

## **11.1 INTRODUCTION**

This chapter of the Supplemental Environmental Assessment (EA) considers the potential for construction or operation of the station entrance alternatives to result in impacts related to airborne noise, ground-borne noise, and vibration. *Airborne noise* is noise that travels through the air—such as the sound of traffic on a nearby roadway, or children playing in a playground. *Ground-borne noise* is the rumbling sound caused by *vibration* (or oscillatory motion). With ground-borne noise, buildings and other structures act like speakers for low-amplitude noise. As an example, ground-borne noise is the low rumbling sound that occurs within a building as a subway passes beneath.

## **11.2 FEIS FINDINGS**

### **11.2.1 CONSTRUCTION IMPACTS**

The Final Environmental Impact Statement (FEIS) included detailed analyses of the potential noise and vibration impacts associated with construction of the new Second Avenue Subway in Chapter 12, “Noise and Vibration.” As stated in the FEIS (see the discussion beginning on page 12-6), construction activities associated with the Second Avenue Subway would be expected at times to cause noticeable and significant increases in noise levels. The noise impacts would occur in the vicinity where construction work is occurring. Because the Second Avenue Subway project alignment and therefore construction activities would unavoidably occur within close proximity to sensitive land uses (e.g., residential uses), the subway’s construction would exceed one or more of the Federal Transit Administration (FTA) construction impact criteria for noise at most locations even with implementation of mitigation measures. These impacts would occur for distances up to approximately 750 feet from where construction operations are taking place, if a line-of-sight is available between the noise source and a receptor location (see page 12-7 of the FEIS).

To reduce the significant adverse noise impacts associated with construction, Metropolitan Transportation Authority (MTA) New York City Transit has established performance standards that have been included in contract documents that must be met by all contractors during construction. Even with these measures, however, construction operations will create significant adverse airborne noise impacts at a large number of residences (see page 12-9 of the FEIS). Table 12-9 (“Overview of Airborne Construction Noise Impacts and Mitigation”) describes the noise impacts anticipated for the FEIS design and the associated mitigation measures. The measures presented in the FEIS for the 72nd Street and 86th Street Stations are shown in **Table 11-1**.

The FEIS noted (see page 9-14 in Chapter 9 of the FEIS, “Historic Resources”) that construction activities would occur in close proximity to historic resources, including those identified near the 72nd Street and 86th Street Stations. This would include cut-and-cover construction activities, potential underpinning, construction of station entrances and ventilating plants nearby, and possible

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

vibration during construction. Ongoing consultation is to be undertaken among the MTA, MTA New York City Transit, FTA, and the State Historic Preservation Officer (SHPO), as required by the Second Avenue Subway project’s Programmatic Agreement (PA), as the Second Avenue Subway project designs progress, to avoid or minimize the potential for adverse vibration effects on any historic resources during construction of the Second Avenue Subway.

**Table 11-1**

**Overview of Airborne Construction Noise Impacts and Mitigation for Activities in the Vicinity of the 72nd Street and 86th Street Stations**

