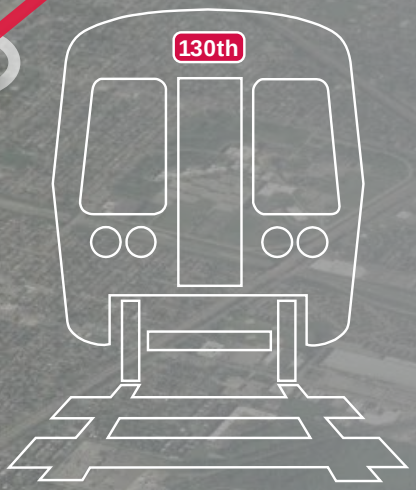
RED AHEAD

Red Line Extension



CHICAGO RED LINE EXTENSION

DRAFT ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(F) EVALUATION

Chicago, Illinois

October 6, 2016

Prepared by:

Federal Transit Administration
Chicago Transit Authority

In Cooperation with:

Federal Highway Administration

cta

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

RED AHEAD
Moving Ahead to a Better Red

Red Line Extension

Chicago

Red Line Extension

Draft Environmental Impact Statement and Section 4(f) Evaluation

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Draft Environmental Impact Statement and Section 4(f) Evaluation

for the

Chicago Red Line Extension

Chicago, Illinois

prepared by the

U.S. Department of Transportation
Federal Transit Administration

and the

Chicago Transit Authority

In cooperation with the

Federal Highway Administration

pursuant to:

National Environmental Policy Act of 1969 (42 USC § 4332), Efficient Environmental Reviews for Project Decisionmaking (23 USC § 139), Council on Environmental Quality Regulations for Implementing the Procedures of the National Environmental Policy Act (40 CFR § 1500-1508), FHWA/FTA Environmental Impact and Related Procedures (23 CFR § 771), and Section 4(f) requirements (49 USC § 303 and 23 USC § 138) and regulations (23 CFR § 774)

9-22-2016
Date of Approval

Marisol Simón
Regional Administrator
U.S. Department of Transportation
Federal Transit Administration

9-30-16
Date of Approval

Carole Morey
Chief Planning Officer
Chicago Transit Authority

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Draft Environmental Impact Statement

Lead Agency: U.S. Department of Transportation, Federal Transit Administration

Project Sponsor: Chicago Transit Authority

Cooperating Agency: U.S. Department of Transportation, Federal Highway Administration

Title: Chicago Red Line Extension Project Draft Environmental Impact Statement

Location: Chicago, Illinois

Information Contact:

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Carole Morey
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(312) 681-4100

Abstract:
The Chicago Transit Authority (CTA), as project sponsor to the Federal Transit Administration (FTA), proposes to extend the existing Red Line heavy rail transit service 5.3 miles south from the existing 95th Street Terminal to 130th Street on Chicago's Far South Side. CTA proposes to cover a portion of the project funding by applying for federal funds administered by FTA. FTA and CTA prepared this Red Line Extension Project Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA) and other applicable regulations. This project is one part of CTA's Red Ahead Program, a comprehensive initiative for maintaining, modernizing, and expanding Chicago's most traveled rail line.

This Draft EIS looks at the benefits and impacts of implementing the NEPA Preferred Alternative—the Union Pacific Railroad Rail Alternative—on the physical, human, and natural environments along the corridor and near stations. This document considers two alignment (route) options for this alternative: the East Option and the West Option. This Draft EIS defines the options under consideration and evaluates the potential environmental, economic, and social impacts of the alternatives, specifically, impacts on transportation, land use and economic development, displacements and relocation of existing uses, neighborhoods and communities, visual and aesthetic conditions, noise and vibration, safety and security, historic and cultural resources, environmental justice, and other aspects of the environment. Potential mitigation measures are identified for adverse impacts resulting from operation or construction of the project. Financial implications of construction and operation of the proposed improvements are also disclosed. The information contained in this document will be used by FTA and CTA to decide whether to implement the project and to select an option for implementation.

Reviewers should provide their comments to CTA during the comment period of the Draft EIS. CTA will analyze and respond to comments and will use the information acquired in the preparation of the Final EIS. Comments on the Draft EIS should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 Code of Federal Regulations § 1503.3).

FTA intends to issue a single document that consists of the Final EIS and Record of Decision pursuant to 23 United States Code § 139(n), unless it is determined that circumstances, such as changes to the proposed action, anticipated impacts, or other new information, preclude issuance of such a combined document.

Comments on this document must be submitted by 4:30 PM on November 30, 2016.

Send comments to the following address: Red Line Extension Project, Chicago Transit Authority, 567 W. Lake Street, 10th Floor, Chicago, IL 60661-1465; e-mail: RedExtension@transitchicago.com

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Executive Summary

The Chicago Transit Authority (CTA), as project sponsor to the Federal Transit Administration (FTA), proposes to extend the existing Red Line heavy rail transit service 5.3 miles south from the existing 95th Street 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 National Environmental Policy Act of 1969 (NEPA) mandates the consideration of environmental impacts before approval of any federally funded project that may have significant impacts on the environment or where impacts have not yet been determined (42 United States Code [USC] § 4332). FTA and CTA prepared this Red Line Extension (RLE) Project Draft Environmental Impact Statement (EIS) in accordance with NEPA and other applicable regulations.

Red Line Extension Project

The RLE Project would extend the Red Line from the existing 95th Street Terminal to 130th Street. The proposed 5.3-mile extension would include four new stations near 103rd Street, 111th Street, Michigan Avenue, and 130th Street. Each new station would include bus and parking facilities.

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 car storage yard and shop facility. Supporting information on the purpose and need for this project is provided in **Chapter 1**.

Alternatives Considered

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 Union Pacific Railroad (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. This Draft EIS looks at the environmental benefits and impacts of the No Build Alternative and the two UPRR Rail Alternative options: the East Option and the West Option. Each alternative is described below.

No Build Alternative

The No Build Alternative is defined as the existing transportation system plus any committed transportation improvements that are already in the Chicago Metropolitan Agency for Planning Fiscal Year 2014–2019 Transportation Improvement Program, including improvements to the 95th Street Terminal. No new infrastructure would be built as part of the RLE Project under the No Build Alternative.

Union Pacific Railroad Rail Alternative - Locally Preferred Alternative

The proposed UPRR Rail Alternative would extend the heavy rail Red Line from the existing 95th Street Terminal to 130th Street. The UPRR Rail Alternative alignment would run south along I-94 from the 95th Street Terminal, then curve west along the north side of I-57 (within the I-57 right-of-way) for nearly ½ mile until reaching the UPRR corridor in the vicinity of Eggleston Avenue, as shown on **Figure ES-1**. The alignment would turn south to follow the UPRR corridor. Two options are being considered for the alignment along the UPRR corridor. The CTA elevated structure would be located either east or west of the existing UPRR corridor. The alignment would follow the UPRR corridor to Prairie Avenue, where it would cross over the Canadian National/Metra Electric District (CN/ME) tracks near 119th Street. South of this point, the East and West Options would follow the same alignment southeast along the Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad (NICTD/CSS & SBRR) right-of-way using a portion of the Norfolk Southern Railway and Consolidated Rail Corporation rights-of-way to the terminus (end) of the RLE at 130th Street.

