Appendix U

Air Quality Technical Memorandum

- Final EIS Addendum U, Air Quality Technical Memorandum, July 2022

Chicago Red Line Extension Project

Air Quality

Final EIS Addendum U

July 2022

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Abbreviations

API	area of potential impact
BMPs	best management practices
CHA	Chicago Housing Authority
CMAP	Chicago Metropolitan Agency for Planning
CN/MED	Canadian National/Metra Electric District
CNG	compressed natural gas
CO	carbon monoxide
Conrail	Consolidated Rail Corporation
CTA	Chicago Transit Authority
EA	Environmental Assessment
EIS	Environmental Impact Statement
FMVECP	Federal Motor Vehicle Emission Control Program
FTA	Federal Transit Administration
GHG	greenhouse gas
IAAQS	Illinois Ambient Air Quality Standards
IEPA	Illinois Environmental Protection Agency
IHB	Indiana Harbor Belt Railroad
MSAT	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NS	Norfolk Southern
Pace	Pace Suburban Bus Service
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers and less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 micrometers and less
ppm	parts per million
RLE	Red Line Extension
RTP	Regional Transportation Plan
SIP	State Implementation Plan
TIP	Transportation Improvement Program
UPRR	Union Pacific Railroad
USEPA	U.S. Environmental Protection Agency
VMT	vehicle-miles traveled
$\mu g/m^3$	micrograms per cubic meter

Section 1 - Summary

This Air Quality Addendum updates the analyses of air quality impacts under the No Build Alternative and the Preferred Alignment of the Union Pacific Railroad (UPRR) Rail Alternative compared with the Draft Environmental Impact Statement (EIS). For the Preferred Alignment, this Air Quality Addendum considers existing air quality, potential air quality impacts during construction and operation, mitigation measures, and conformity with the Clean Air Act. The air pollutants evaluated are carbon monoxide (CO) at congested intersections, greenhouse gas (GHG) emissions from project-related vehicles, particulate matter from vehicles, mobile source air toxics (MSAT), and emissions during construction activities.

The air quality impacts under the Preferred Alignment are summarized in **Table 1-1** below. Consistent with the findings of the Draft EIS and **Appendix U**, there would be no adverse impacts on regional and local air quality as a result of either the No Build Alternative or the Preferred Alignment.

Table 1-1: Air Quality Impact Summary

Alternative	Permanent Impacts		Construction Impacts
	Regional Air Emissions	Local Air Emissions	
No Build Alternative	No Impacts	No impacts	No impacts
Preferred Alignment	Beneficial, from passenger diversions to the Red Line	No adverse impacts	Impacts would not be adverse after mitigation

For the air quality analyses, the Draft EIS and **Appendix U** discussed the East and West Options of the UPRR Rail Alternative as one alternative. Because nearly all of the project-related air pollutant emissions would come from motor vehicles, and because the project-related motor vehicles would move throughout the entire area of potential impact (API), the results of the air quality analysis applied equally to all of the UPRR options in the Draft EIS as well as to the 120th Street yard and shop. It made no difference in the air quality analyses whether the Red Line trains would be on the east side or on the west side of the UPRR right-of-way, and air pollutant emissions would be the same in each case (**Appendix U**).

Under the Preferred Alignment, air pollutant emissions would be the same as for the East and West Options as discussed in the Draft EIS. The 130th Street station relocation would not change the number of project-related vehicles moving throughout the API. Shifting its location approximately 100 feet to the west would not change the air emissions of the 120th Street yard and shop, and its associated emissions would not be markedly different. Because it makes no difference in the air quality analysis whether the Red Line trains would be on the east or west side of the UPRR, the 107th Place cross-over under the Preferred Alignment would not change air quality impacts evaluated in the Draft EIS.

During operation of the Preferred Alignment, the regional emissions of air pollutants from project-related vehicles would be the same as for the East and West Options in the Draft EIS. The Preferred Alignment would reduce vehicle miles traveled (VMTs) resulting from passenger diversions to the Red Line, and therefore the Preferred Alignment would slightly lower regional emissions of GHGs, particulate matter, and MSAT as compared with the No Build Alternative. Because the modeled CO concentrations at congested intersections in the Draft EIS were well below state and federal standards, and because vehicular traffic would not considerably change under the Preferred Alignment, CO concentrations under the Preferred Alignment are not anticipated to exceed the air quality standards. No adverse air quality impacts are expected to occur during operation of the Preferred Alignment, and additional air quality mitigation would not be required.