<b>Construction Zone Activity</b>	<b>Typical Construction Activity</b>	<b>Possible Airborne Noise Impact</b>	<b>Mitigation Options*</b>
<b>From 69th Street to 73rd Street (Includes 72nd Street Station)</b>			
Bored tunnel in rock	Underground boring	No	None required.
Mined station (72nd Street)	Underground horizontal blasting to create cavern	No	None required.
	Vertical blasting to create shafts	Yes	Use blast mats and multi-delay charges to reduce intensity. Work would typically not occur between 10 pm and 7 am.
	Openings to bring materials in and out and to create station entrances	Yes	Clad crane with timber paneling, enclosing the crane. Fit crane with silencer. Possibly locate ventilation fans, dewatering pumps, air compressors and generators in tunnel.
	Spoils removal	Yes	Lining hoppers with rubber to reduce impact noise from rock; enclose truck area below hopper or enclose both hopper and truck.
	Trucking and other activity	Yes	Use of flagmen or manually adjustable alarms to mitigate noise from truck back-up alarms at night.
Cut and cover station component (72nd Street)	Utility relocation	Yes	Fit jackhammers, air compressors, generators, light plant and cranes with silencers. Use of noise tents around workers using jackhammers.
	Construction of retaining walls (e.g., slurry wall)	Yes	Use of jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level. Work would typically not occur between 10 pm and 7 am.
	Pile installation	Yes	Use of jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level. Use of alternative piling techniques, such as bored or augured piling, rather than impact piling. Work would typically not occur between 10 pm and 7 am.
<b>From 83rd Street to 87th Street (Includes 86th Street Station)</b>			
Bored tunnel in rock	Underground boring	No	None required.
	Underground horizontal blasting to create cavern	No	None required.
	Vertical blasting to create shafts	Yes	Use blast mats and multi-delay charges to reduce intensity. Work would typically not occur between 10 pm and 7 am.
	Openings to bring materials in and out and to create station entrances	Yes	Clad crane with timber paneling, enclosing the crane. Fit crane with silencer. Possibly locate ventilation fans, dewatering pumps, air compressors and generators in tunnel.
	Spoils removal	Yes	Lining hoppers with rubber to reduce impact noise from rock; enclose truck area below hopper or enclose both hopper and truck.

**Table 11-1 (Cont'd)**  
**Overview of Airborne Construction Noise Impacts and Mitigation for Activities**  
**in the Vicinity of the 72nd Street and 86th Street Stations**

Construction Zone Activity	Typical Construction Activity	Possible Airborne Noise Impact	Mitigation Options*
<b>From 83rd Street to 87th Street (Includes 86th Street Station)</b>			
Mined station (86th Street)	Trucking	Yes	Use of flagmen or manually adjustable alarms to mitigate noise from truck back-up alarms at night.
Cut and cover station component (86th Street)	Utility relocation	Yes	Fit jackhammers, air compressors, generators, light plant and cranes with silencers. Use of noise tents around workers using jackhammers.
	Construction of retaining walls (e.g., slurry wall)	Yes	Use of jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level. Work would typically not occur between 10 pm and 7 am.
	Pile installation	Yes	Use of jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level. Use of alternative piling techniques, such as bored or augured piling, rather than impact piling. Work would typically not occur between 10 pm and 7 am.
<b>Note:</b>			
* As noted on page 12-11 of the FEIS, the contractor will be required to implement a range of mitigation measures in order to meet specified performance standards. The contractors will select from the measures identified in this table, or other measures, as necessary, to meet such standards where appropriate. MTA New York City Transit will limit late night work to the hours specified, except in unusual circumstances.			

### 11.2.2 PERMANENT IMPACTS

The FEIS predicted that operation of the subway trains themselves would not have the potential to create airborne noise impacts outside of the tunnel and stations because they would generally be deep below ground. However, the various ancillary facilities such as fans, cooling towers, chillers, and pumps required to operate the Second Avenue Subway have the potential to generate airborne noise. As described on page 12-32 of the FEIS, these ancillary facilities would be located at every station and in certain other areas along the entire alignment, and many of these facilities would have to be located above-ground. As shown in Table 12-10 of the FEIS, the operation of the Second Avenue Subway's stations would not result in significant adverse impacts from airborne noise.

As described on pages 12-45 and 12-46 of the FEIS, the operation of subway trains would result in vibration and ground-borne noise. The FEIS predicted that vibration levels would not exceed FTA impact criteria, but ground-borne noise would exceed FTA criteria at certain locations along the alignment since no subway is located there today. To mitigate ground-borne noise impacts from train operations, the Second Avenue Subway project would include resilient track fasteners or track support structures or other similar measures at all locations where significant operational ground-borne noise impacts were predicted. Ground-borne noise levels would be reduced at all locations to below FTA impact thresholds.