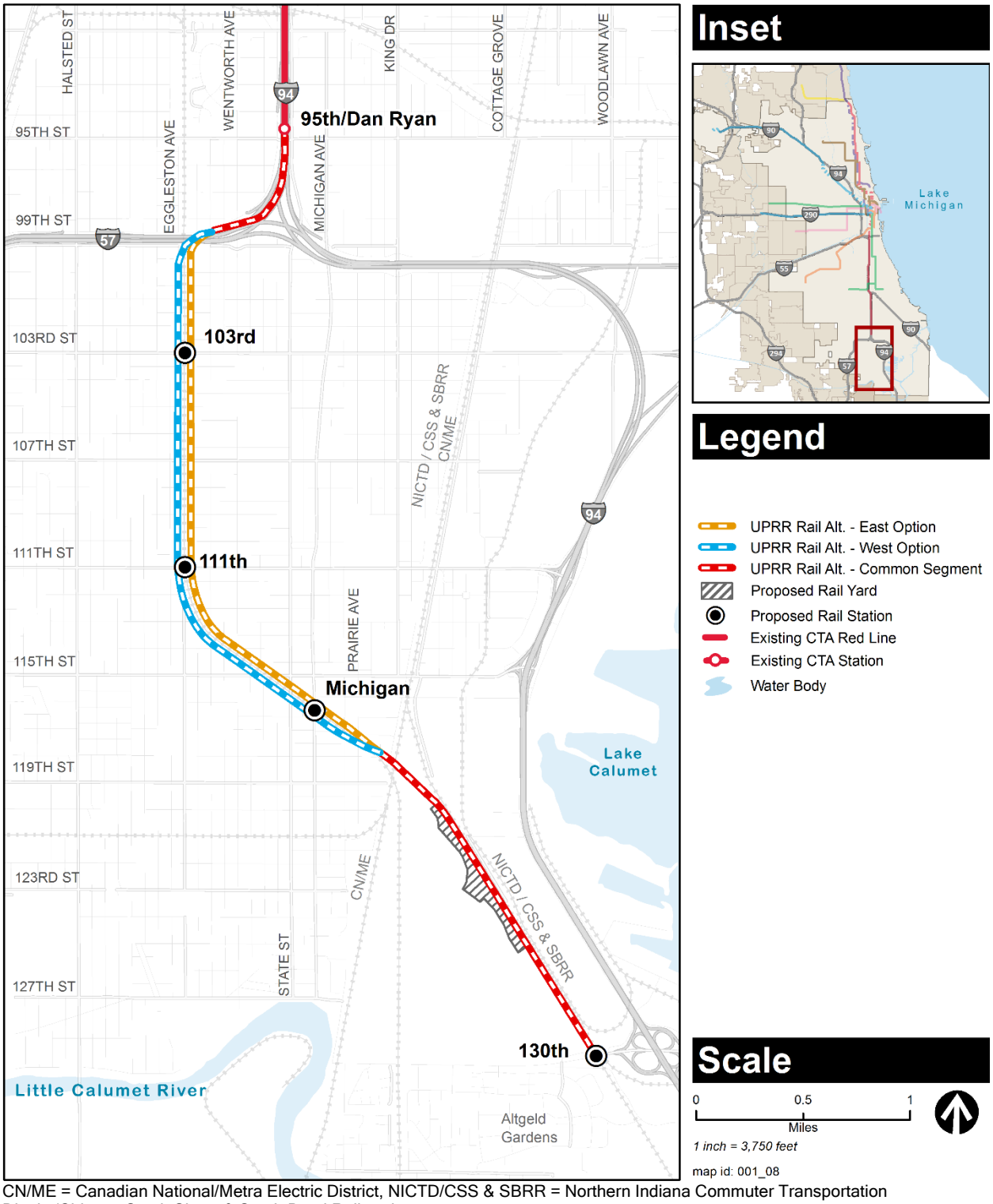
The UPRR Rail Alternative would include the following features:

- 5.3-mile heavy rail transit line extension from 95th Street Terminal to 130th Street
- Four new stations at 103rd Street, 111th Street, Michigan Avenue, and 130th Street
- New park & ride and bus facilities at each station with a total of 3,700 parking spaces along the corridor
- New yard and shop at 120th Street

As noted above, this Draft EIS studies two UPRR Rail Alternative options for the segment of the proposed alignment between I-57 and the CN/ME tracks near 119th Street:

- **East Option** - The CTA elevated structure would be placed immediately adjacent to the east side of the UPRR right-of-way.
- **West Option** - The CTA elevated structure would be placed immediately adjacent to the west side of the UPRR right-of-way.

Figure ES-1 shows the alignments for these options.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure ES-1: Union Pacific Railroad Alternative Options

Environmental Benefits and Impacts

Potential environmental benefits and impacts are detailed in **Chapters 3–8** of the Draft EIS and are summarized in **Table ES-1**. The Draft EIS describes the best management practices (BMPs) and mitigation measures that would be employed to reduce impacts.

Table ES-1: Summary of Benefits and Impacts

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
Transportation *(Chapter 3)*		
No additional rapid rail transit service would be provided. 10 intersections would operate at level of service E/F in either the AM or PM peak hours or both in 2030. Traffic flow would continue to deteriorate.	Permanent *Public Transportation* ▪ CTA passengers would benefit from faster travel times by accessing rail service farther south. ▪ CTA passengers would benefit from reduced congested conditions at 95th Street Terminal with bus reroutes that would more directly connect passengers to new stations farther south. ▪ CTA passengers would benefit because of the new, direct rail service within the project area. ▪ CTA passengers would benefit from potential improved connections to regional commuter rail. *Vehicular Traffic* ▪ Without mitigation, 15 intersections would operate at level of service E/F in either the AM or PM peak hours or both in 2030. Permanent impacts on vehicular traffic would not be adverse after mitigation. *Pedestrians* ▪ Pedestrians would benefit from upgraded intersections immediately adjacent to stations with Americans with Disabilities Act (ADA)-accessible curb ramps and from replacement of deteriorated sidewalks. ▪ Due to the location of some park & ride facilities, passengers would need to cross an active UPRR track to reach stations, which would result in pedestrian safety impacts. ▪ Permanent impacts on pedestrians would not be adverse after mitigation. *Bicycles* ▪ Bicyclists would benefit from the addition of bicycle parking at stations. *Freight Transportation* ▪ No impacts *Parking Facilities* ▪ No impacts. Benefits would accrue by providing additional park & ride opportunities to attract passengers to transit and potentially improve connections to regional commuter rail. Construction ▪ Construction activities would temporarily affect the physical capacity of roadways and intersections subject to detours. For the city streets crossing the alignment, adjacent construction activities may require a lane closure. When performing work above the street (including beam placement), temporary detours will be required. Phasing the work will prevent simultaneous closure of adjacent city streets that cross the alignment. Work would be subject to Chicago Department of Transportation approval. ▪ Construction activities would require temporary lane closures on I-94 and I-57 as well as temporary shutdowns for all traffic. Temporary shutdowns of traffic (for overhead beam placement) would occur only at nighttime and during low-traffic-volume intervals and would be subject to Federal Highway Administration and Illinois Department of Transportation approval. ▪ Increased congestion due to construction may temporarily increase travel times along the I-94 and I-57 expressways. ▪ Flagging operations and scheduled track closures would occur during construction activities near or adjacent to railroads. Scheduling would allow for continued freight and transit operations.	

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
	▪ Because of the temporary nature of construction activities, the use of construction best management practices, implementation of a traffic management plan, and implementation of the proposed mitigation measures, construction impacts from the UPRR Alternatives would not be adverse.	
Land Use and Economic Development *(Section 4.1)*		
No impacts	Permanent ▪ The park & ride facilities at the 103rd Street, 111th Street, and Michigan Avenue stations would be inconsistent with adjacent land uses and zoning designations. ▪ The substation just north of Michigan Avenue would be inconsistent with the adjacent land uses. ▪ Land use impacts would not be adverse after mitigation. ▪ The East Option could spur economic revitalization and the development of more livable, transit-supportive communities near the proposed stations. Construction ▪ Construction jobs could create short-term economic benefits. ▪ Construction could be disruptive to businesses along the alignment. Construction impacts would not be adverse after mitigation.	Permanent ▪ The elevated track structure in Fernwood Parkway would alter the open space's function as a buffer between the UPRR freight tracks and the single-family neighborhood on the west side of Eggleston Avenue. ▪ The park & ride facilities at the 103rd Street, 111th Street, and Michigan Avenue stations would be inconsistent with adjacent land uses and zoning designations. ▪ The substation just north of Michigan Avenue would be inconsistent with the adjacent land uses. ▪ Land use impacts would not be adverse after mitigation. ▪ The West Option could spur economic revitalization and the development of more livable, transit-supportive communities near the proposed stations. Construction ▪ Construction jobs could create short-term economic benefits. ▪ Construction could be disruptive to businesses along the alignment. Construction impacts would not be adverse after mitigation.
Displacements and Relocation of Existing Uses *(Section 4.2)*		
No impacts	Permanent ▪ 260 parcels (106 buildings) would be acquired for the East Option to accommodate the tracks, stations, 120th Street yard and shop, and ancillary facilities. Most of the displacements would be spread evenly along the corridor between 99th Place and the Michigan Avenue station. ▪ Permanent impacts would not be adverse after mitigation. Construction ▪ No impacts	Permanent ▪ 205 parcels (46 buildings) would be acquired for the West Option to accommodate the tracks, stations, 120th Street yard and shop, and ancillary facilities. Displacements would be spread evenly along the corridor between 103rd Street and the Michigan Avenue station. ▪ Permanent impacts would not be adverse after mitigation. Construction ▪ No impacts