Because the API is located within a nonattainment area for ozone, the Preferred Alignment must comply with the transportation conformity regulations under the Clean Air Act. The Red Line Extension (RLE) Project is included in the Chicago Metropolitan Agency for Planning's (CMAP) *ON TO 2050*, which is the conforming regional transportation plan (RTP) for the Chicago region. The RLE Project also is included in CMAP's *FFY 2019-2024 Transportation Improvement Program* (TIP). Because it is included in *ON TO 2050* and the TIP, the Preferred Alignment conforms to the State Implementation Plan (SIP) for ozone.

Impacts during construction would be associated with temporary and localized emissions of particulate matter and engine exhaust from construction vehicles and equipment. Construction air emissions and mitigation measures under the Preferred Alignment would be similar to the East and West Options in the Draft EIS. Construction mitigation would include best management practices (BMPs) to reduce construction dust, emissions controls on construction equipment, use of low-sulfur fuels, and limiting equipment operations such as excessive idling. In addition, the contractor would follow Chicago's Clean Diesel Construction Ordinance, which would reduce the potential for construction-related air quality impacts. No additional construction mitigation measures would be

required under the Preferred Alignment. Construction impacts on air quality would not be adverse after mitigation.

Section 2 - Project Description and Background

The Chicago Transit Authority (CTA), as project sponsor to the FTA, proposes to extend the existing Red Line heavy rail transit service 5.6 miles south from the existing 95th/Dan Ryan terminal to Chicago's Far South Side. This project is one part of the Red Ahead Program to extend and enhance the entire Red Line. The Red Line provides rapid transit services 24/7 and is the most heavily traveled rail line in the CTA System.

The RLE Project would reduce commute times for residents, improve mobility and accessibility, and provide connection to other transportation modes. The RLE Project could also foster economic development, where new stations may serve as catalysts for neighborhood revitalization and help reverse decades of disinvestment in local business districts. The RLE Project would also provide a modern, efficient railcar storage yard and shop facility.

CTA undertook an extensive Alternatives Analysis process from 2006 to 2009 that considered multiple modes and corridor options for the RLE Project. The Chicago Transit Board designated the UPRR Rail Alternative as the Locally Preferred Alternative on August 12, 2009. Based on further technical analysis and public input, CTA selected the UPRR Rail Alternative as the NEPA Preferred Alternative in August 2014. The Draft EIS, published on October 6, 2016, disclosed the environmental benefits and impacts of the No Build Alternative and the two UPRR Rail Alternative options: the East Option and the West Option shown in **Figure 2-1**.

Subsequent to the publication of the Draft EIS, continued design and outreach by CTA resulted in the selection of the Preferred Alignment for the RLE Project. The Preferred Alignment was announced to the public on January 26, 2018. The Preferred Alignment is a hybrid of the East and West Options of the UPRR Rail Alternative presented in the Draft EIS. CTA reviewed multiple locations for a cross-over area that would maximize the benefits and reduce the impacts of the East and West Options.

The UPRR provided comments on the Draft EIS where they expressed their preference for the West Option due to concerns for the proximity of the East Option to their tracks. UPRR noted that the location of the Roseland Pumping Station could not accommodate UPRR's requested clearance of 25 feet between the centerlines of the UPRR's potential tracks and the proposed East Option. Therefore, all hybrid options considered in selecting the Preferred Alignment started with the West Option and crossed over from the west to the east side of the UPRR tracks south of the pumping station and north of 115th Street to minimize property impacts. Comparative analysis of parcel impacts and alignment with the goals of the RLE Project identified the vicinity of 108th Place as the

cross-over location that would provide the greatest benefit. A cross-over in the vicinity of 108th Place would preserve viable businesses; minimize impacts on schools, residences, and the historic Roseland Pumping Station; and preserve properties slated for future development surrounding the station areas. However, additional engineering refined the alignment further, which moved the UPRR crossing north from 108th Place to 107th Place. The refinement would lower the 111th Street station platform height and would lower the profile of the elevated structure.

After the announcement of the Preferred Alignment in 2018, CTA continued to conduct stakeholder coordination and further develop design plans. Norfolk Southern Railway (NS) shared their plans for future potential access to Canadian National/Metra Electric District (CN/MED) tracks to the north of Kensington Yard and the national freight rail network at that location. This access would allow restoration of a former connection that the Michigan Central Railroad had with the CN/MED tracks, which were then owned by the Illinois Central Railroad. The 120th Street yard and shop presented in the Draft EIS would have precluded future potential access to those tracks as well as access to All American Recycling located west of the railroad tracks (11900 S. Cottage Grove Avenue). The All American Recycling facility is served by the NS via its joint ownership of Conrail and the Indiana Harbor Belt Railroad (IHB). This coordination with NS resulted in additional adjustments to the Preferred Alignment near the 120th Street yard and shop. The 120th Street yard and shop and the tracks south to 130th Street were shifted approximately 100 feet to the west to accommodate NS railroad access to the All American Recycling and potential improvements to the national freight rail network, namely a future connection from the NS track to CN tracks along the MED corridor. In addition, this design refinement would provide a rail connection to facilitate rail delivery of ballast, ties, and other material to support CTA operations.