### **11.3 POTENTIAL IMPACTS OF THE 72ND STREET STATION ENTRANCE ALTERNATIVES**

#### **11.3.1 CONSTRUCTION IMPACTS OF THE 72ND STREET STATION ENTRANCE ALTERNATIVES**

##### *11.3.1.1 72ND STREET STATION NO ACTION ENTRANCE ALTERNATIVE*

Much of the construction activity for the 72nd Street Station with the No Action Alternative would be the same as identified in the FEIS and in **Table 11-1** above. Cut-and-cover activities for the No Action Alternative would extend 150 feet east of Second Avenue, which is also consistent with the analysis presented in the FEIS. Therefore, station construction for the No Action Alternative would result in significant adverse noise impacts, and the mitigation presented in the FEIS would be required.

Construction activities for the No Action Alternative would require the removal of spoils. The process of removing spoils, and the associated trucking activities, would generate noise during construction. The No Action Alternative for station entrances at the 72nd Street Station would result in removal of 14,980 cubic yards (1,498 truck loads) of loose fill. Although there have been changes in the design since publication of the FEIS, the projected daily volumes of 60 to 70 truck loads from the FEIS are unchanged, because those numbers represent the maximum anticipated excavation rate on a typical day.

As noted above, MTA New York City Transit will require its contractors to implement noise mitigation measures during construction. Potential measures for construction airborne noise include: enclosing areas where spoils from tunnel operations would be loaded into trucks, or at station locations where spoils removal will take place for long durations during the daytime or at night; placing some equipment or operations below grade in shielded locations; changing construction sequencing to reduce noise impacts by combining noisy operations to occur in the same time period or by spreading them out; avoiding late night activities; and using alternative construction methods, such as avoiding impact pile installation in sensitive areas, using special low noise emission level equipment, and selecting and specifying quieter demolition methods. Despite these measures, it will not be possible to fully mitigate all airborne noise impacts of the No Action Alternative because of the proximity of residences and other sensitive uses to construction.

##### *11.3.1.2 72ND STREET STATION ENTRANCE ALTERNATIVE 1 (ELEVATORS AT THE SOUTHEAST CORNER AT 300 EAST 72ND STREET)—PREFERRED ALTERNATIVE*

Much of the construction activity for Alternative 1 would be the same as the No Action Alternative. Therefore, like the No Action Alternative, construction of the station entrances for Alternative 1 would result in significant adverse noise impacts, and mitigation would be required.

The cut-and-cover construction activities for the station entrance in Alternative 1 would be mostly within the building line of 300 East 72nd Street (southeast corner of 72nd Street and Second Avenue) except for an enlargement of the shaft within the east sidewalk of Second Avenue to facilitate construction. Since the area of cut-and-cover construction for Alternative 1

would be smaller than for the No Action Alternative, the potential noise impacts of Alternative 1 could be more isolated to receptors closest to Second Avenue as compared to the No Action Alternative. (See **Table 10-1** in Chapter 10 of this EA, “Air Quality,” for a comparison of the cut-and-cover areas among the No Action Alternative and the Build entrance alternatives.)

Construction activities for Alternative 1 would require less spoils removal and fewer truck trips than the No Action Alternative. 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 on a typical day. Therefore, the construction noise related to trucking activity during construction of Alternative 1 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 1 it will not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 1 would be consistent those of the No Action Alternative.

*11.3.1.3 72ND STREET STATION ENTRANCE ALTERNATIVE 3 (ESCALATORS ON THE NORTH SIDE OF 72ND STREET EAST OF SECOND AVENUE)*

Much of the construction activity for Alternative 3 would be the same as the No Action Alternative. Therefore, like the No Action Alternative, station construction for Alternative 3 would result in significant adverse noise impacts and mitigation would be required.

