

## **10.1 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 air quality.

## **10.2 FEIS FINDINGS**

The Final Environmental Impact Statement (FEIS) includes an analysis of the Second Avenue Subway project's effects on air quality in Chapter 11, "Air Quality." As discussed in the FEIS (see page 11-9), during construction of the subway, heavy trucking activity as well as substantial diversions of and increased congestion for existing traffic can be expected when cut-and-cover excavation takes place at station locations. In addition, air quality in close proximity to construction sites would also be affected by fugitive dust, diesel emissions, and other particulate matter created at active construction sites.

The FEIS included a microscale, construction-period carbon monoxide (CO) analysis for five receptor sites along the 8.5-mile alignment of the Second Avenue Subway. The modeling effort accounted for increased congestion, lower running speeds, and increased idle emissions. The five locations were selected to represent reasonable worst-case conditions based on the results of the traffic analysis presented in the FEIS. Although a detailed analysis was only conducted for the five intersections (124th Street and Park Avenue, 96th Street and Lexington Avenue, 96th Street and Second Avenue, 34th Street and Lexington Avenue, and 34th Street and Second Avenue), these receptor sites represented the reasonable worst-case conditions that would be likely to occur throughout the entire alignment area during any construction phase.

Two construction zones were selected for construction activity modeling of PM<sub>10</sub> and PM<sub>2.5</sub>: the area between 97th and 92nd Streets ("the 90s") to be constructed in Phase 1 and a corresponding area in the 30s concentrated near 36th Street ("the 30s") to be constructed in Phase 3. As noted earlier, these sites were selected because they could experience the most intense and longest duration construction activities along the alignment, because both locations have heavy existing traffic volumes as well as sensitive receptors nearby, and because both areas can represent activities that would occur in other places along the alignment. At both locations, two construction activities were modeled separately: the open-cut station excavation process and the spoils removal process for the TBM. These activities were chosen for modeling because they would each require a large number of construction vehicles and machinery over a multi-year period and because they would also occur at all locations where stations would be constructed. Further, although a variety of construction techniques could be used to build a particular project element, these two construction activities (open cut station excavation and TBM spoils removal) would result in the greatest potential effect to air quality. Consequently, the activities analyzed represent the worst-case conditions at those construction sites, and the results of the analysis for

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these activities can be used to make conclusions about other portions of the subway alignment where less construction activity would take place.

The analysis conducted concluded that no significant adverse air quality impacts related to carbon monoxide (CO) would occur during construction. For particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), the Second Avenue Subway project's construction activities will be required to follow a dust suppression program, to use ultra low sulfur diesel fuel and implement diesel particulate filters or other effective diesel emission controls for off-road and non-road construction equipment, and to limit idling time for non-road and on-road equipment. These mitigation measures were imposed to minimize the significant adverse PM-related air quality impacts of the construction.

As described in the FEIS, the completion of the Second Avenue Subway will result in overall benefits to local and regional air quality by reducing vehicle trips and vehicle miles of travel.

### **10.3 POTENTIAL IMPACTS FROM THE 72ND STREET STATION ENTRANCE ALTERNATIVES**

As described in the FEIS, construction impacts on air quality would result from activities including cut-and-cover construction, excavation, and removal of spoils as well as emissions from construction vehicles. Once operational, the Second Avenue Subway will benefit air quality by reducing vehicle trips. The following sections describe the potential construction-period and operational effects of the station entrance alternatives at 72nd Street.

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

##### *10.3.1.1 72ND STREET STATION NO ACTION ENTRANCE ALTERNATIVE*

The No Action Alternative at the 72nd Street Station would require construction activities, including cut-and-cover construction and spoils removal, that would generate fugitive dust. Therefore, consistent with the findings of the FEIS, the No Action Alternative for the 72nd Street Station entrance has potential to result in significant adverse impacts on air quality. Construction activities for the 72nd Street Station entrance alternatives are described in Chapter 3 of this EA, "Construction Activities," in section 3.3.

The Metropolitan Transportation Authority (MTA) New York City Transit will implement a dust-suppression program during construction as described in the FEIS. The program will include using dust covers for trucks, (water) spray misting exposed areas, and using safe chemical dust suppressants to treat and control spoils at construction sites that could otherwise be a source of substantial fugitive dust emissions. In addition, a fence of an appropriate height will surround construction sites to reduce the suspension of dust by wind erosion.

The FEIS presented conservative estimates of potential carbon monoxide (CO) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions for representative station construction locations. Because the No Action Alternative would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts.