In 2019, CTA began exploring an opportunity to relocate the 130th Street station, the terminating station of the RLE Project, to a location south of 130th Street. The Draft EIS had originally proposed the station location north of 130th Street. In 2017, after publication of the Draft EIS, the Chicago Housing Authority (CHA) demolished Blocks 11, 12, and 13 of the Altgeld Gardens neighborhood, creating an opportunity to relocate the station south of 130th Street to the area of the demolished blocks. The demolition of Blocks 11, 12, and 13 of Altgeld Gardens was an activity completed by CHA and was independent and unrelated to the RLE Project. CTA evaluated the station relocation for feasibility. Meetings were held with partner agencies and stakeholder groups of residents in the station area with these agencies and groups expressing support for the station relocation. The design refinement relocated the station from north of 130th Street, as presented in the Draft EIS, to south of 130th Street, adjacent to the Altgeld Gardens neighborhood.

Since the publication of the Draft EIS and selection of the Preferred Alignment, three design refinements were made as discussed above: (1) the location of the 107th Place cross-over between UPRR East and West alignment options evaluated in the Draft EIS required for selection of a hybrid Preferred Alignment; (2) refinement of the 120th Street yard and shop location; and (3) relocation of the 130th Street station to extend the Preferred Alignment farther south so the 130th Street station would be within the Altgeld Gardens neighborhood. These design refinements were evaluated in a Supplemental Environmental Assessment (EA). The agency coordination and outreach associated with the Supplemental EA have influenced the design refinements incorporated into the Preferred Alignment and that is analyzed in this Final EIS.

Additional details about the Preferred Alignment may be found in **Appendix E**.

