternative 3 would generate a total of approximately 26,870 cubic yards (2,687 truck loads) of spoils.

As described on page 3-30 of the FEIS, construction of the 72nd Street Station would result in an average of 60 to 70 truck loads of spoils removal per day. This volume of trucks would not change regardless of the volume of spoils, since these numbers represent the maximum anticipated excavation on a typical day. Therefore, the number of truck loads per day with Alternative 3 would be the same as for the No Action Alternative. The increase in the number of truck loads with Alternative 3 would increase the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by 19 days (assuming an average of 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 72nd Street Station, which would be five years for the No Action Alternative or Alternative 3.

3.3.4 72ND STREET STATION ENTRANCE ALTERNATIVE 4 (ESCALATORS ON THE EAST SIDE OF SECOND AVENUE NORTH OF 72ND STREET AND NORTH SIDE OF 72ND STREET EAST OF SECOND AVENUE)

In Alternative 4, no construction would be required in 305 East 72nd Street. As in the No Action Alternative, cut-and-cover construction would be required across the width of 72nd Street to construct the new escalator bank that would connect the entrance to the mezzanine level below. Like the FEIS design and No Action Alternative, this alternative would also require controlled drilling and blasting for the deeper excavation areas in rock associated with the entrance escalator shaft and elevator shafts. This alternative, unlike the No Action Alternative, would not require relocation of a large steam main that runs beneath 72nd Street.

Overall, the activities required for the construction of the escalator entrances in the widened sidewalk alongside the south and west sides of 305 East 72nd Street would be essentially the same as those required for the construction of the No Action Alternative's entrance in 305 East 72nd Street. On 72nd Street, the excavation area would be similar in size (although slightly larger) than the area of cut-and-cover construction required in the No Action Alternative. This excavation area would extend east on 72nd Street for approximately 150 feet from the corner of Second Avenue the same as for the No Action Alternative. This alternative would also introduce additional cut-and-cover excavation on the east side of Second Avenue for its escalator entrance there, but this the excavation area on Second Avenue would be in approximately the same location as the construction shaft already planned at that location in all alternatives.

Like the No Action Alternative, this alternative would require utility relocation in 72nd Street, including relocation of the transformer that supplies 305 East 72nd Street. Overall, the utility relocation and related activities, such as traffic management, required on 72nd Street in Alternative 4 could extend an estimated 500 feet east of Second Avenue, the same as required for the No Action Alternative.

Access to the buildings alongside the construction zone would be maintained at all times. The awnings for the residential building entrances adjacent to the construction zone (potentially including buildings on both sides of the street) would have to be removed during construction but could be reinstalled upon NYCDOT approval once construction is complete.

Upon completion of the excavation, the below-ground portions of the escalator entrances would be constructed in reinforced concrete and backfill placed over the roof and the road and sidewalk reinstated. Concurrent with these latter activities, the entrance finishes, escalators, and the canopies would be installed.

In addition to the new escalator entrance on the north side of 72nd Street, Alternative 4 would also require demolition of an existing, four-story building at the southeast corner of Second Avenue and 72nd Street and construction in its place of a new subway entrance building. Following demolition, the area where the new entrance building would be erected would first be excavated using controlled drilling and blasting to create the deep elevator shafts that would connect to the subway station cavern below.

Like the No Action Alternative, a total of 29 street trees may have to be removed to facilitate construction and implementation of an MPT Plan in Alternative 4. As described in Chapter 4 of this EA, "Environmental Analysis," trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with the NYCDPR, once construction is complete.

The excavation associated with construction of the escalator entrances and elevator in Alternative 4 would require removal of an additional 2,510 cubic yards or 251 additional truckloads of spoils (assuming 10-cubic-yard trucks) more than the No Action Alternative. In total, Alternative 4 would generate 17,490 cubic yards (or 1,749 truck loads) of spoils.

As described on page 3-30 of the FEIS, construction of the 72nd Street Station would result in an average of 60 to 70 truck loads of spoils removal per day. Since this volume of trucks would not change regardless of the volume of spoils, the number of truck loads per day with Alternative 4 would be the same as for the No Action Alternative. The increase in the number of truck loads with Alternative 4 would increase the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by four days (assuming an average of 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 72nd Street Station, which would be five years for the No Action Alternative or Alternative 4.