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
Neighborhoods and Communities *(Section 4.3)*		
No impacts	Permanent *Community Character and Cohesion* ▪ The track structure would encroach on the edges of neighborhoods by displacing residential buildings. This impact would not be adverse after mitigation. ▪ The elevated track structure would create an adverse visual impact north of I-57 and at the intersection of 117th Street and Prairie Avenue. These impacts would remain adverse despite mitigation. ▪ The noise from CTA trains would cause adverse impacts at noise-sensitive buildings. This impact would not be adverse after mitigation. *Mobility* ▪ Passengers would benefit from improved mobility with reduced travel times. *Community Resources* ▪ The East Option would displace the Now Faith Church of God Holiness and would cross portions of Wendell Smith Park and Block Park. These impacts would not be adverse after mitigation. ▪ Passengers would benefit from increased access to community resources in the project area. Construction *Community Character and Cohesion* ▪ Construction would introduce temporary, intermittent visual, noise, and dust impacts. ▪ Construction impacts would not be adverse after mitigation. *Mobility* ▪ Construction would cause truck traffic to increase, and temporary street closures and detours would be needed. ▪ Access to businesses could be temporarily limited on an intermittent basis. ▪ Construction impacts would not be adverse after mitigation.	Permanent *Community Character and Cohesion* ▪ The track structure would encroach on the edges of neighborhoods by displacing residential buildings. This impact would not be adverse after mitigation. ▪ The elevated track structure would create an adverse visual impact north of I-57 and between 99th and 103rd Streets, including 103rd Street station. This impact would remain adverse despite mitigation. ▪ The Michigan Avenue station park & ride facility would create an adverse visual impact. This impact would remain adverse despite mitigation. ▪ The noise from CTA trains would cause adverse impacts at noise-sensitive buildings. These impacts would not be adverse after mitigation. *Mobility* ▪ Passengers would benefit from improved mobility with reduced travel times. *Community Resources* ▪ The West Option would displace the Grace Temple Church of God Established in Christ and would run through Fernwood Parkway. These impacts would not be adverse after mitigation. ▪ The elevated structure would be near Wendell Smith Park. This impact would not be adverse after mitigation. ▪ Passengers would benefit from increased access to community resources in the project area. Construction *Community Character and Cohesion* ▪ Construction would introduce temporary, intermittent visual, noise, and dust impacts. ▪ Construction impacts would not be adverse after mitigation. *Mobility* ▪ Construction would cause truck traffic to increase, and temporary street closures and detours would be needed. ▪ Access to businesses could be temporarily limited on an intermittent basis. ▪ Construction impacts would not be adverse after mitigation.

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
	Community Resources ▪ Construction activities would be required in Wendell Smith Park and Block Park. ▪ Access to community resources near the construction areas may be temporarily disrupted by street closures and detours. ▪ Construction impacts would not be adverse after mitigation.	*Community Resources* ▪ Construction activities would be required in Wendell Smith Park and Fernwood Parkway. ▪ Access to community resources near the construction areas may be temporarily disrupted by street closures and detours. ▪ Construction impacts would not be adverse after mitigation.
Visual and Aesthetic Conditions *(Section 4.4)*		
No impacts	Permanent ▪ The elevated track structure would create an adverse visual impact north of I-57 and at the intersection of 117th Street and Prairie Avenue. These impacts would remain adverse despite mitigation. Construction ▪ Construction would create temporary adverse impacts due to the construction work zone. ▪ Construction impacts would not be adverse after mitigation.	Permanent ▪ The elevated track structure would create an adverse visual impact north of I-57 and between 99th and 103rd Streets, including 103rd Street station. ▪ The Michigan Avenue station park & ride facility would create an adverse visual impact. ▪ Visual impacts would remain adverse despite mitigation. Construction ▪ Construction would create temporary adverse impacts due to the construction work zone. ▪ Construction impacts would not be adverse after mitigation.
Noise and Vibration *(Section 4.5)*		
No impacts	Permanent ▪ There could be moderate noise impacts on 574 noise-sensitive receivers and severe noise impacts on 83 noise-sensitive receivers before mitigation. There would be no severe or moderate impacts after mitigation. ▪ No permanent vibration impacts. Construction ▪ Construction noise levels would not exceed the FTA-recommended construction noise limits. ▪ No construction-related vibration impacts.	Permanent ▪ There could be moderate noise impacts on 738 noise-sensitive receivers and severe noise impacts on 49 noise-sensitive receivers before mitigation. There would be no severe or moderate impacts after mitigation. ▪ No permanent vibration impacts. Construction ▪ Construction noise levels would not exceed the FTA-recommended construction noise limits. ▪ No construction-related vibration impacts.
Safety and Security *(Section 4.6)*		
No impacts	Permanent ▪ A large number of pedestrians would be expected to cross the major streets without positive traffic control (marked crosswalks or signalized intersections with pedestrian countdowns), which would be an adverse impact on pedestrian safety. ▪ Permanent safety impacts would not be adverse after mitigation. ▪ There would be no permanent security impacts. Construction ▪ There would be no construction-related safety or security impacts after mitigation.	

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
Historic and Cultural Resources *(Section 4.7)*		
No effects	▪ There would be a No Adverse Effect finding on one resource - the Roseland Pumping Station.	▪ No effects on any resources
Hazardous Materials *(Section 4.8)*		
No impacts	Permanent ▪ CTA identified six High Concern sites within the permanent envelope of the East Option and six High Concern sites within the permanent envelope of the West Option. ▪ Benefits could result from the cleanup and/or removal of contaminated material during construction. ▪ Daily operations or maintenance activities that require earthmoving in contaminated areas could result in impacts from accidental spills or releases. ▪ Hazardous material spills or releases that occur along the NICTD/CSS & SBRR railroads would have the potential to migrate and affect the project area. ▪ Permanent impacts would not be adverse after BMPs and standard practices are implemented. Construction ▪ There would be the potential to encounter hazardous materials during construction. ▪ Construction-related impacts would not be adverse after BMPs and standard practices are implemented.	
Wetlands *(Section 4.9)*		
No impacts	Permanent ▪ The East and West Options could affect approximately 15.34 acres of wetlands in the vicinity of the 120th Street yard and shop and the 130th Street station. ▪ Impacts on wetlands would be mitigated through compensatory mitigation, if required. ▪ Coordination with the U.S. Army Corps of Engineers is ongoing. Construction ▪ Construction staging areas would be sited outside of wetlands as much as possible, but if there were any temporary impacts, those areas would be restored as wetlands after construction. ▪ Impacts on wetlands would be mitigated through compensatory mitigation, if required.	
Indirect and Cumulative *(Chapter 5)*		
No impacts	Indirect ▪ Implementation of the East or West Option would have the potential for redevelopment from new employment accessibility, attraction of new development near RLE stations, and overall livability improvements. Cumulative ▪ The surrounding communities would benefit from the cumulative impacts of other planned and programmed projects in the project area because they would improve access to jobs, places of interest, and residences, and would result in a reduction of air emissions.	
Resources with Limited or No Adverse Impacts *(Chapter 6)*		
The No Build Alternative and the UPRR Rail Alternative East and West Options would have limited or no impacts on the following resource areas: air quality, water quality, floodplains, vegetation and wildlife habitat, threatened and endangered species, geology and soils, and energy.		