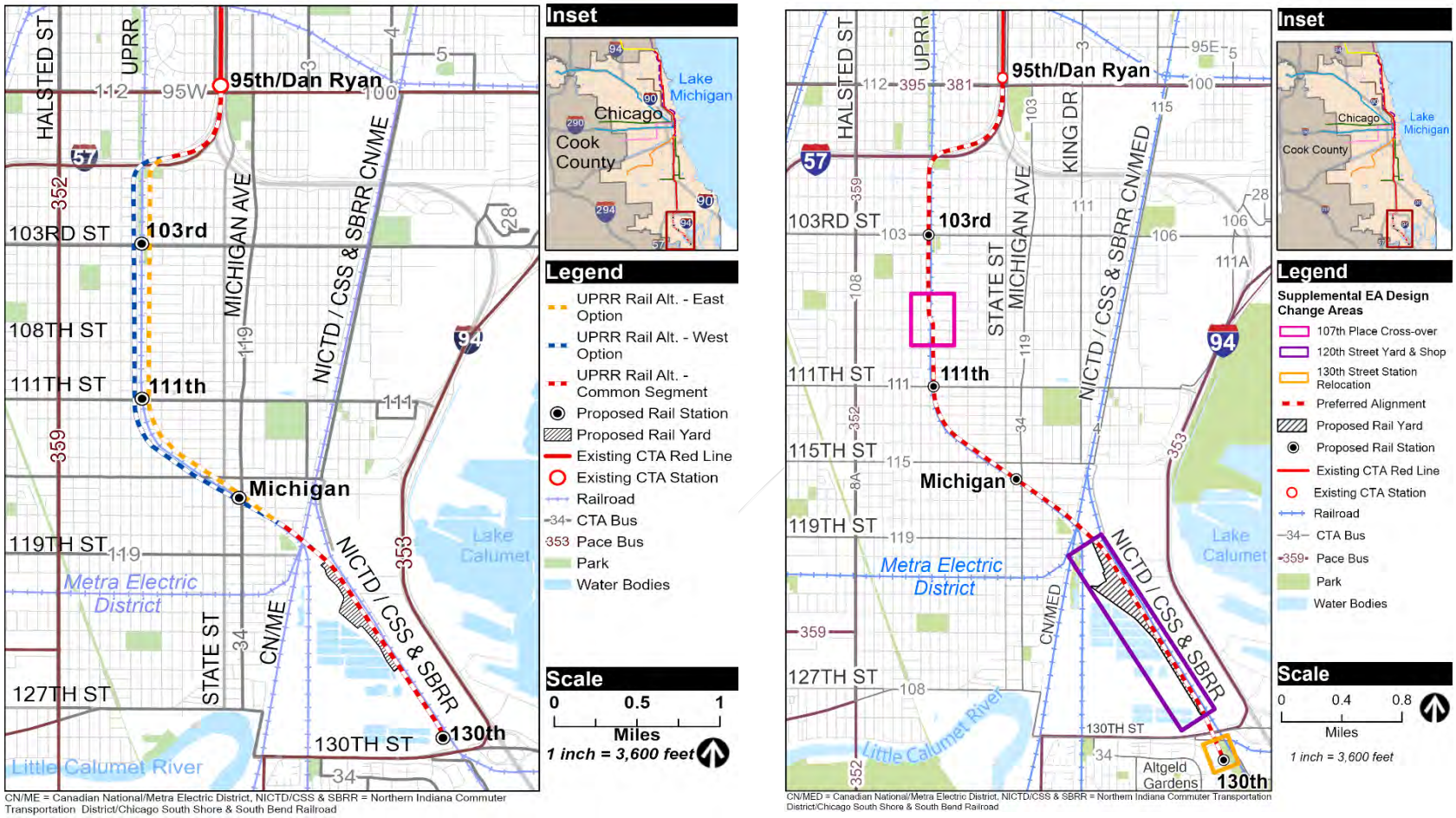

Figure 2-1: Left- East and West Options of the UPRR Rail Alternative (Draft EIS), Right- Preferred Alignment (Final EIS)

Section 3 - Methods for Impact Evaluation

Methods presented in **Appendix U** for the Draft EIS analysis have been carried forward to evaluate the potential air quality impacts and mitigation. This section documents the methodology for evaluating this resource, consistency with the methodology used in the Draft EIS and **Appendix U**, and any methodological changes.

3.1 Regulatory Framework

Under authority of the Clean Air Act and its amendments, the U.S. Environmental Protection Agency (USEPA) has established the National Ambient Air Quality Standards (NAAQS) for criteria pollutants to protect the public health and welfare. The criteria pollutants that are of greatest concern to the transportation sector include CO, nitrogen dioxide (NO_2), ozone, particulate matter with an aerodynamic diameter of 10 micrometers and less (PM_{10}), and particulate matter with an aerodynamic diameter of 2.5 micrometers and less ($PM_{2.5}$).

The NAAQS for ozone and $PM_{2.5}$ have changed from those summarized in **Appendix U** of the Draft EIS. For the annual $PM_{2.5}$ standard, the USEPA established in 2012 the primary standard of 12.0 micrograms per cubic meter (µg/m³) and a secondary standard of 15.0 µg/m³. The primary and secondary standards for ozone, established in 2015, are 0.070 parts per million (ppm), as the fourth-highest daily maximum 8-hour concentration, averaged across three consecutive years (USEPA 2021a). However, the updated ozone and $PM_{2.5}$ standards have no effects on the analysis of air quality impacts at the project level for the Preferred Alignment.

The Draft EIS identified that the API was designated as nonattainment areas for ozone and $PM_{2.5}$. A nonattainment area is a region where recent air quality monitoring data have exceeded the NAAQS. The API is still classified as nonattainment for ozone, but not for $PM_{2.5}$ (USEPA 2021b).

Since publication of the Draft EIS, the API has been redesignated as unclassifiable/attainment for $PM_{2.5}$. Because the API is in attainment with the $PM_{2.5}$ standards, a project-level conformity analysis for $PM_{2.5}$ is not required for the Preferred Alignment.

3.2 Impact Analysis Thresholds

The Draft EIS defined an impact to be adverse if operational emissions of air pollutants would exceed the NAAQS. The NAAQS for ozone and $PM_{2.5}$ have changed from those summarized in **Appendix U** of the Draft EIS. However, the updated ozone and $PM_{2.5}$ standards have no effects on

the project-level analysis of air quality impacts for the Preferred Alignment. There are no quantitative impact thresholds for GHG emissions.

3.3 Area of Potential Impact

Consistent with the Draft EIS approach in **Appendix U**, the API for determining air quality impacts is both regional and local. The API in the Draft EIS for the regional air analysis follows the analysis area adopted by the traffic analysis, which is a corridor bounded on the north by 91st Street, on the south by a varying boundary that includes 134th Street, on the west by a varying boundary that includes Halsted Street, and on the east by a varying boundary that includes I-94. The local air quality analysis is limited to the individual RLE stations, their associated parking facilities, and nearby intersections affected by traffic entering and exiting the stations (**Appendix U**).