3.3.5 SUMMARY: THE 72ND STREET STATION ENTRANCE ALTERNATIVES

For all station entrance alternatives, construction activities would occur during the five-year construction period for the 72nd Street Station, although as noted previously, MTA New York City Transit believes that construction of the No Action Alternative would be difficult to commence. **Table 3-1** compares the construction requirements for the No Action Alternative and Alternatives 1, 3, and 4 for the 72nd Street Station entrances. As shown in the table, Alternative 1 would eliminate the need for cut-and-cover excavation on 72nd Street, which would reduce excavation at this location compared to the No Action Alternative. Alternative 3 would involve a larger excavation area across 72nd Street than the No Action Alternative, and Alternative 4 would have approximately the same cut-and-cover area as the No Action Alternative. As a result, Alternative 1 would require removal of less spoils than the No Action Alternative, and therefore, would have a shorter duration for excavation and result in fewer truck loads of spoils removal. Alternatives 3 and 4 would also require removal of more spoils than the No Action Alternative; Alternative 3 would have the greatest amount of spoils removal and consequently, the longest duration for that activity. Also as a consequence of its smaller excavation area, Alternative 1 would also have the smallest MPT zone and require the removal of the smallest number of street trees; the other alternatives would all have similar MPT zones and consequently could require removal of the same number of street trees as the No Action Alternative. For an evaluation of each alternative's impacts during construction, please see the following chapters of this EA.

**Supplemental EA to the Second Avenue Subway FEIS:
72nd Street and 86th Street Station Entrance Alternatives**

Table 3-1

Construction Activities for the 72nd Street Station Entrance Alternatives

Activity	No Action Alternative	Alternative 1 (Preferred)	Alternative 3	Alternative 4
Duration of Station Construction	5 years	5 years	5 years	5 years
Cut-and-Cover Construction Zone on 72nd Street east of Second Avenue	150 feet east of Second Avenue; extending across 72nd Street	None	270 feet east of Second Avenue; extending across 72nd Street	150 feet east of Second Avenue; extending across 72nd Street
Length of MPT Construction Zone on 72nd Street east of Second Avenue	500 feet	Small zone for pedestrians	500 feet	500 feet
Total Spoils Excavation for Station Entrance	14,980 cu. yd.	10,530 cu. yd.	26,870 cu. yd.	17,490 cu. yd.
Total Truck Loads of Spoils Removal for Station Entrance ¹	1,498 trucks	1,053 trucks	2,687 trucks	1,749 trucks
Duration of Spoils Removal for Station Entrance ²	23 days	17 days	42 days	27 days
Street Trees to be Removed ³	29 trees	3 trees	29 trees	29 trees
Notes:				
^{1.} Assumes 10 cubic yards of spoils per truck load.				
^{2.} Assumes 65 truck loads of spoils removal per day.				
^{3.} Assumes that street trees are removed for the length of the MPT zone.				

3.4 CONSTRUCTION ACTIVITIES FOR THE 86TH STREET STATION ENTRANCE ALTERNATIVES

Under the No Action Alternative or any of the other 86th Street Station entrance alternatives, construction of the 86th Street Station is anticipated to take approximately five years—the same as described in the FEIS. In all of the alternatives, as in the FEIS design, a shaft will be located on the east side of Second Avenue between East 86th and East 87th Streets to facilitate the excavation of the station cavern below.

Under any of the station entrance alternatives, including the No Action Alternative, the time periods in which construction would occur would also remain the same as discussed in the FEIS. The FEIS describes when various construction activities would occur in Chapter 12, “Noise and Vibration” (see in particular page 12-10 and Table 12-9, page 12-21). Most above-ground construction operations for the 86th Street Station would occur between 7 AM and 10 PM, Monday through Saturday and 10 AM and 7 PM on Saturday, as required by the NYCDOT project stipulations incorporated into the current construction contract and expected under subsequent contracts. However, other entities, including the utility companies that have work in the area associated with the Second Avenue Subway project may elect to work earlier or later hours in order to minimize the disruption of service to their customers.

3.4.1 THE 86TH STREET STATION NO ACTION ENTRANCE ALTERNATIVE

As described in the FEIS, in the No Action Alternative the 86th Street Station would be constructed over an approximately five-year period, and the northern entrances would be completed during that time. However, as described in Chapter 1, “Purpose and Need,” MTA New York City Transit believes that the No Action Alternative would require major structural modifications to the building at 305 East 86th Street, which would result in extensive delays to commence construction.