No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
Environmental Justice *(Chapter 7)*		
No impacts	▪ Permanent impacts on community character and permanent visual impacts would not be appreciably more severe or greater in magnitude than similar effects elsewhere in CTA's rail system. ▪ There would be no disproportionately high or adverse impacts on minority or low-income populations.	
Section 4(f) *(Chapter 8)*		
No impacts	▪ No adverse impacts on the attributes, features, or activities of Wendell Smith Park and Block Park would result from the East Option after the proposed mitigation; therefore, FTA has made a preliminary *de minimis* finding for both parks, subject to further public input as part of the Draft EIS.	▪ No adverse impacts on the attributes, features, or activities of Fernwood Parkway would result from the West Option after the proposed mitigation; therefore, FTA has made a preliminary *de minimis* finding for this park, subject to further public input as part of the Draft EIS.

After implementation of the BMPs and mitigation measures described in the Draft EIS, adverse impacts on community character and cohesion and on visual and aesthetic conditions would remain for both the East and West Options.

Evaluation of Alternatives

CTA used the following evaluation goals and criteria, based on the purpose and need, to compare the benefits and drawbacks of the East and West Options:

- Goal 1 - Reduce Transit Times
- Goal 2 - Increase Travel Choices
- Goal 3 - Increase Economic Competitiveness
- Goal 4 - Minimize Environmental Impacts
- Goal 5 - Provide the Best Value

Table ES-2 provides specific measures for the goals listed above, and compares the extent to which the East and West Options and the No Build Alternative would meet the goals.

Table ES-2: Comparative Evaluation of Alternatives

Criteria	No Build Alternative	Union Pacific Railroad Rail Alternative East Option	Union Pacific Railroad Rail Alternative West Option
Goal 1 - Reduce Transit Times			
Travel Times Between Stations[1,2]			
130th Street to 95th Street Terminal	28 minutes	14 minutes	14 minutes
130th Street to Jackson Station (Loop)	58 minutes	39 minutes	39 minutes
Would the proposed stations serve transit-dependent communities?	No	Yes	Yes
Would there be new direct service to Altgeld Gardens?	No	Yes	Yes
Goal 2 - Increase Travel Choices			
Would there be better access to regional employment centers and local commercial areas?	No	Yes	Yes
Would potential connections to other public transportation modes within the project area be possible?	No	Yes	Yes
Would geographic isolation be reduced?	No	Yes	Yes
How many stations would have Park & Ride Facilities?	0	4 of 4	4 of 4
Total Park & Ride Spaces	0	3,700	3,700
Goal 3 - Increase Economic Competitiveness			
Could nearby development be encouraged?	No	Yes	Yes
Goal 4 - Minimize Environmental Impacts			
Displacements and Relocations			
Properties	0	260	205
Buildings	0	106	46
Residential Buildings	0	90	26
Mixed-Use Buildings	0	1	2
Commercial and Industrial Buildings	0	13	17
Places of Worship	0	1	1
City-Owned Buildings	0	1	0
Noise Impacts After Mitigation	No change	Not adverse	Not adverse
Receivers with Moderate Impacts (before mitigation/after mitigation)	0	574/0	738/0
Receivers with Severe Impacts (before mitigation/after mitigation)	0	83/0	49/0
Park Impacts (Not Adverse After Mitigation)[3]			
Construction Phase	0 parks	2 parks	2 parks
Permanent	0 parks	2 parks	1 park
Permanent (acres)	0 acres	1.6 acres	1.9 acres
Would there be community character impacts after mitigation?	No	Yes	Yes
Would there be visual and aesthetic impacts after mitigation?	No	Yes	Yes
Goal 5 - Provide the Best Value			
Projected Ridership (per weekday)	0	42,000	42,000
Capital Costs[4]	$0	$2.26 Billion	$2.30 Billion
Annual Change in O&M Costs[5]	No Change	+$17.4 Million	+$17.4 Million

N/A = Not Applicable

[1] Source: CTA 2009

[2] Travel time between stations does not include wait time at 130th Street.

[3] Based on the Section 4(f) analysis. Findings contingent on continued coordination process.

[4] Year of expenditure dollars

[5] O&M = Operations and maintenance. Difference from No Build Alternative shown in year 2015 dollars

Public Input Requested

This Draft EIS serves as the primary document to facilitate public and agency review of the proposed project. CTA has established a 45-day comment period to take formal comments on the Draft EIS. The Draft EIS is available on the CTA website (www.transitchicago.com/RedEIS), and hard copies of the Draft EIS are available at the following locations during the public review period:

- CTA headquarters, 567 W. Lake Street, 2nd Floor, Chicago, IL 60661
- Pullman Public Library, 11001 S. Indiana Avenue, Chicago, IL 60628
- West Pullman Public Library, 830 W. 119th Street, Chicago, IL 60643
- Altgeld Public Library, 13281 S. Corliss Avenue, Chicago, IL 60827
- Woodson Regional Public Library, 9525 S. Halsted Street, Chicago, IL 60628
- Calumet Park Public Library, 1500 W. 127th Street, Calumet Park, IL 60827
- Harold Washington Library Center, 400 S. State Street, Chicago, IL 60605

A public hearing is scheduled for November 1, 2016 from 5:30 to 7:30 PM at St. John Missionary Baptist Church (211 E. 115th Street, Chicago, IL 60628) to solicit comments from the community about findings presented in the Draft EIS. The location of the public hearing is ADA-compliant and accessible by public transit. Comments received during the public hearing will be submitted to FTA and will be entered into the public record. A summary of the public hearing will be included in the Final EIS. Written comments will also be accepted at any time during the public comment period via e-mail to: RedExtension@transitchicago.com and U.S. mail to: Chicago Transit Authority, Strategic Planning, 10th Floor, Attn: Red Line Extension Project, 567 W. Lake Street, Chicago, IL 60661.

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Chapter 1
Purpose and Need

The Chicago Transit Authority (CTA), as project sponsor to the Federal Transit Administration (FTA), proposes to extend the Red Line heavy rail transit (HRT) service 5.3 miles south from the existing 95th Street Terminal to Chicago's Far South Side. The Chicago Transit Board designated the Union Pacific Railroad (UPRR) Rail Alternative, discussed further in **Chapter 2**, as the Locally Preferred Alternative (LPA) on August 12, 2009. Based on further technical analysis and public input, CTA selected the UPRR Rail Alternative as the National Environmental Policy Act of 1969 (NEPA) Preferred Alternative in August 2014. CTA proposes to cover a portion of the project funding by applying for federal funds administered by FTA. The Red Line Extension (RLE) Project is included in the list of fiscally constrained projects in the Fiscal Year (FY) 2014–2019 Transportation Improvement Program (TIP) of the Chicago Metropolitan Agency for Planning (CMAP) *GO TO 2040 Comprehensive Regional Plan* (*GO TO 2040*).

NEPA mandates the consideration of environmental impacts before approval of any federally funded project that may have significant impacts on the environment or where impacts have not yet been determined. FTA and CTA prepared this RLE Project Draft Environmental Impact Statement (EIS) in accordance with NEPA and other applicable regulations, including Section 106 of the National Historic Preservation Act (NHPA), Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966, joint guidance and regulations from FTA and the Federal Highway Administration (FHWA), and other agency regulations and guidelines.

When the RLE Project began in 2006 it was compliant with the federal transportation funding and authorization bill: Section 6002 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). In 2012 a new transportation funding and authorization bill was passed into law—the Moving Ahead for Progress in the 21st Century Act, also known as MAP-21. In December 2015, the Fixing America's Surface Transportation (FAST) Act was signed into law. The RLE Project is compliant with SAFETEA-LU, MAP-21, and the FAST Act.

This Draft EIS looks at the benefits and impacts of implementing the No Build Alternative and the NEPA Preferred Alternative—the UPRR Rail Alternative—on the physical, human, and natural environments along the corridor and near stations. This document considers two alignment (route) options within the NEPA Preferred Alternative: the East Option and the West Option. While this document refers to the "East and West Options" for brevity, only one of the two options would be selected and implemented (not both).