The Preferred Alignment includes the following changes since the evaluation conducted for the Draft EIS: addition of the 107th Place cross-over, adjustment to the location of the 120th Street yard and shop, and relocation of the 130th Street station (moving south of 130th Street). These locations are still within the identified API included in the Draft EIS. The API for this Air Quality Addendum is consistent with the API used in the Draft EIS and **Appendix U**.

3.4 Methods

The analysis of air quality impacts of the Preferred Alignment was performed using the same methods as were documented in the Draft EIS consistent with the following analyses of **Appendix U**.

The Draft EIS evaluated the emissions of GHGs, $PM_{2.5}$, and MSAT from project-related vehicles by comparing the air emissions based on regional VMT for the alternatives. This Air Quality Addendum compares VMT under the Preferred Alignment with VMTs for the UPRR Alternative in the Draft EIS. The regional VMTs under the Preferred Alignment would be the same as those evaluated for the East and West Options of the UPRR Alternative. The 130th Street station relocation, 120th Street yard and shop refinement, and 107th Place cross-over under the Preferred Alignment would not change VMT from the VMT evaluated in the Draft EIS.

The Draft EIS evaluated air emissions from fossil-fuel power plants during operation of RLE trains but did not quantify the air emissions of the Red Line trains associated with electrical power consumption. This Air Quality Addendum compares the air emissions from propulsion of RLE trains under the Preferred Alignment with the air emissions for the UPRR Alternative in the Draft EIS. With the relocation of the 130th Street station, the RLE Project length increased from 5.3 to 5.6

miles. Extrapolating for the additional 0.3 miles of tracks to the relocated 130th Street station, air emissions for train propulsion under the Preferred Alignment would be approximately 6 percent higher than the East and West Options in the Draft EIS. The air emissions from electrical power consumption for the four new stations under the Preferred Alignment would be the same for the East and West Options.

Section 4 - Affected Environment

This section describes any updates to the existing air quality conditions near the RLE Project since the publication of the Draft EIS. This section documents updates to the baseline data, as well as any changes to the air quality planning and policy framework in the communities and jurisdictions affected by the Preferred Alignment.

4.1 Measured Ambient Air Quality Concentrations

The Draft EIS summarized Illinois Environmental Protection Agency (IEPA) ambient air quality measurements for the region including the API. The IEPA maintains a statewide network of monitoring stations that continuously measure pollutant concentrations in the ambient air. **Table 4-1** in **Appendix U** presented the maximum ambient concentrations measured at representative monitoring stations nearest to the project corridor in 2011. Except for the exceedance of the 8-hour ozone at the Lawndale Street Station, there were no exceedances in the API of any of the NAAQS or Illinois Ambient Air Quality Standards (IAAQS) in 2011 (**Appendix U**).

Since publication of the Draft EIS, air monitoring data are available through calendar year 2020. The 8-hour ozone measurement of 0.084 ppm for 2020 at the 7801 Lawndale monitoring site (approximately 5 miles northwest of the API) has exceeded the NAAQS of 0.070 ppm (USEPA 2021c). However, the updated air quality monitoring data have no effects on the project-level analyses of air quality impacts for the Preferred Alignment.

4.2 Planning and Policy Framework

The Draft EIS identified that the API was designated as a nonattainment area for ozone and $PM_{2.5}$ (see **Section 3.1** above). A nonattainment area is a region where recent air quality monitoring data have exceeded the NAAQS. The API is still classified as nonattainment for ozone, but not for $PM_{2.5}$ (USEPA 2021b). Because the API is in attainment with the $PM_{2.5}$ standards, a project-level conformity analysis for $PM_{2.5}$ is not required for the Preferred Alignment.

CTA has been implementing measures to reduce GHG emissions and improve energy efficiency at rail stations, offices, and maintenance facilities by implementing sustainable features in new buildings and retrofitting existing buildings to conserve energy. Energy efficient features at other CTA facilities include more energy-efficient lighting such as LED lighting, solar panels, and green roofs. Green roofs conserve energy, reduce stormwater runoff, and reduce urban heat island effects.

Measures to improve energy efficiency would reduce the emissions of GHGs and other air pollutants.

To reduce potential diesel emissions from buses operating at the new stations, CTA has been updating its bus fleet to include electric buses and clean-diesel buses that would continue to meet current USEPA emissions requirements. CTA has committed to a full electrification of its bus fleet by 2040, which would bring air quality improvements to the region and the immediate vicinity of the facilities.