In the No Action Alternative, cut-and-cover excavation would be required for the entrance within 305 East 86th Street and for the new elevator entrance in the sidewalk on the south side of 86th Street east of Second Avenue. Cut-and-cover excavation across 86th Street would also be required just east of Second Avenue to extend the escalator bank across 86th Street. In addition, the deeper portions of the escalator bank and elevator shaft would be constructed using mining. These are the same activities that were anticipated for this entrance in the FEIS. The FEIS design also included demolition of three buildings at the southeast corner of Second Avenue and 86th Street for an ancillary building and entrance, which is no longer included in the No Action Alternative.

The area of cut-and-cover construction would extend along 86th Street approximately 50 feet east of the intersection of Second Avenue. In addition, the construction zone would extend up to 500 feet east of Second Avenue to allow for staging and maintenance and protection of traffic. Street trees would be removed where cut-and-cover would occur; they may also need to be removed to allow implementation of the MPT Plan (this depends on the final MPT Plan implemented). As a result, the No Action Alternative would result in the removal of up to 19 street trees. As described in Chapter 4 of this EA, “Environmental Analysis,” trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with NYCDPR, once construction is complete.

When station entrances are constructed, excavated materials (“spoils”) would be removed from the excavation zone. In the No Action Alternative, it is estimated that construction of the station entrances on the east side of Second Avenue near 86th Street, which are the subject of this EA, would generate approximately 14,900 cubic yards of spoils. Assuming 10 cubic yards of loose fill per truck, this would translate to 1,490 truck loads of spoils removal over the duration of the construction period. As described on page 3-30 of the FEIS, construction of the 86th Street Station would result in an average of 60 to 70 truck loads of spoils removal per day. This projected daily volume of 60 to 70 truck loads represents the maximum anticipated excavation rate on a typical day. Thus, the removal of spoils for the station entrances under the No Action Alternative would require approximately 23 days (assuming an average of 65 truck loads of spoils removal per day). This would occur within the overall five-year construction period for the 86th Street Station.

As noted in Chapter 1 of this EA, “Purpose and Need” (see section 1.3.2.4), the No Action Alternative would require substantial construction in and major structural modifications to the building at 305 East 86th Street. Residential apartments above the entrance location would be impacted and the Food Emporium supermarket in the building would likely close because of these activities.

3.4.2 86TH STREET STATION ENTRANCE ALTERNATIVE 2 (ESCALATORS ON THE SOUTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)

In Alternative 2, no construction would be required in the building at 305 East 86th Street. Although this alternative would construct new escalator entrances on the south side of 86th Street, it would still require cut-and-cover construction across the width of 86th Street, which would be more extensive than with the No Action Alternative. The landing beneath the sidewalk escalators must extend diagonally northward beneath 86th Street, to allow enough space for the inclined escalator bank that would extend from the landing to the mezzanine level of the station. The excavation area would also include the new elevator to be constructed near the corner in the

**Supplemental EA to the Second Avenue Subway FEIS:
72nd Street and 86th Street Station Entrance Alternatives**

sidewalk on the south side of 86th Street, which is also included in the No Action Alternative. Like the No Action Alternative, this alternative would also require controlled drilling and blasting for the deeper excavation areas associated with the escalator shaft and elevator shafts.

Overall, the activities required for the construction of the escalator entrances in the widened sidewalk on the south side of 86th Street would be essentially the same as those required for the construction of the No Action Alternative's entrance in 305 East 86th Street. However, in this alternative, a larger area of cut-and-cover construction would be required than the No Action Alternative. The excavation area would extend approximately 330 feet east from the corner of Second Avenue in the south sidewalk and curb lane, with an excavation area also extending across 86th Street, as compared to 50 feet for the No Action Alternative. Like the No Action Alternative, this alternative would require utility relocation in 86th Street. Overall, the utility relocation and related activities, such as traffic management, required on 86th Street in Alternative 2 could extend an estimated 500 feet east of Second Avenue on East 86th Street, like the No Action Alternative.

Access to some of the buildings alongside the construction zone would be maintained at all times, but occupants of certain buildings closest to the escalator entrances on the south side of 86th Street would be displaced during construction (see Chapter 7 of this EA, "Displacement and Relocation"). The awnings for the residential building entrances adjacent to the construction zone (potentially including buildings on both sides of the street) would have to be removed during construction but could be reinstalled upon NYCDOT approval once construction is complete.