This chapter describes the purpose and need for transit improvements within the project area. This purpose and need was developed from the purpose and need statement presented in the RLE Alternatives Analysis (AA) document (**Appendix A**), input received from the public during the EIS scoping process (**Appendix B**), ongoing public outreach (summarized in **Chapter 10** and **Appendix C** of this Draft EIS), and the *Red Line Extension Livability Report* (by CMAP, CTA, and Developing Communities Project, Inc. [DCP]). This chapter also describes CTA's basis for advancing the RLE Project, identifies objectives that frame the development and evaluation of the alternatives, and sets the stage for NEPA analysis leading to the agency's final decision on the project. Additional background data supporting this statement of purpose and need is provided in the *Purpose and Need Report* (**Appendix D**).

1.1 Project Area Overview and Background

CTA's Red Ahead Program is a comprehensive initiative for maintaining, modernizing, and expanding Chicago's most-traveled rail line, the Red Line. As part of the program, FTA and CTA have been analyzing the proposed extension of the Red Line (see **Figure 1-1**).

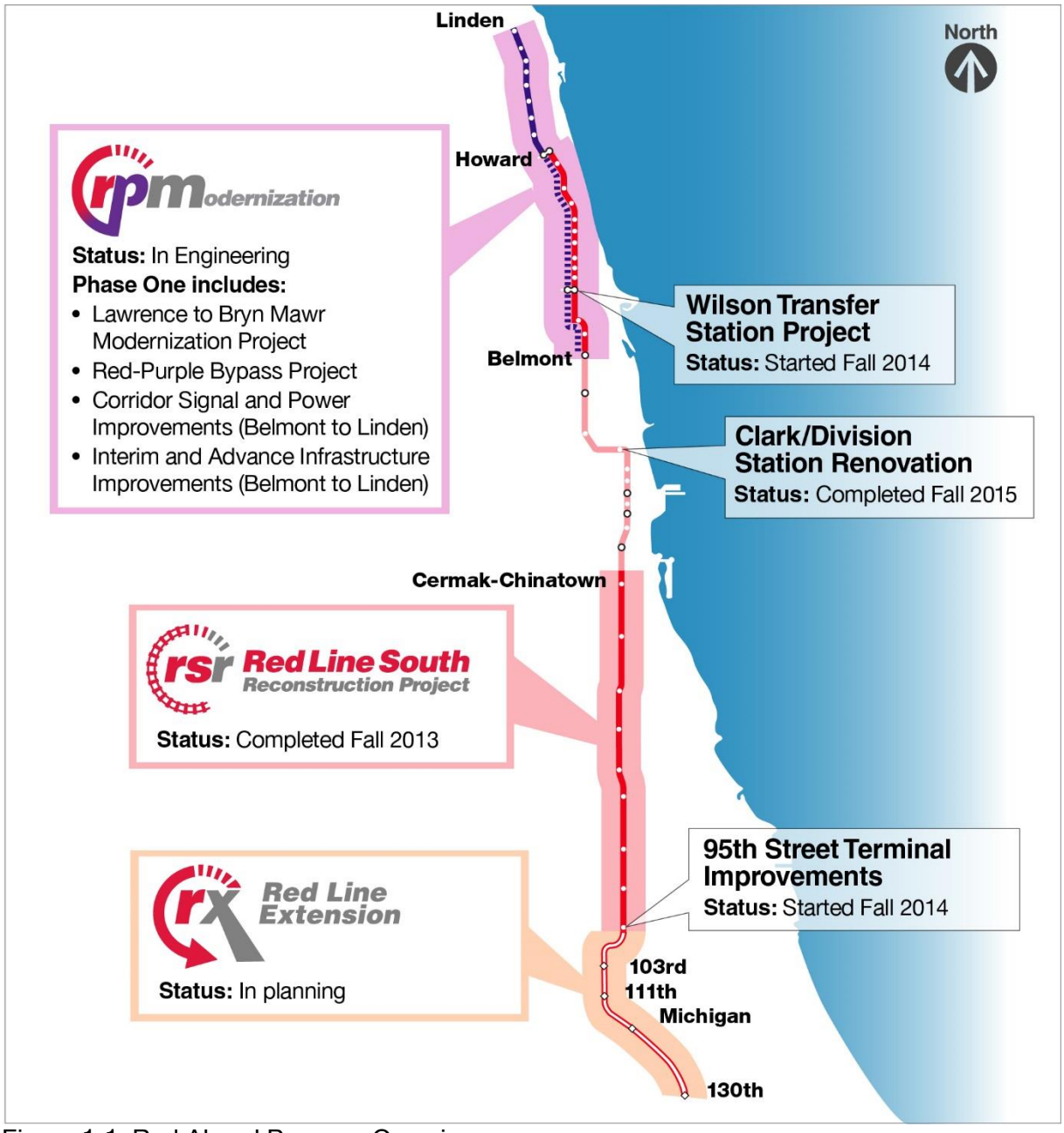


Figure 1-1: Red Ahead Program Overview

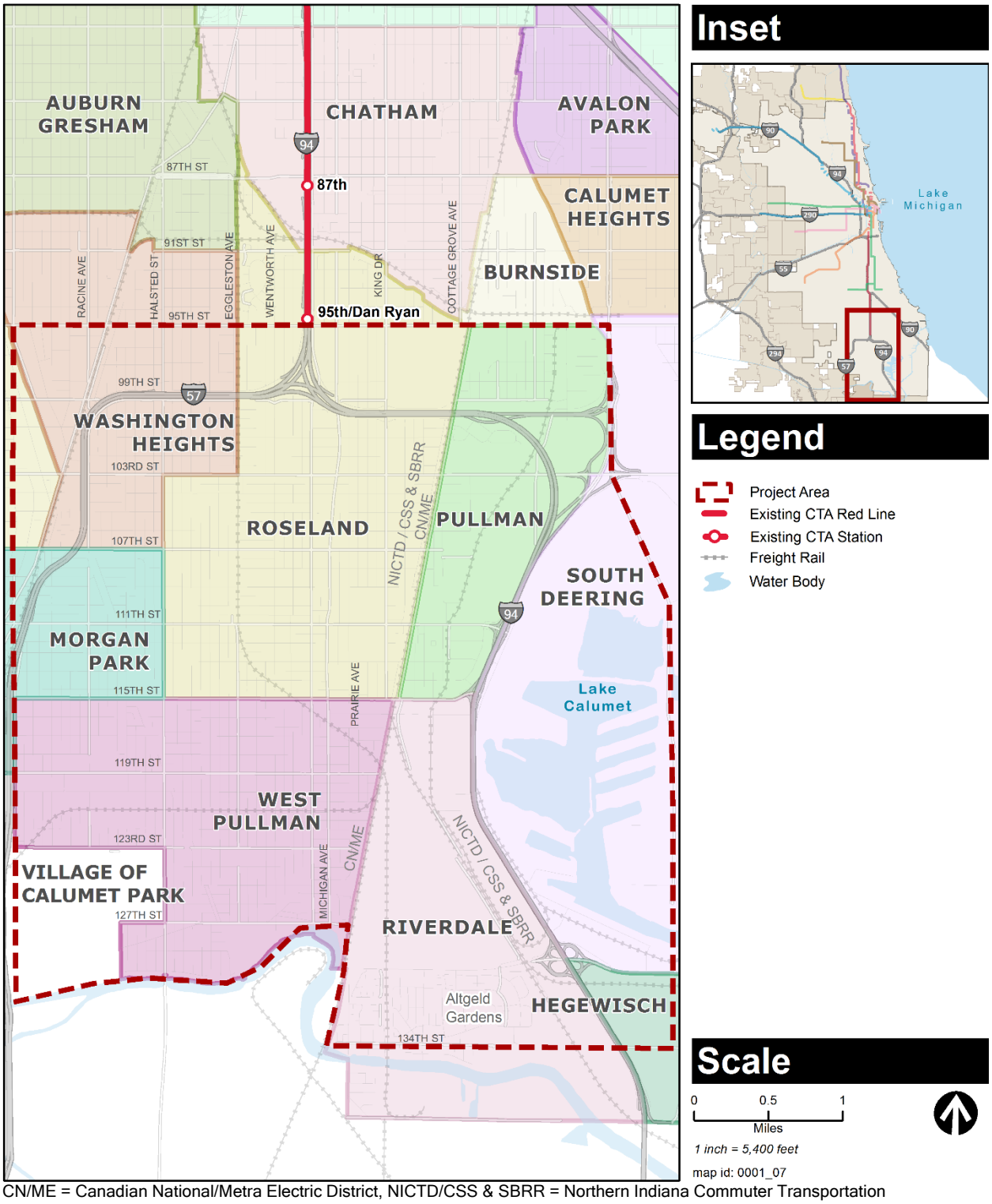
The project area for the RLE is approximately 11 miles south of the Loop (Chicago's central business district) on Chicago's Far South Side. The project area encompasses approximately 20 square miles. The boundaries of the project area are 95th Street on the north, Ashland Avenue on the west, Stony Island Avenue on the east, and the Calumet-Sag Channel/Little Calumet River and 134th Street on the south (**Figure 1-2**). The project area includes expressways, regional arterials,