10.3.1.2 72ND STREET STATION ENTRANCE ALTERNATIVE 1 (ELEVATORS AT THE SOUTHEAST CORNER AT 300 EAST 72ND STREET)—PREFERRED ALTERNATIVE

Like the No Action Alternative, Alternative 1 would require construction activities that include cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 1 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-1**, Alternative 1 would involve limited cut-and-cover construction on a building lot and within the sidewalk, which would be less cut-and-cover construction than the No Action Alternative. Alternative 1 would require removal of a total of 4,450 cubic yards less, or 445 fewer truck loads, of spoils than the No Action Alternative, and therefore would also have less potential for fugitive dust emissions from construction activities. As noted in Chapter 3 of this EA (see section 3.3), the volume of trucks per day will not change, regardless of the volume of spoils removed, because those numbers represent the maximum anticipated excavation rate on a typical day. Instead, the duration of spoils removal for Alternative 1 would be approximately six days shorter than for the No Action Alternative.

**Table 10-1  
Cut-and-Cover Construction Requirements  
for the 72nd Street Station Entrance Alternatives**

Alternative	Notes
No Action Alternative	Activities would occur within the building at 305 East 72nd Street and on the south side of 72nd Street east of Second Avenue. The cut-and-cover zone would extend 150 feet east of Second Avenue, which is consistent with the FEIS.
Alternative 1 (Preferred)	Activities would occur on the lot at 300 East 72nd Street with cut-and-cover construction extended into the sidewalk on the east side of Second Avenue. The zone of cut-and-cover construction for Alternative 1 would be less extensive than identified in the FEIS as well as the No Action Alternative.
Alternative 3	Cut-and-cover construction would be required along the north side of 72nd Street for a distance of 270 feet east of Second Avenue and on the lot at 300 East 72nd Street, with cut-and-cover construction extended into the sidewalk on the east side of Second Avenue. The zone of cut-and-cover construction for Alternative 3 would be more extensive than identified in the FEIS as well as the No Action Alternative.
Alternative 4	Cut-and-cover construction would be required on the north side of East 72nd Street for a distance of 150 feet east of Second Avenue and activities would occur on the lot at 300 East 72nd Street, with cut-and-cover construction extended into the sidewalk on the east side of Second Avenue. Cut-and-cover activities for the station entrance within the east sidewalk of Second Avenue north of 72nd Street would be undertaken with other station construction activities required for the FEIS design; therefore, the cut-and-cover zone for this entrance would not materially change as compared to the FEIS and the No Action Alternative.

The total duration of construction for the 72nd Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 1 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, and therefore it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 1 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar.

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Overall, like the No Action Alternative, Alternative 1 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used to mitigate the potential impacts of Alternative 1. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 1, as they would for the No Action Alternative.

*10.3.1.3 72ND STREET STATION ENTRANCE ALTERNATIVE 3 (ESCALATORS ON THE NORTH SIDE OF 72ND STREET EAST OF SECOND AVENUE)*

Like the No Action Alternative, Alternative 3 would require construction activities that would include cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 3 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-1**, Alternative 3 would involve cut-and-cover construction within a larger area of the street and sidewalk than the No Action Alternative. It would increase the amount of spoils to be removed by 11,890 cubic yards, or 1,189 additional truck loads, compared to the No Action Alternative. Since the number of truck loads of materials to be removed each day would not change from an average of 60 to 70 truck loads per day, regardless of the volume of spoils to be removed, this increase would increase the number of days of spoils removal for the entrance alternative by 19 days.

The total duration of construction for the 72nd Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 3 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 3 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar. Furthermore, the amount of spoils removed from the 72nd Street Station construction under Alternative 3 would be substantially less than at the 90s and the 30s construction locations analyzed in the FEIS, which were the locations for which a quantified air quality analysis was conducted.

Overall, like the No Action Alternative, Alternative 3 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts of Alternative 3. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 1, as they would for the No Action Alternative.

*10.3.1.4 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)*

Like the No Action Alternative, Alternative 4 would require construction activities that would include cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 4 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-1**, Alternative 4 would require cut-and-cover construction within a larger area of the street and sidewalk than the No Action Alternative. It would increase the amount of spoils to be removed by a total of 2,510 cubic yards, or 251 additional truck loads, compared to the No Action Alternative. Since the number of truck loads of materials to be removed each day would not change from 60 to 70 truck loads per day, regardless of the volume of spoils to be removed, this increase would increase the number of days of spoils removal for the entrance alternative by four days.

The total duration of construction for the 72nd Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 4 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 4 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar. Furthermore, the amount of spoils removed from the 72nd Street Station construction under Alternative 4 would be substantially less than at the 90s and the 30s construction locations analyzed in the FEIS.