Upon completion of the excavation, the below-ground portions of the escalator entrances would be constructed in reinforced concrete and backfill placed over the roof and the road and sidewalk reinstalled. Concurrent with these latter activities, the entrance finishes, escalators, and the canopies would be installed.

Like the No Action Alternative, a total of 19 street trees may have to be removed to facilitate construction and implementation of an MPT plan in Alternative 2. As described in Chapter 4 of this EA, "Environmental Analysis," trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with NYCDPR, once construction is complete.

The excavation associated with construction of the escalator entrances and elevator in Alternative 2 would require removal of approximately 36,400 cubic yards of spoils, which would equate to 3,640 truck loads of spoils assuming 10 cubic yards per truck. As compared to the No Action Alternative, Alternative 2 would generate 21,500 more cubic yards of spoils, resulting in 2,150 more truck loads of spoils removal. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change with Alternative 2, since those numbers represent the maximum anticipated excavation rate on a typical day. The increase in truck loads with Alternative 2 would increase the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by 33 days (assuming 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 86th Street Station, which would be five years for the No Action Alternative or Alternative 2.

3.4.3 86TH STREET STATION ENTRANCE ALTERNATIVE 5 (ELEVATORS AT SOUTHEAST CORNER)

In Alternative 5, no construction would be required in 305 East 86th Street and no cut-and-cover construction would be required across 86th Street for an escalator bank. However, cut-and-cover construction would be required on the south side of 86th Street east of Second Avenue alongside the site of the elevator building, for a distance of 80 feet. No utility relocation would be required there; however, a 150-foot construction staging zone would be established along East 86th Street east of Second Avenue, as discussed in the FEIS, and implementation of the MPT plan would be required.

Unlike the No Action Alternative, Alternative 5 would involve demolition of two existing, four-story buildings at the southeast corner of Second Avenue and 86th Street and construction in their place of a subway entrance building. Following demolition, the area where the new entrance building would be erected would first be excavated to create the deep elevator shafts that would connect to the subway station cavern below. This would require the use of controlled drilling and blasting to excavate the rock beneath the buildings.

Three street trees may have to be removed on the south side of 86th Street to facilitate construction and implementation of an MPT Plan in Alternative 5, which is 16 fewer trees than would be removed for the No Action Alternative. As described in Chapter 4 of this EA, “Environmental Analysis,” trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with NYCDPR, once construction is complete.

With a larger excavation area for the elevator building, Alternative 5 would generate slightly more spoils than the No Action Alternative. Alternative 5 would require removal of approximately 16,460 cubic yards of spoils, which equates to 1,646 truck loads, assuming 10 cubic yards per truck. As compared to the No Action Alternative, Alternative 5 would result in 1,560 cubic yards of additional spoils, or 156 additional truck loads. As described on page 3-30 of the FEIS, construction of the 86th Street Station would result in an average of 60 to 70 truck loads of spoils removal per day. Since the number of truck loads per day with Alternative 5 would be the same as for the No Action Alternative, the small increase in the number of truck loads with Alternative 5 would increase the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by three days (assuming 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 86th Street Station, which would be five years for the No Action Alternative or Alternative 5.

3.4.4 86TH STREET STATION ENTRANCE ALTERNATIVE 7 (ESCALATORS ON THE NORTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)— PREFERRED ALTERNATIVE

In Alternative 7, no construction would be required in 305 East 86th Street. As in the No Action Alternative, cut-and-cover construction would be required across the width of 86th Street to construct the new escalator bank that would connect the entrance to the mezzanine level below and to construct the new elevator in the sidewalk on the south side of 86th Street. Like the No Action Alternative, this alternative would also require controlled drilling and blasting for the deeper excavation areas associated with the escalator shaft and elevator shafts.

Overall, the activities required for the construction of the escalator entrances in the widened sidewalk on the north side of 86th Street would be essentially the same as those required for the

Supplemental EA to the Second Avenue Subway FEIS: 72nd Street and 86th Street Station Entrance Alternatives

construction of the No Action Alternative's entrance in 305 East 86th Street. However, in this alternative, a larger area of cut-and-cover construction would be required than for the No Action Alternative. This excavation area would extend for approximately 270 feet from the corner of Second Avenue in the sidewalk and north curb lane, and would also cross 86th Street. This is farther east on the block than in the No Action Alternative, which would affect an area approximately 50 feet east of Second Avenue.