As described in Chapter 3, “Construction Activities,” of this EA (see also **Table 10-1** in the previous chapter), Alternative 3 would require cut-and-cover construction at two locations: within and near the building line of 300 East 72nd Street and in the north sidewalk of 72nd Street east of Second Avenue. Since the zone of cut-and-cover construction for Alternative 3 would extend farther than for the No Action Alternative, the potential construction-period noise impacts could be perceptible at a greater distance from the intersection of Second Avenue and 72nd Street. As stated on page 12-7 of the FEIS, construction noise could be perceptible at distances of up to 750 feet from the construction zone, depending upon the line-of-sight, the influence of intervening buildings, and the proximity of other ambient noise sources. Using this standard, noise levels from construction of Alternative 3 could be perceptible at distances of up to 1,020 feet east of Second Avenue. It is anticipated that traffic noise on First Avenue and on 72nd Street itself would reduce the effects of construction noise on receptors east the intersection of First Avenue and East 72nd Street, but nevertheless, Alternative 3 would potentially result in perceptible noise levels for a greater distance east along 72nd Street than the No Action Alternative.

Construction activities for Alternative 3 would require more spoils removal and more truck trips than the No Action Alternative, and therefore more noise associated with this activity. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change materially with Alternative 3, since those numbers represent the maximum anticipated excavation rate on a typical day. Therefore, the construction noise related to trucking activity during construction of Alternative 3 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 3 it will not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive

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

---

uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 3 would be consistent those of the No Action Alternative.

With respect to vibration, as described in Chapter 8 of this EA (“Historic Resources”), in Alternative 3, the area to be excavated for the station entrances on the north side of 72nd Street would be within 200 feet of the building at 325 East 72nd Street. Therefore, in accordance with the Second Avenue Subway project’s PA, this building would be included in a Construction Protection Plan developed for the Second Avenue Subway project so as to avoid potential accidental damage during construction. This would not be required for the No Action Alternative.

*11.3.1.4 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)*

Much of the construction activity for Alternative 4 would be the same as the No Action Alternative. Therefore, like the No Action Alternative, station construction for Alternative 4 would result in significant adverse noise impacts and mitigation would be required.

As described in Chapter 3, “Construction Activities,” of this EA (see also **Table 10-1**), cut-and-cover construction for Alternative 4 entrances would be required at three locations: within and near the building line of 300 East 72nd Street; in the east sidewalk of Second Avenue between 72nd and 73rd Streets; and in the north sidewalk of 72nd Street east of Second Avenue. The cut-and-cover construction of both of Alternative 4’s northeast corner entrances would adjacent to 305 East 72nd Street and would extend 150 feet east of Second Avenue. The noise impacts for the construction of the station entrances for Alternative 4 would be much like those predicted for the No Action Alternative since the No Action Alternative contemplates cut-and-cover construction at the same or immediately adjacent locations.

Construction activities for Alternative 4 would result in more spoils removal and more truck trips than the No Action Alternative, and therefore more noise associated with this activity. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change materially with Alternative 4, since those numbers represent the maximum anticipated excavation rate on a typical day. Therefore, the construction noise related to trucking activity during construction of Alternative 4 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 4 it would not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 4 would be consistent with those of the No Action Alternative.

With respect to vibration, as described in Chapter 8 of this EA (“Historic Resources”), in Alternative 4, the area to be excavated for the station entrances on the north side of 72nd Street would be within 200 feet of the building at 325 East 72nd Street. Therefore, in accordance with the Second Avenue Subway project’s PA, this building would be included in a Construction Protection Plan developed for the Second Avenue Subway project so as to avoid potential accidental damage during construction. This would not be required for the No Action Alternative.

### 11.3.2 PERMANENT IMPACTS OF THE 72ND STREET STATION ENTRANCE ALTERNATIVES

#### *11.3.2.1 72ND STREET STATION NO ACTION ENTRANCE ALTERNATIVE*

The No Action Alternative would have an elevator entrance on the southeast corner of 72nd Street and Second Avenue that would include a machine room located above the elevators. This is not anticipated to be a substantial noise generator, and therefore, the No Action Alternative would not result in additional noise and vibration impacts than those identified in the FEIS.

#### *11.3.2.2 72ND STREET STATION ENTRANCE ALTERNATIVE 1 (ELEVATORS AT THE SOUTHEAST CORNER AT 300 EAST 72ND STREET)—PREFERRED ALTERNATIVE*

The elevator entrance on the southeast corner of 72nd Street and Second Avenue would be enclosed within a new building, and the elevator machine room would not be a substantial noise generator for the surrounding area. Therefore, Alternative 1 would not result in additional noise and vibration impacts as compared to the No Action Alternative.