CTA is a partner in the *Chicago Climate Action Plan* (City of Chicago 2008). The City of Chicago has issued the *Chicago Climate Action Plan* to reduce carbon pollution and prepare for a changing climate. Major strategies of the *Chicago Climate Action Plan* are reducing energy use in buildings, investing in transit improvements, and promoting transit-orientated development.

The Draft EIS identified that the RLE Project was included in CMAP's *GO TO 2040*, which was a conforming RTP published in 2010. Since publication of the Draft EIS, CMAP has adopted *ON TO 2050* as the RTP for the region (CMAP 2018b). The Preferred Alignment is included in *ON TO 2050*, as it was in *GO TO 2040*. In 2018, CMAP adopted the *FFY 2019-2024 Transportation Improvement Program (TIP)*, which also includes the RLE Project (CMAP 2018a).

Section 5 - Impacts and Mitigation

Consistent with the Draft EIS, the impacts and mitigation summaries are organized into three impact categories—permanent, construction, and cumulative—with references to emissions of air pollutants.

- Permanent impacts relate to system operations after the project has been constructed, as well as land acquisitions necessary for the permanent right-of-way.
- Construction impacts are temporary and are anticipated to occur for the construction phase of the project, up to five years, including construction staging and utility relocations.
- Cumulative impacts are those of the project combined with other past, present, or near future projects within the API.

This section also documents the new or revised mitigation measures for identified project impacts, where applicable. If there is no change in the mitigation, this section indicates where there is no change when compared to the East and West Options of the UPRR Alternative evaluated in the Draft EIS. Likewise, this section indicates what additional (or fewer) measures apply to the Preferred Alignment.

5.1 No Build Alternative

The No Build Alternative is defined as the existing transportation system plus any committed transportation improvements that are already in the current CMAP Transportation Improvement Program (TIP). No new infrastructure would be built as part of the RLE Project under the No Build Alternative. The No Build Alternative is a required alternative as part of the NEPA environmental analysis and is used for comparison purposes to assess the relative benefits and impacts of implementing the Preferred Alignment.

As described in **Appendix U** in the Draft EIS, there would be no adverse impacts on air quality under the No Build Alternative. The No Build Alternative would not result in air quality emissions related to construction activities. The No Build Alternative would have no change in Red Line ridership resulting from the RLE Project, therefore air emissions from electrical power consumption for Red Line trains would not increase.

The No Build Alternative would not be expected to change regional VMTs by diversion from motor vehicles to trains. However, some growth in VMT for the project corridor that would be unrelated to the RLE Project would still take place. The increases in regional VMT would lead to increases in

GHG emissions from vehicles under the No Build Alternative, when compared to existing conditions. The Draft EIS calculated the GHG emissions from the total regional VMT under the No Build Alternative to serve as a baseline for comparison to the RLE Project. CO concentrations were predicted at congested intersections under the No Build Alternative and all of the modeled CO concentrations were well below the state and federal standards. Future emissions of $PM_{2.5}$ and of MSAT from regional motor vehicles would decrease under the No Build Alternative compared with existing conditions, because of the Federal Motor Vehicle Emission Control Program (FMVECP).

GHG emissions from regional vehicular traffic and CO concentrations at local intersections under the No Build Alternative would be the same as those evaluated in the Draft EIS. Air quality impacts under the No Build Alternative would not be adverse, and no mitigation is required.

5.2 Union Pacific Railroad Alternative – Preferred Alignment

The air quality study in the Draft EIS evaluated potential air quality impacts and mitigation measures resulting from construction and operation of the RLE Project. The Air Quality Technical Memorandum analyzed CO at congested intersections, GHG emissions from project-related vehicles, particulate matter, MSAT, and construction emissions (**Appendix U**).

The Preferred Alignment would be consistent with the *Chicago Climate Action Plan* (City of Chicago 2008). Major strategies of the *Chicago Climate Action Plan* are reducing energy use in buildings, investing in transit improvements, and promoting transit-orientated development.

5.2.1 Permanent Impacts and Mitigation – Preferred Alignment

For the air quality analyses, the Draft EIS and **Appendix U** discussed the East and West Options of the UPRR Alternative as one alternative. Because nearly all of the project-related air pollutant emissions would come from motor vehicles and because the project-related motor vehicles would move throughout the entire API, the results of the air quality analysis applied equally to all of the UPRR options in the Draft EIS, as well as to the 120th Street yard and shop. It made no difference in the air quality analysis whether Red Line trains would be on the east side or on the west side of the UPRR right-of-way; air pollutant emissions would be the same for the East and West Options. In addition, the Draft EIS determined air pollutant emissions associated with the 120th Street yard and shop would not be substantial, and further separate analysis of the 120th Street yard and shop was not conducted (**Appendix U**).