Overall, like the No Action Alternative, Alternative 4 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts of Alternative 4. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 1, as they would for the No Action Alternative.

### **10.3.2 PERMANENT IMPACTS OF THE 72ND STREET STATION ENTRANCE ALTERNATIVES**

As described in the FEIS, the completion of the Second Avenue Subway would result in benefits to local and regional air quality by reducing vehicle trips. The No Action Alternative and Alternatives 1, 3, and 4 for the 72nd Street Station would not change this conclusion.

Unlike the No Action Alternative, Alternative 1 (Preferred Alternative) would not require sidewalk bump-outs, and therefore, would not affect traffic flow. The No Action Alternative and Alternatives 3 and 4 would require sidewalk bump-outs. However, these bump-outs would be within curbside lanes and would not reduce the number of moving lanes on East 72nd Street. Overall, the No Action Alternative and Alternatives 1, 3, and 4 for the 72nd Street Station would not result in long-term adverse effects on air quality.

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

During construction, like the No Action Alternative, the three 72nd Street Build station entrance alternatives—Alternatives 1, 3, and 4—all have the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts. This potential impact would be less with Alternative 1, since it would generate 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.

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Like the No Action Alternative, the three Build station entrance alternatives would not adversely affect traffic flow once completed and therefore would not result in significant adverse impacts once construction is completed.

**10.4 POTENTIAL IMPACTS FROM THE 86TH STREET STATION  
ENTRANCE ALTERNATIVES**

**10.4.1 CONSTRUCTION IMPACTS OF THE 86TH STREET STATION ENTRANCE  
ALTERNATIVES**

*10.4.1.1 86TH STREET STATION NO ACTION ENTRANCE ALTERNATIVE*

The No Action Alternative at the 86th Street Station would require construction activities, including cut-and-cover construction and spoils removal, that would generate fugitive dust. Therefore, consistent with the findings of the FEIS, the No Action Alternative for the 86th Street Station entrance has potential to result in significant adverse impacts on air quality. Construction activities for the 86th Street Station entrance alternatives are described in Chapter 3 of this EA, “Construction Activities,” in section 3.4.

As described above, MTA New York City Transit will implement a dust-suppression program during construction as described in the FEIS. The program will include using dust covers for trucks, (water) spray misting exposed areas, and using safe chemical dust suppressants to treat and control spoils at construction sites that could otherwise be a source of substantial fugitive dust emissions. In addition, a fence of an appropriate height will surround construction sites to reduce the suspension of dust by wind erosion.

The FEIS presented conservative estimates of potential carbon monoxide (CO) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions for representative station construction locations. Because the No Action Alternative would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts.

*10.4.1.2 86TH STREET STATION ENTRANCE ALTERNATIVE 2 (ESCALATORS ON THE  
SOUTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)*

Like the No Action Alternative, Alternative 2 would require construction activities including cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 2 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-2**, Alternative 2 would require additional cut-and-cover construction as compared to the No Action Alternative. It would increase the amount of spoils to be removed by 21,500 cubic yards, resulting in 2,150 additional truck loads, compared to the No Action Alternative. Since the number of truck loads of materials to be removed each day would not change regardless of the volume of spoils to be removed, this increase would increase the number of days of spoils removal for the entrance alternative by 33 days.

The total duration of construction for the 86th Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 2 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of

the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 2 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar. Furthermore, the total amount of spoils removed from the 86th Street Station with Alternative 2 would be substantially less than at the 90s and the 30s construction locations analyzed in the FEIS, which were the locations for which a quantified air quality analysis was conducted.

**Table 10-2  
Cut-and-Cover Construction Requirements  
for the 86th Street Station Entrance Alternatives**

Alternative	Notes
No Action Alternative	Cut-and-cover would be required for the entrance at 305 East 86th Street for a distance of 50 feet east of Second Avenue, which is less extensive than required for the FEIS design.
Alternative 2	Cut and cover construction would be required for the escalator entrances and the elevator entrance on the south side of 86th Street for a distance of 330 feet east from the corner of Second Avenue, which is more extensive than identified in the FEIS as well as the No Action Alternative.
Alternative 5	Construction would occur on the lots at 1654 and 1656 Second Avenue and cut-and-cover construction would also be required in the south sidewalk on 86th Street for a distance of approximately 80 feet east of Second Avenue, which is less extensive than identified in the FEIS. The area of cut-and-cover for Alternative 5 would be slightly longer (30 feet) than the No Action Alternative.
Alternative 7 (Preferred)	Cut and cover construction would be required for the escalator entrances on the north side of 86th Street and for the elevator entrance on the south side of 86th Street. The maximum length of the cut-and-cover zone for this alternative would be 270 feet east from the corner of Second Avenue on the north side of 86th Street and 50 feet on the south side of 86th Street, which is more extensive than identified in the FEIS as well as the No Action Alternative.