#### *11.3.2.3 72ND STREET STATION ENTRANCE ALTERNATIVE 3 (ESCALATORS ON THE NORTH SIDE OF 72ND STREET EAST OF SECOND AVENUE)*

Like Alternative 1, the elevator entrance on the southeast corner of 72nd Street and Second Avenue in Alternative 3 would be enclosed within a new building, and the elevator machine room would not be a substantial noise generator for the surrounding area. Therefore, Alternative 3 would not result in additional noise and vibration impacts as compared to the No Action Alternative.

#### *11.3.2.4 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)*

Like Alternative 1, the elevator entrance on the southeast corner of 72nd Street and Second Avenue in Alternative 4 would be enclosed within a new building, and the elevator machine room would not be a substantial noise generator for the surrounding area. Therefore, Alternative 4 would not result in additional noise and vibration impacts as compared to the No Action Alternative.

### **11.3.3 SUMMARY: THE 72ND STREET STATION ENTRANCE ALTERNATIVES**

As in the No Action Alternative, construction activities required for Alternatives 1, 3, and 4 would result in significant adverse noise impacts that cannot be fully mitigated because of the proximity of residences and other sensitive uses to construction. Alternative 3 would potentially result in perceptible noise levels for a greater distance east along 72nd Street than the No Action Alternative. With respect to vibration, Alternatives 3 and 4 would incorporate the historic building at 325 East 72nd Street into the Second Avenue Subway project's Construction Protection Plan so that accidental damage to the building does not occur, which would not be required for the No Action Alternative.

Once the subway is completed, neither the No Action Alternative nor Alternative 1, 3, or 4 would result in significant adverse noise or vibration impacts.

## **11.4 POTENTIAL IMPACTS OF THE 86TH STREET STATION ENTRANCE ALTERNATIVES**

### **11.4.1 CONSTRUCTION IMPACTS OF THE 86TH STREET STATION ENTRANCE ALTERNATIVES**

#### *11.4.1.1 86TH STREET NO ACTION ENTRANCE ALTERNATIVE*

Much of the construction activity for the 86th Street Station associated with the No Action Alternative would be the same as identified in the FEIS and in **Table 11-1** above. (However, the No Action Alternative would not involve demolition of the buildings at the southeast corner of Second Avenue and 86th Street, which was required for the FEIS design.) Cut-and-cover activities for the No Action Alternative would extend 50 feet east of Second Avenue, which is less than the analysis presented in the FEIS. Station construction for the No Action Alternative would result in significant adverse noise impacts, and the mitigation presented in the FEIS would be required .

Construction activities for the No Action Alternative would require the removal of spoils. The process of removing spoils, and the associated trucking activities would generate noise during construction. The No Action Alternative would result in removal of approximately 14,900 cubic yards (1,490 truck loads) of loose fill. Although there have been changes in the design since publication of the FEIS, the projected daily volumes of 60 to 70 trucks from the FEIS are unchanged, since those numbers represent the maximum anticipated excavation rate on a typical day.

As noted above, MTA New York City Transit will require its contractors to implement noise mitigation measures during construction. Potential measures for construction airborne noise include: enclosing areas where spoils from tunnel operations would be loaded into trucks, or at station locations where spoils removal will take place for long durations during the daytime or at night; placing some equipment or operations below grade in shielded locations; changing construction sequencing to reduce noise impacts by combining noisy operations to occur in the same time period or by spreading them out; avoiding late night activities; and using alternative construction methods, such as avoiding impact pile installation in sensitive areas, using special low noise emission level equipment, and selecting and specifying quieter demolition methods. Despite these measures, it will not be possible to fully mitigate all airborne noise impacts of the No Action Alternative because of the proximity of residences and other sensitive uses to construction.