Under the Preferred Alignment, the air pollutant emissions would be the same as for the East and West Options discussed in the Draft EIS. The 130th Street station relocation would not change the number of project-related vehicles moving throughout the API. Shifting its location approximately 100 feet to the west would not change the air emissions of the 120th Street yard and shop, and its associated emissions would not be sizable. Because it makes no difference in the air quality analysis whether the Red Line trains would be on the east or west side of the UPRR right-of-way, the 107th Place cross-over under the Preferred Alignment would not change air quality impacts evaluated in the Draft EIS.

5.2.1.1 Regional Emissions and Greenhouse Gases

The Draft EIS evaluated the regional emissions of GHGs, $PM_{2.5}$, and MSAT from project-related vehicles. Changes in vehicular use under the RLE Project would be regional because a portion of travelers would change modes from automobile to transit for trips between the API and downtown Chicago. Regional air emissions from motor vehicles under the RLE Project are based on regional VMT. The annual VMT are the total number of miles driven by all vehicles within a year in the API. The RLE Project is expected to cause a small decrease in regional VMT compared with the No Build Alternative because of vehicular trip distance changes (people would be nearer to transit stations) and mode changes (people would change their travel mode from personal vehicles to transit).

The Draft EIS determined that VMT in the API under the East and West Options of the UPRR Alternative would be slightly lower than the No Build Alternative VMT by about 0.02 percent, resulting from passenger diversions to the Red Line. Because it would reduce VMTs, the UPRR Alternative would slightly lower regional emissions of GHGs, $PM_{2.5}$, and MSAT as compared with the No Build Alternative (**Appendix U**).

Regional VMTs under the Preferred Alignment would be the same as those evaluated for the East and West Options of the UPRR Alternative in the Draft EIS. The 130th Street station relocation, 120th Street yard and shop refinement, and 107th Place cross-over under the Preferred Alignment would not change VMT from the VMT discussed in the Draft EIS. Because regional VMT would be the same as the UPRR Alternative, the regional emissions of GHGs, $PM_{2.5}$, and MSAT under the Preferred Alignment would be the same as those evaluated in the Draft EIS. The Preferred Alignment would reduce VMTs, and therefore it would slightly lower regional emissions of GHGs, $PM_{2.5}$, and MSAT as compared with the No Build Alternative.

5.2.1.2 Local Emissions

The Draft EIS included a project-level CO hot-spot analysis, which modeled CO concentrations at congested intersections and then compared the predicted CO concentrations to the NAAQS. Under the UPRR Alternative, all of the modeled 1-hour CO concentrations were well below the 1-hour CO standard of 35 ppm and all of the modeled 8-hour CO concentrations also were well below the 8-hour CO standard of 9 ppm (**Appendix U**). The Draft EIS concluded that no adverse air quality impacts are expected to occur with any of the build alternatives. Based on the CO hot-spot analysis in the Draft EIS, no air quality mitigation measures would be required for any of the traffic intersections analyzed for any of the build alternatives.

The environmental consequences of the Preferred Alignment on vehicular traffic are not considerably different than those of the East and West Options of the UPRR Alternative shown in the Draft EIS. Because modeled CO concentrations in the Draft EIS were well below the NAAQS, and vehicular traffic would not considerably change under the Preferred Alignment, CO concentrations under the Preferred Alignment are not anticipated to exceed the NAAQS. No adverse air quality impacts from CO emissions are expected to occur under the Preferred Alignment, and additional air quality mitigation would not be required.

With the extension of the Red Line, some existing bus routes would be rerouted to feed into the new stations. A network of CTA and Pace Suburban Bus Service (Pace) bus routes serves the surrounding Far South Side.

To reduce potential diesel emissions from buses operating at the new stations, CTA has been updating its bus fleet to include electric buses and clean-diesel buses that would continue to meet current USEPA emissions requirements. CTA has committed to a full electrification of its bus fleet by 2040, which would provide air quality improvements to the region and the immediate vicinity of the facilities. Similarly, the Pace bus fleet at the relocated 130 Street station would meet USEPA guidelines for clean diesel, and many Pace buses serving the Far South Side use compressed natural gas (CNG), a fuel source that emits fewer greenhouse gases than diesel.