commuter and freight railroads, intermodal connectors, local streets, bicycle facilities, and pedestrian facilities. The expressways that pass through the project area are Interstate 94 (I-94, also known as the Dan Ryan Expressway north of 95th Street and the Bishop Ford Freeway south of 95th Street) and Interstate 57 (I-57). From the northern border of the project area, I-94 runs south to 99th Street, curves east, then curves south and runs along the west side of Lake Calumet. I-57 joins I-94 at 95th Street and runs east of the Metra Rock Island District commuter rail line to 115th Street, and then curves south along the western limit of the project area.

CTA's Red Line HRT service currently terminates at the 95th Street Terminal, in the northern portion of the project area. From there, a network of CTA and Pace Suburban Bus Service (Pace) bus routes serves the surrounding Far South Side communities. The 95th Street Terminal is among CTA's busiest stations, and many residents in the project area use bus service to transfer to the Red Line, causing lengthy travel times. The Red Line operates 24 hours per day, 7 days per week, as do some of the connecting bus routes.

Metra operates commuter rail in the project area. The commuter rail lines include the Rock Island District, Electric District mainline, and Electric District Blue Island branch. The Northern Indiana Commuter Transportation District (NICTD) operates the South Shore Line, which shares tracks with the Metra Electric District (ME) mainline north of 115th Street. These commuter rail lines offer primarily peak-hour, peak-direction service to and from downtown Chicago, with infrequent service outside of peak hours.

The overall project area has residential (primarily single-family), commercial (urban mixed-use), industrial, transportation, utility, and vacant land uses. Commercial land uses are clustered around the major thoroughfares in the area, including Michigan Avenue and Halsted Street. Vacant properties are interspersed throughout most residential and commercial blocks. The project area encompasses parts of nine community areas in the City of Chicago and the eastern section of the Village of Calumet Park (see **Figure 1-2**). Chicago community areas include Beverly, Washington Heights, Roseland, Morgan Park, Pullman, West Pullman, Riverdale, Hegewisch, and South Deering. The project area also contains several schools, universities (including Chicago State University), and the Altgeld Gardens public housing project. According to census data, project area population and employment have declined during the past decade (U.S. Census Bureau 2010); however, CMAP anticipates growth in some areas by 2030 (CMAP 2010b).



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 1-2: Red Line Extension Project Area

1.2 Statement of Purpose and Need

This Draft EIS builds upon the RLE AA process, which took place from 2006 through 2009. The AA process included public involvement and conceptual design and analysis to identify the project's purpose and need. The purpose and need reflects the project objectives discussed with the public during the AA process, EIS scoping (including the public scoping meetings), and ongoing public involvement activities. This Draft EIS discusses the extent to which the alternatives in **Chapter 2** meet the purpose and need, which are tied to the goals discussed in **Section 9.2**.

1.2.1 Purpose

The purpose of the RLE Project is as follows:

- Reduce commute times for residents both within and south of the project area.
- Improve mobility and accessibility for transit-dependent residents in the project area.
- Improve rapid transit rail service to isolated areas and provide viable linkages between affordable housing (e.g., the Altgeld Gardens public housing project), jobs, services, and educational opportunities, thereby enhancing livability and neighborhood vitality.
- Provide an opportunity for potential connections and linkages to other public transportation modes including regional commuter rail in the project area.
- Foster economic development in the project area, where new stations may serve as catalysts for neighborhood revitalization and help reverse decades of disinvestment in local business districts.
- Provide a modern, efficient rail car storage yard and shop facility to provide storage and cost-effective preventive maintenance for rail cars associated with the RLE Project, rail cars currently stored in the existing 98th Street Yard and Shop, and rail cars supporting additional Red Line expansion of service.

1.2.2 Need

The need for the RLE Project is demonstrated by the following existing conditions:

- Transit trips to jobs are longer for Far South Side residents than they are for residents in the Chicago seven-county region[1] as a whole.
- Transit-dependent populations in the project area have limited direct access to rapid transit rail service.
- The project area is geographically isolated from major activity centers and provides residents limited viable transportation options, which limits access between affordable housing (e.g., the Altgeld Gardens public housing project) and employment centers outside of the project area.

[1] The Chicago seven-county region includes the counties of Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will.

- Existing transit markets are underserved and transit connectivity is challenging in the project area.

- Disinvestment and limited economic development in the project area have negatively affected Far South Side communities.

- The existing 98th Street Yard does not have capacity to store rail cars for any substantial increase in Red Line capacity accompanying future Red Line expansion.