Overall, like the No Action Alternative, Alternative 2 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts of Alternative 2. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 2, as they would for the No Action Alternative.

*10.4.1.3 86TH STREET STATION ENTRANCE ALTERNATIVE 5 (ELEVATORS AT SOUTHEAST CORNER)*

Like the No Action Alternative, Alternative 5 would require construction activities that include cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 5 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-2**, Alternative 5 would involve excavation of the building lots at 1654 and 1656 Second Avenue and the adjacent sidewalk on the south side of 86th Street, a slightly larger amount of excavation than required for the No Action Alternative. This would require the removal of 1,560 cubic yards more, or 156 additional truck loads, of spoils than the No Action Alternative. Since the number of truck loads of materials to be removed each day would not change, this increase would increase the number of days of spoils removal for Alternative 5 by three days in comparison to the No Action Alternative.

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The total duration of construction for the 86th Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 5 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 5 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar. Furthermore, the total amount of spoils removed from the 86th Street Station with Alternative 5 would be substantially less than at the 90s and the 30s construction locations analyzed in the FEIS.

Overall, like the No Action Alternative, Alternative 5 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts of Alternative 5. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 5, as they would for the No Action Alternative.

*10.4.1.4 86TH STREET STATION ENTRANCE ALTERNATIVE 7 (ESCALATORS ON THE NORTH SIDE OF 86TH STREET EAST OF SECOND AVENUE)—PREFERRED ALTERNATIVE*

Like the No Action Alternative, Alternative 7 would require construction activities that would include cut-and-cover construction, excavation, and removal of spoils. Thus, the No Action Alternative and Alternative 7 would generate vehicle emissions and fugitive dust during construction.

As shown in **Table 10-2**, Alternative 7 would involve cut-and-cover excavation over a larger area of the street and sidewalk than the No Action Alternative and therefore would increase the amount of spoils to be removed. This alternative would require the removal of 16,080 cubic yards more of spoils, or 1,608 additional truck loads, in comparison to the No Action Alternative. Since the number of truck loads of materials to be removed each day would not change, this increase would increase the number of days of spoils removal for the entrances by 25 days in comparison to the No Action Alternative.

The total duration of construction for the 86th Street Station would still be five years as identified in the FEIS and consistent with the No Action Alternative. Because Alternative 7 would not substantially change the number of daily truck trips or the amount of spoils to be removed as compared to the analysis presented in the FEIS, it would not alter the conclusions of the FEIS with respect to construction-period air quality impacts. The cut-and-cover construction activities for the No Action Alternative and Alternative 7 would be similar to other cut-and-cover construction locations analyzed in the FEIS, and the effects on air quality would therefore also be similar. Furthermore, the total amount of spoils removed from the 86th Street Station with Alternative 7 would be substantially less than at the 90s and the 30s construction locations analyzed in the FEIS.

Overall, like the No Action Alternative, Alternative 7 has the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts of Alternative 7. The same dust suppression program and other construction mitigation measures as described in the FEIS would be implemented for Alternative 7, as they would for the No Action Alternative.

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

As described in the FEIS, the completion of the Second Avenue Subway would result in benefits to local and regional air quality by reducing vehicle trips. The No Action Alternative and Alternatives 2, 5, and 7 for the 86th Street Station entrance would not change this conclusion.

Unlike the No Action Alternative, Alternative 5 would not require sidewalk bump-outs, and therefore, would not affect traffic flow. The No Action Alternative and Alternatives 2 and 7 (Preferred Alternative) would require sidewalk bump-outs. However, these bump-outs would be within curbside lanes and would not reduce the number of moving lanes on East 86th Street. Overall, the No Action Alternative and Alternatives 2, 5, and 7 for the 86th Street Station would not result in long-term adverse effects on air quality.

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

During construction, like the No Action Alternative, the 86th Street Build station entrance alternatives—Alternatives 2, 5, and 7—all have the potential to result in significant adverse impacts on air quality during construction, and the comprehensive mitigation measures outlined in the FEIS would be used for to mitigate the potential impacts.

Like the No Action Alternative, the three Build station entrance alternatives would not adversely affect traffic flow once completed and therefore would not result in significant adverse impacts once construction is completed. \*