5.2.1.3 Electrical Power Consumption

The Draft EIS determined that Red Line trains would not cause any direct emissions of air pollutants because the trains would run on electricity. Electricity would come from the electric utility grid, which may include local, fossil-fuel power plants. An increase in indirect emissions of air pollutants from electrical power consumption by Red Line trains would be expected under the UPRR Alternative.

The Preferred Alignment would result in similar emissions of air pollutants from fossil-fuel power plants because of increased electrical energy demand for the RLE Project. Red Line trains operating under the Preferred Alignment would travel on an additional 0.3 miles of tracks to the relocated 130th Street station, which would result in a negligible change in air emissions from fossil-fuel power plants as compared with the East and West Options in the Draft EIS. The RLE Project would include four new passenger stations, a new maintenance yard and shop, and six new and upgraded substations, all of which would be powered by electricity and would increase emissions from fossil-fuel power plants.

5.2.1.4 Conformity

The RLE Project must comply with the USEPA transportation conformity regulations under the Clean Air Act. The Draft EIS identified that the RLE Project was included in CMAP's *GO TO 2040*, which was a conforming RTP published in 2010. The Draft EIS concluded that the RLE Project would conform to the SIP because it was included in CMAP's *GO TO 2040* and because it would decrease regional $PM_{2.5}$ emissions.

Because the API is in nonattainment for ozone, the Preferred Alignment must conform to the SIP for ozone. Conformity for ozone can be demonstrated by documenting that the Preferred Alignment is specifically included in a conforming RTP and TIP. Since publication of the Draft EIS, CMAP adopted *ON TO 2050* (CMAP 2018b) as the RTP and *FFY 2019-2024 Transportation Improvement Program* (CMAP 2018a) as the TIP. CMAP's *ON TO 2050* and the TIP include the RLE Project; therefore, the Preferred Alignment conforms to the SIP for ozone. In 2018, the USEPA approved Illinois's request to revise the state's designation for $PM_{2.5}$ from unclassifiable to unclassifiable/attainment, and a project-level conformity analysis for $PM_{2.5}$ is not required for the Preferred Alignment.

5.2.2 Construction Impacts and Mitigation - Preferred Alignment

Impacts during construction would be associated with temporary and localized emissions of particulate matter (dust, $PM_{2.5}$ and PM_{10}) from earthmoving and demolition activities, and of small amounts of CO, nitrogen oxide (NO_x), GHGs, and particulate matter in engine exhaust from construction trucks and equipment. The Draft EIS determined no adverse air quality impacts during construction of the UPRR Alternative because mitigation measures would be incorporated into the project construction plans. Construction air emissions and mitigation measures under the Preferred Alignment would be the same as the East and West Options of the UPRR Alternative disclosed in the Draft EIS.

To minimize air quality impacts during construction, CTA would require contractors to implement best management practices (BMPs) to reduce construction dust, to provide emissions controls on construction equipment, to use low sulfur fuels, and to limit equipment operations such as excessive idling. Contractors would develop and implement a Dust Control Plan, which would address, in detail, how dust would be controlled at the construction site, the staging areas, and the access and egress routes. In addition, the contractor would follow Chicago's Clean Diesel Construction Ordinance which would reduce the potential for construction related air quality impacts. No additional construction mitigation measures would be required under the Preferred Alignment.

With the use of appropriate construction-related mitigation measures as described in the Draft EIS, no adverse air quality impacts during construction would be anticipated with the Preferred Alignment.

5.2.3 Cumulative Impacts and Mitigation - Preferred Alignment

Cumulative impacts include those from the RLE Project when combined with those of other past, present, and reasonably foreseeable projects. The cumulative air quality impacts under the Preferred Alignment are the same as the UPRR Alternative described in **Appendix U** of the Draft EIS.

The RLE Project, when combined with the existing Red Line train operations and other future CTA transit projects would increase transit ridership and reduce vehicle trips. The cumulative impacts of reduced vehicle trips would result in a reduction of air emissions from vehicles and would be a beneficial impact.

Section 6 - Impacts Remaining after Mitigation

This section describes the permanent impacts of the RLE Project remaining after mitigating for impacts as described in **Section 5**.

6.1 No Build Alternative

Consistent with the findings of the Draft EIS, there would be no adverse impacts on air quality as a result of the No Build Alternative.

6.2 Union Pacific Railroad Alternative - Preferred Alignment

Consistent with the findings of the Draft EIS, there would be no adverse impacts on regional and local air quality during construction and operation of the Preferred Alignment.

Section 7 - References Cited

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