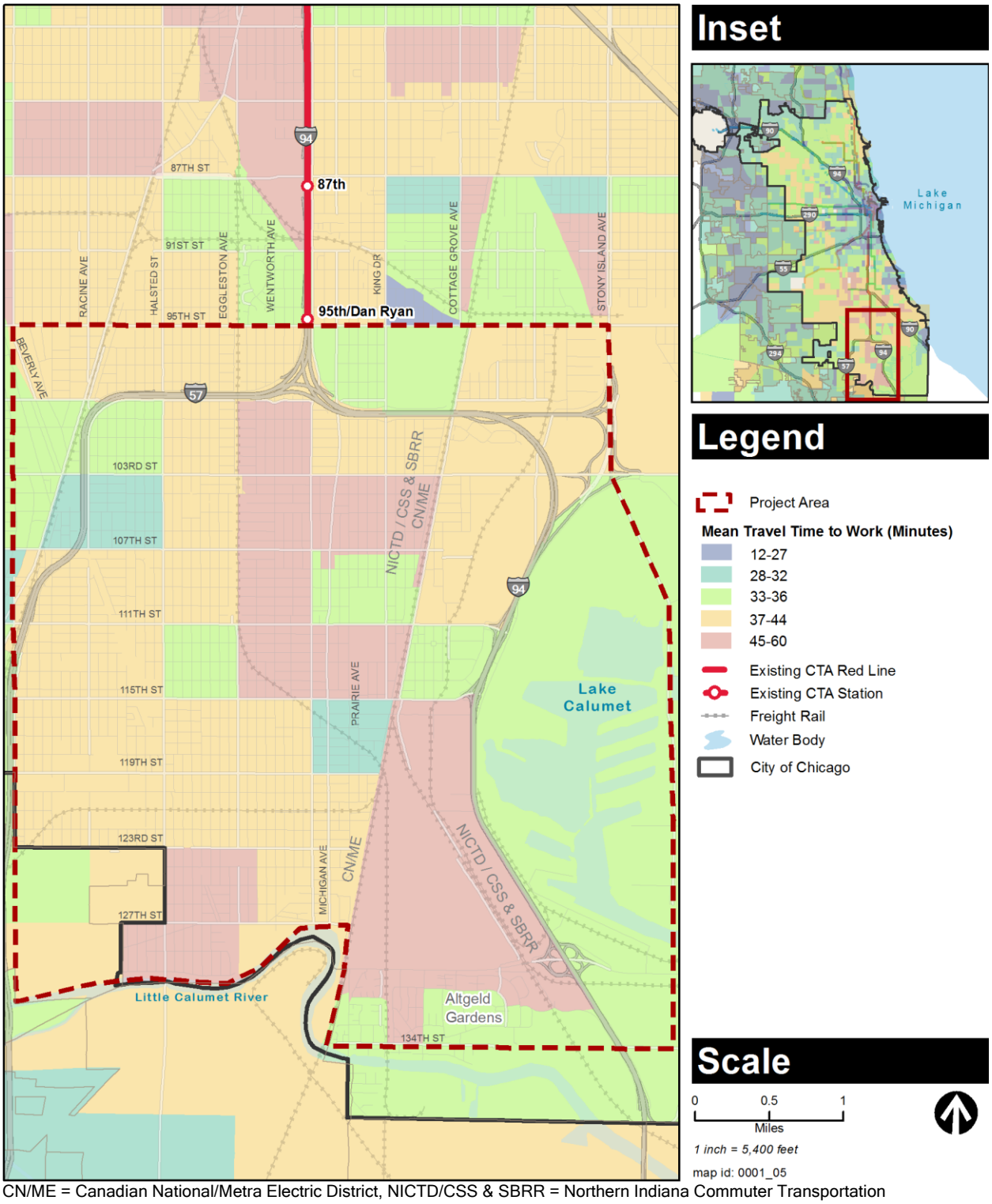
1.3 Justification of Purpose and Need

This section documents the elements of the purpose and need for the RLE Project as identified in **Section 1.2**. Supporting data is summarized in the following sections, and more detailed supporting data is available in the *Purpose and Need Report* (**Appendix D**).

1.3.1 Long Transit Trips to Job Centers for Far South Side Residents

Project area commute times are among the longest in the city, as shown in the map inset on **Figure 1-3**. **Figure 1-3** details commute times in the project area. During 2005–2010, commute times were 24 percent longer for project area residents than for other residents in the seven-county region—approximately 39 minutes one-way for project area residents, versus 32 minutes region-wide (U.S. Census Bureau 2010). Expressway and arterial traffic congestion limit the mobility of residents in the project area, including bus passengers who are frequently stuck on the same congested roadways. *GO TO 2040* states the "region's congestion levels are among the highest in the nation, and projected increases in population, jobs, and freight traffic will only add to the pressure on our infrastructure" (CMAP 2010b). Traffic congestion in the Chicago metropolitan area has steadily increased in recent decades, and project area roadways are approaching capacity limits during the morning peak period.

Public transit passengers and those who depend on public transit for meeting their travel needs are hardest affected by these long commute times. Complex transfers to reach the 95th Street Terminal make commute times greater than 2 hours one-way for some project area residents (CMAP 2012a). Project area residents accessing the 95th Street Terminal by bus and other transportation modes experience measureable delays resulting from congestion along arterial streets. The need for improved access to job centers outside of the project area is evidenced by an unemployment rate of 19 percent in the project area (U.S. Census Bureau 2013). Some neighborhoods within the project area, such as Riverdale, have unemployment rates as high as 34 percent (U.S. Census Bureau 2013). The RLE Project would reduce transit travel times to jobs from many neighborhoods in the project area, which would help facilitate job access and result in additional viable employment opportunities.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: U.S. Census Bureau 2010

Figure 1-3: Travel Time to Work

1.3.2 Transit-Dependent Populations Lack Direct Access to Rapid Transit Rail Service

A large share of the population in the project area falls within several demographic categories that typically indicate transit dependency: low-income populations, senior citizens, people who are too young to drive, people with disabilities, and people living in households without cars. For transit-dependent populations, the availability of quality transit service that connects them to job centers is particularly important. The following comparisons highlight the transit-dependent characteristics of the project area:

- The median annual household income in the project area is approximately $41,000, which is below the Chicago metropolitan area median of approximately $62,000 (U.S. Census Bureau 2010). Some community areas, such as Riverdale, have median annual household incomes as low as $11,000. The entire Chicago metropolitan area had a decline in median household income of approximately 7 percent between 2000 and 2010, but these effects have been more pronounced in the project area, which had a decline of nearly 21 percent in the same timeframe (U.S. Census Bureau 2010). Low-income households are less likely to own cars, and frequently rely on transit as their primary mode of transportation.

- Approximately 15.3 percent of project area residents are over the age of 65, compared to 10.3 percent of the Chicago metropolitan area (U.S. Census Bureau 2010). Senior citizens are more likely to be transit dependent because they may no longer be physically able to drive.

- Approximately 27 percent of the project area is under the age of 18, compared to 23 percent of the Chicago metropolitan area (U.S. Census Bureau 2010). Minors are more likely to be transit dependent because many are too young to obtain driver's licenses, or do not have the financial means to purchase a car.

- Approximately 15.4 percent of households in the project area have at least one member with a disability, compared to 11 percent region-wide (U.S. Census Bureau 2010). People with disabilities are more likely to be transit dependent if their disabilities prevent them from driving a car.

- Although the average household size in the project area (2.88 persons per household) is nearly the same as in the Chicago metropolitan area (2.84 persons), project area households have fewer vehicles on average (U.S. Census Bureau 2010). Approximately 10 percent of project area households have no vehicle available, versus 6 percent region-wide. Of the project area households that do have cars, there are generally fewer cars per person than other households in the region, causing some household members to rely on non-automobile modes of transportation.

The CTA Red Line currently serves only the northernmost portion of the project area directly. Most residents in the project area must use connecting bus service to reach the 95th Street Terminal, which results in long travel times, as described in **Section 1.3.1**. Direct access to rapid transit from a greater share of project area residences would improve job access.

1.3.3 Isolation from Major Activity Centers and Limited Viable Transportation Options

Despite the substantial amount of roadway infrastructure in the project area, expressways and arterial streets frequently become congested, thereby limiting mobility. Mobility is further inhibited by the limited options for connecting to the CTA's rail system. Although bus routes operated by CTA and Pace provide service 24 hours a day, buses in the project area are frequently delayed by congestion on arterial streets leading to the 95th Street Terminal. None of the Red Line stations along the Dan Ryan branch currently have park & ride facilities, precluding residents from accessing the stations by car unless they are dropped off. Several bus routes serve the 95th Street Terminal and Metra stations; however, the large residential tracts surrounded by local streets limit the bus network.

While the project area does have an extensive sidewalk and crosswalk system along the road network, physical divisions between communities include the ME mainline, which is on an embankment; Lake Calumet; the Little Calumet River; the UPRR right-of-way, which extends north-south from 99th Street to 119th Street; and large tracts of industrial land. These physical divisions are difficult to cross for pedestrians and bicyclists, and effectively separate the communities on either side. This geographic isolation is particularly problematic for residents of the Altgeld Gardens public housing project at the south end of the project area between 130th Street and 134th Street in the Riverdale community area. Residents in this area have limited employment opportunities and transportation choices within walking distance of their homes.

There is a high percentage of vacant homes in the project area—13 percent higher than the City of Chicago (CMAP 2012a). Several factors contribute to housing vacancy rates in a particular community. These factors include, but are not limited to, safety and security, proximity to public services, access to jobs, quality of schools, age and type of available housing units, quality of life, and the overall health of the community. In addition, there are ten affordable housing properties (with a total of almost 2,800 units) within ½ mile of the proposed alignment (National Housing Preservation Database 2015). Improved public transportation options, combined with affordable housing stock, would serve as a catalyst to bring people to the area that would not otherwise consider communities in the project area as a viable place to live. Mutual benefit for project area residents, and those seeking affordable housing, could be provided through rapid transit south of the 95th Street Terminal.

1.3.4 Underserved Transit Markets and Limited Transit Connectivity

Several groups of potential passengers ("transit markets") in the project area are underserved by the existing transit system. Transit service enhancements, including those proposed as part of the RLE Project, would improve service for these groups. The largest underserved groups are as follows:

- Project area residents who must use connecting bus routes to reach the Red Line - Most of the CTA and Pace bus routes in the project area serve the Red Line's 95th Street Terminal. As discussed above, average travel times for work trips and the number of transit-dependent residents are higher in the project area (compared to the seven-county region) due to traffic congestion and the time required to ride a bus to the 95th Terminal and transfer to the CTA Red Line. The combination of these conditions underscores the need to improve connectivity and provide faster transit service.