The Manhattan Apartments will be located in close proximity of the area to be excavated for the new 86th Street Station cavern. In accordance with Exhibit E of the Programmatic Agreement, the Manhattan Apartments will be included in a Construction Protection Plan developed for the Second Avenue Subway project to avoid potential accidental damage during construction.

*11.4.1.2 86TH STREET STATION ENTRANCE ALTERNATIVE 2 (ESCALATORS ON THE SOUTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)*

Many construction activities for the 86th Street Station with Alternative 2 would be the same as the No Action Alternative (see **Table 11-1** above). Therefore, like the No Action Alternative, construction for Alternative 2 would result in significant adverse noise impacts, and mitigation would be required.

Alternative 2 would result in cut-and-cover construction along the south side of 86th Street from Second Avenue for approximately 330 feet east of the intersection. (See **Table 10-2** in Chapter 10 of this EA, "Air Quality," for a comparison of the cut-and-cover areas among the No Action Alternative and the Build entrance alternatives.) This area of cut-and-cover activity is larger than would be required for the No Action Alternative. As stated on page 12-7 of the FEIS, construction noise could be perceptible at distances of up to 750 feet from the construction zone, depending upon the line-of-sight, the influence of intervening buildings, and the proximity of other ambient noise sources. Using this standard, noise levels from construction of Alternative 2 could be perceptible at distances of up to 1,050 feet east of Second Avenue. It is anticipated that traffic noise on First Avenue and 86th Street itself would reduce the effects of construction noise on receptors east the intersection of First Avenue and 86th Street, but nevertheless, Alternative 2 would potentially result in perceptible noise levels for a greater distance east along 86th Street than would result from the No Action Alternative.

Construction activities for Alternative 2 would require more spoils removal and more truck trips than the No Action Alternative, and therefore more noise associated with this activity. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change materially with Alternative 2, since those numbers represent the maximum anticipated excavation rate on a typical day. Therefore, the construction noise related to trucking activity during construction of Alternative 2 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 2 it would not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 2 would be consistent with those of the No Action Alternative.

*11.4.1.3 86TH STREET STATION ENTRANCE ALTERNATIVE 5 (ELEVATORS AT SOUTHEAST CORNER)*

Although much of the construction for Alternative 5 would take place within the building lines of 1654 and 1656 Second Avenue, cut-and-cover construction would be required for approximately 80 feet east of Second Avenue on the south side of 86th Street, and many of the other construction activities for Alternative 5 would be the same as the No Action Alternative (see **Table 11-1** above). Therefore, like No Action Alternative, station construction for Alternative 5 would result in significant adverse noise impacts and mitigation would be required.

Since the No Action Alternative also would involve cut-and-cover construction activities along Second Avenue, the noise impacts of the No Action Alternative and Alternative 5 would be the same or nearly the same for receptors along Second Avenue. Alternative 5 would result in cut-and-cover construction on 86th Street for a shorter distance than the No Action Alternative. The resultant noise levels from Alternative 5 would be the same as or less than those of the No Action Alternative.

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

---

Construction activities for Alternative 5 would require the removal of more spoils, and therefore more truck trips and more noise associated with this activity. The increase in spoils removal would not be large, however, and over the duration of construction, the amount of spoils removed with Alternative 5 and the number of trucks needed to cart them away would not change materially as compared to the No Action Alternative. Therefore, the construction noise related to trucking activity during construction of Alternative 5 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 5 it will not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 5 would be consistent with those of the No Action Alternative.

*11.4.1.4 86TH STREET STATION ENTRANCE ALTERNATIVE 7 (ESCALATORS ON THE NORTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)—PREFERRED ALTERNATIVE*

Many construction activities for Alternative 7 would be the same as for the No Action Alternative, as identified in the FEIS (see **Table 11-1** above). Therefore, like the No Action Alternative, station construction for Alternative 7 would result in significant adverse noise impacts and mitigation would be required.

Alternative 7 and the No Action Alternative would both require cut-and-cover activities within Second Avenue and along 86th Street, and both would result in similar noise impacts from this construction activity.