Like the No Action Alternative, this alternative would require utility relocation in 86th Street. Overall, the utility relocation and related activities, such as traffic management, required on 86th Street in Alternative 7 could extend an estimated 500 feet east of Second Avenue on East 86th Street, like the No Action Alternative.

Like the No Action Alternative, a total of 19 street trees may have to be removed to facilitate construction and implementation of an MPT plan in Alternative 7. As described in Chapter 4 of this EA, "Environmental Analysis," trees would be replanted at their existing location, if feasible, or at an alternative location, in consultation with NYCDPR, once construction is complete.

Access to the buildings alongside the construction zone—and to one end of the U-shaped driveway at 305 East 86th Street would be maintained at all times. The awnings for the residential building entrances adjacent to the construction zone (potentially including buildings on both sides of the street) would have to be removed during construction but could be reinstalled upon NYCDOT approval once construction is complete.

Upon completion of the excavation, the below-ground portions of the escalator entrances would be constructed in reinforced concrete and backfill placed over the roof and the road and sidewalk reinstated. Concurrent with these latter activities, the entrance finishes, escalators, and the canopies would be installed.

The excavation associated with construction of the escalator entrances and elevator in Alternative 7 would require removal of 30,980 cubic yards of spoils, which equates to 3,098 truck loads, assuming 10 cubic yards of spoils per truck. This would be 16,080 more cubic yards of spoils than the No Action Alternative, or 1,608 more truck loads of spoils removal. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change with Alternative 7, since those numbers represent the maximum anticipated excavation rate on a typical day. The increase in the number of truck loads with Alternative 7 would increase the duration of excavation removal activities for the northern entrances compared to the No Action Alternative by 25 days (assuming 65 truck loads of spoils removal per day). This would not change the overall period of construction for the 86th Street Station, which would be five years for the No Action Alternative or Alternative 7.

3.4.5 SUMMARY: THE 86TH STREET STATION ENTRANCE ALTERNATIVES

For all station entrance alternatives, construction activities would occur during the five-year construction period for the 86th Street Station. **Table 3-2** compares the construction requirements for the No Action Alternative and Alternatives 2, 5, and 7 for the 86th Street Station entrances. As shown in the table, Alternatives 2, 5, and 7 would require more spoils removal and consequently more truck trips and a longer duration for spoils excavation than would the No Action Alternative. Alternative 2 would result in the most spoils, most truck trips, and the longest duration for excavation. Alternative 2 would also have the most extensive area of

cut-and-cover construction along East 86th Street and would adversely affect several buildings on the south side of 86th Street during that period. In order to provide an adequate area for the MPT and staging, the No Action Alternative and Alternatives 2 and 7 would require up to 500 linear feet of sidewalk, which could result in the removal of 19 street trees. Alternative 5 would require a shorter zone for MPT and, therefore, would result in the removal of fewer street trees than the No Action Alternative. For an evaluation of each alternative's impacts during construction, please see the following chapters of this EA.

**Table 3-2
Construction Activities for the 86th Street Station Entrance Alternatives**

Activity	No Action Alternative	Alternative 2	Alternative 5	Alternative 7 (Preferred)
Duration of Station Construction	5 years	5 years	5 years	5 years
Cut-and-Cover Construction Zone on 86th Street east of Second Avenue	50 feet east of Second Avenue; extending across 86th Street	330 feet east of Second Avenue; extending across 86th Street	80 feet east of Second Avenue; extending across 86th Street	270 feet east of Second Avenue; extending across 86th Street
Length of MPT Construction Zone on 86th Street east of Second Avenue	500 feet	500 feet	150 feet	500 feet
Total Spoils Excavation for Station Entrance	14,900 cu. yd.	36,400 cu. yd.	16,460 cu. yd.	30,980 cu. yd.
Total Truck Loads of Spoils Removal for Station Entrance ¹	1,490 trucks	3,640 trucks	1,646 trucks	3,098 trucks
Duration of Spoils Removal for Station Entrance ²	23 days	56 days	26 days	48 days
Street Trees to be Removed ³	19 trees	19 trees	3 trees	19 trees
Notes:				
¹ Assumes 10 cubic yards of spoils per truck load.				
² Assumes 65 truck loads of spoils removal per day.				
³ Assumes that street trees are removed for the length of the MPT zone.				

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