As described in Chapter 3, “Construction Activities,” of this EA (see also **Table 10-2** in the previous chapter), Alternative 7 would require cut-and-cover construction on both sides of 86th Street, for a distance of up to 270 feet from the intersection on the north side and for a distance of up to 50 feet on the south side, which is a larger zone of cut-and-cover activities than is required for the No Action Alternative. As stated on page 12-7 of the FEIS, construction noise could be perceptible at distances of up to 750 feet from the construction zone, depending upon the line-of-sight, the influence of intervening buildings, and the proximity of other ambient noise sources. Using this standard, noise levels from construction of Alternative 7 could be perceptible at distances of up to 1,020 feet east of Second Avenue. It is anticipated that traffic noise on First Avenue and 86th Street itself would reduce the effects of construction noise on receptors east the intersection of First Avenue and 86th Street, but nevertheless, Alternative 7 would potentially result in perceptible noise levels for a greater distance east along 86th Street than the No Action Alternative.

Construction activities for Alternative 7 would require more spoils removal and more truck trips than the No Action Alternative, and therefore more noise associated with this activity. Nonetheless, the estimate of 60 to 70 daily truck loads for the No Action Alternative would not change materially with Alternative 7, since those numbers represent the maximum anticipated excavation rate on a typical day. Therefore, the construction noise related to trucking activity during construction of Alternative 7 would be similar to that of the No Action Alternative.

Like the No Action Alternative, with Alternative 7 it will not be possible to fully mitigate all airborne noise impacts of construction because of the proximity of residences and other sensitive

uses to construction. Therefore, overall, the potential significant adverse noise impacts that may result from Alternative 7 would be consistent those of the No Action Alternative.

#### **11.4.2 PERMANENT IMPACTS OF THE 86TH STREET STATION ENTRANCE ALTERNATIVES**

##### *11.4.2.1 86TH STREET STATION NO ACTION ENTRANCE ALTERNATIVE*

The No Action Alternative would have an elevator entrance on the southeast corner of 86th Street and Second Avenue that would include a machine room located above the elevators. This is not anticipated to be a substantial noise generator, and therefore, the No Action Alternative would not result in additional noise and vibration impacts as compared to the conclusions of the FEIS.

##### *11.4.2.2 86TH STREET STATION ENTRANCE ALTERNATIVE 2 (ESCALATORS ON THE SOUTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)*

Alternative 2 would have the same elevator entrance as the No Action Alternative, which would not result in additional noise and vibration impacts.

##### *11.4.2.3 86TH STREET STATION ENTRANCE ALTERNATIVE 5 (ELEVATORS AT SOUTHEAST CORNER)*

The elevator entrance on the southeast corner of 86th Street and Second Avenue would be enclosed within a new building, and the elevator machine room would not be a substantial noise generator for the surrounding area. Therefore, Alternative 5 would not result in additional noise and vibration impacts as compared to the No Action Alternative.

##### *11.4.2.4 86TH STREET STATION ENTRANCE ALTERNATIVE 7 (ESCALATORS ON THE NORTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)—PREFERRED ALTERNATIVE*

Alternative 7 would have the same elevator entrance as the No Action Alternative, which would not result in additional noise and vibration impacts.

#### **11.4.3 SUMMARY: THE 86TH STREET STATION ENTRANCE ALTERNATIVES**

As with the No Action Alternative, construction activities required for the Alternatives 2, 5, and 7 would result in significant adverse noise impacts that cannot be fully mitigated because of the proximity of residences and other sensitive uses to construction. Construction of Alternatives 2 and 7 would potentially result in perceptible noise levels for a greater distance east along 86th Street than would result from the No Action Alternative. With respect to vibration, all three Build alternatives, like the No Action Alternative, would incorporate the historic Manhattan Apartments into the Second Avenue Subway project's Construction Protection Plan so that accidental damage to the building does not occur.

Once the subway is completed, neither the No Action Alternative nor Alternative 2, 5, or 7 would result in significant adverse noise or vibration impacts. \*