- People driving to Chicago activity centers from the project area and points south - There are currently no CTA parking facilities on the Red Line Dan Ryan branch, leaving motorists coming from the project area and points south few options for parking at a Red Line station and completing their trips via transit. In addition, I-94 is congested northbound in the AM peak period and southbound in the PM peak period; during these time periods, traffic flows are more than 15 miles per hour slower than free flow speeds of 60 miles per hour (Illinois Department of Transportation [IDOT] 2015). CTA park & ride facilities near major expressways or arterial streets in the southern portions of the project area would provide new, convenient access possibilities on the Red Line. The need for park & ride facilities was confirmed based on travel demand modeling performed in 2009, as part of the RLE AA process (see **Appendix A**).

- Transit passengers traveling to other potential transit destinations - This group includes those taking reverse commute trips (residents in the central areas of the city commuting to jobs in outer communities), school trips, and trips entirely within the project area. There are several educational facilities in the project area, including Chicago State University (7,200 students), Olive-Harvey College (4,300 students), and several high schools (including Harlan, Corliss, Fenger, Julian, Brooks, and Carver High Schools) that would benefit from transit improvements in the project area.

1.3.5 Disinvestment and Limited Economic Development Have Affected Far South Side Communities

The project area has experienced ongoing disinvestment, including loss of manufacturing jobs, which has led to a decline in population, services, and job opportunities. Once-vibrant retail districts, such as Michigan Avenue and Halsted Street, now contain vacant land and storefronts. This decline is evidenced by the decrease in project area population and employment compared to the City of Chicago and the seven-county region (**Table 1-1** and **Table 1-2**).

Table 1-1: Population Decline in Red Line Extension Project Area (2000 to 2010)

Area	2000 Population	2010 Population	Change
Chicago Seven-County Region	8,146,264	8,399,893	3.0%
City of Chicago	2,895,964	2,700,741	-7.2%
Red Line Extension Project Area	147,662	128,366	-15.0%

Source: U.S. Census Bureau 2010

Table 1-2: Employment Decline in Red Line Extension Project Area (2000 to 2010)

Area	2000 Employment	2010 Employment	Change
Chicago Seven-County Area	4,083,530	4,429,414	8.5%
City of Chicago	1,358,054	1,410,294	3.8%
Red Line Extension Project Area	62,587	56,105	-11.5%

Source: U.S. Census Bureau 2010

The City of Chicago is focused on stabilizing, improving, and redeveloping communities in and around the project area. As a result, the City has designated several tax increment financing (TIF) districts, redevelopment areas, special service areas, and industrial corridors in the project area (see **Appendix D** for more information). In addition to economic revitalization initiatives, viable transportation options continue to be a key element in the success of economic development

efforts and revitalization for communities within the project area. Examples of redevelopment in the project area include the Pullman District, the Method factory, and a new Walmart store (opened 2014). The Pullman District includes the Pullman factory, the Hotel Florence, and the Pullman Railroad Porters National Museum. This district was named a National Monument on February 19, 2015, making it a component of the National Park System. Building on the Pullman's community history as a manufacturing hub, Method, a manufacturer of environmentally friendly cleaning and personal care products, opened a new 150,000-square-foot factory in Pullman in April 2015, which has created approximately 100 jobs.

1.3.6 The Need for a Rail Car Storage Yard and Maintenance Facility

The existing 98th Street Yard does not have capacity to store rail cars required for any substantial increase in Red Line capacity accompanying future Red Line expansion. Two yard and shop facilities (Howard Yard at the north end of the Red Line and 98th Street Yard at the south end of the Red Line) provide storage for vehicles operating along the Red Line. Any Red Line expansion must consider the capacity of both yards. The Howard Yard and the 98th Street Yard together supply rail cars for both the northern and southern portion of the Red Line. Both yards are necessary to efficiently provide trains to meet the current and future operating plans for the entire Red Line. All northbound trains currently begin their run at 98th Street Yard, and any expansion of Red Line service would require expanded yard capacity at or near the southern end of the Red Line. The existing 98th Street Yard is landlocked between interstate ramps for I-94 and I-57. There is no room to expand the yard without major realignments of the two highways. In addition, the existing 98th Street Yard is oriented as a terminal yard for service to and north of the 95th Street Terminal. With the RLE Project expanding service to the south, use of the 98th Street Yard would lead to inefficient operations. Moving trains into and out of the existing yard, due to the orientation of the yard, would cause operational inefficiencies and potential capacity constraints to Red Line service.

1.4 Organization of the Document

This Draft EIS analyzes how well the NEPA Preferred Alternative would satisfy the purpose and need stated above. It also analyzes the potential impacts of the No Build and NEPA Preferred Alternatives. **Section 9.2** provides further analysis of the extent to which the East and West Options would satisfy the purpose and need.

NEPA documents, such as this EIS, must provide sufficient technical detail to meet a range of legal requirements and are required to be organized in a specific way, as described in 40 Code of Federal Regulations (CFR) § 1502. **Figure 1-4** provides an overview of the chapters and the major topics covered in this document.

CHAPTER 1 **Purpose and Need**	This chapter is the foundation of the document. It introduces the project, provides background information, and explains why the project is proposed and important.
CHAPTER 2 **Alternatives Considered**	This chapter reviews the planning process and alternatives considered in developing the project and describes the alternatives under further consideration in this Draft Environmental Impact Statement.
CHAPTER 3 **Transportation**	This chapter presents the potential for impacts on the transportation network. This chapter also discusses measures to avoid or minimize those impacts.
CHAPTER 4 **Environmental Impacts and Mitigation**	This chapter discusses the social, economic, and environmental resources that could be affected by the construction and operation of the project alternatives. This chapter also discusses measures to avoid or minimize those impacts.
CHAPTER 5 **Resources with Limited or No Adverse Impacts**	This chapter summarizes the resources that would have limited or no adverse impacts due to operation or construction of the project alternatives.
CHAPTER 6 **Environmental Justice**	This chapter discusses the impacts of the project alternatives on environmental justice communities in the project area.
CHAPTER 7 **Section 4(f) Evaluation**	This chapter focuses on meeting the federal requirements of Section 4(f) of the U.S. Department of Transportation Act of 1966, which protects significant historic sites, publicly owned parks, recreation areas, wildlife refuges, and waterfowl refuges that could be used by a federally funded project.
CHAPTER 8 **Evaluation of Alternatives**	This chapter presents potential capital and operations funding strategies as well as a summary evaluation of the project alternatives.
CHAPTER 9 **Public and Agency Coordination**	This chapter discusses the processes for public involvement and agency coordination and addresses public comments and suggestions.
Chapter 10 **List of Acronyms and Abbreviations**	This chapter provides definitions for the acronyms and abbreviations used within the document.
CHAPTER 11 **List of References**	This chapter provides the references used within the document.
CHAPTER 12 **List of Preparers**	This chapter lists the preparers of this document.
CHAPTER 13 **List of Recipients**	This chapter lists the agencies, local officials, and public libraries that were notified of the availability of this document.

Figure 1-4: Environmental Impact Statement Document Organization

Chapter 2
Alternatives Considered

This chapter describes the alternatives studied in this Draft EIS and discusses how they were developed. It also includes documentation of alternatives that were analyzed and subsequently eliminated from further consideration.

2.1 Alternatives Development Process

CTA began developing the alternatives studied in this Draft EIS during the AA, which took place during 2006–2009. Starting with multiple modes and corridor options, CTA developed and screened alternatives through a combination of conceptual engineering, public input (open house and stakeholder meetings), and preliminary analysis of potential impacts and costs. A three-level, detailed screening process was used to evaluate the alternatives and identify an LPA. **Appendix A** (LPA Report) provides detailed documentation of the Screen 1, Screen 2, and Screen 3 evaluations.

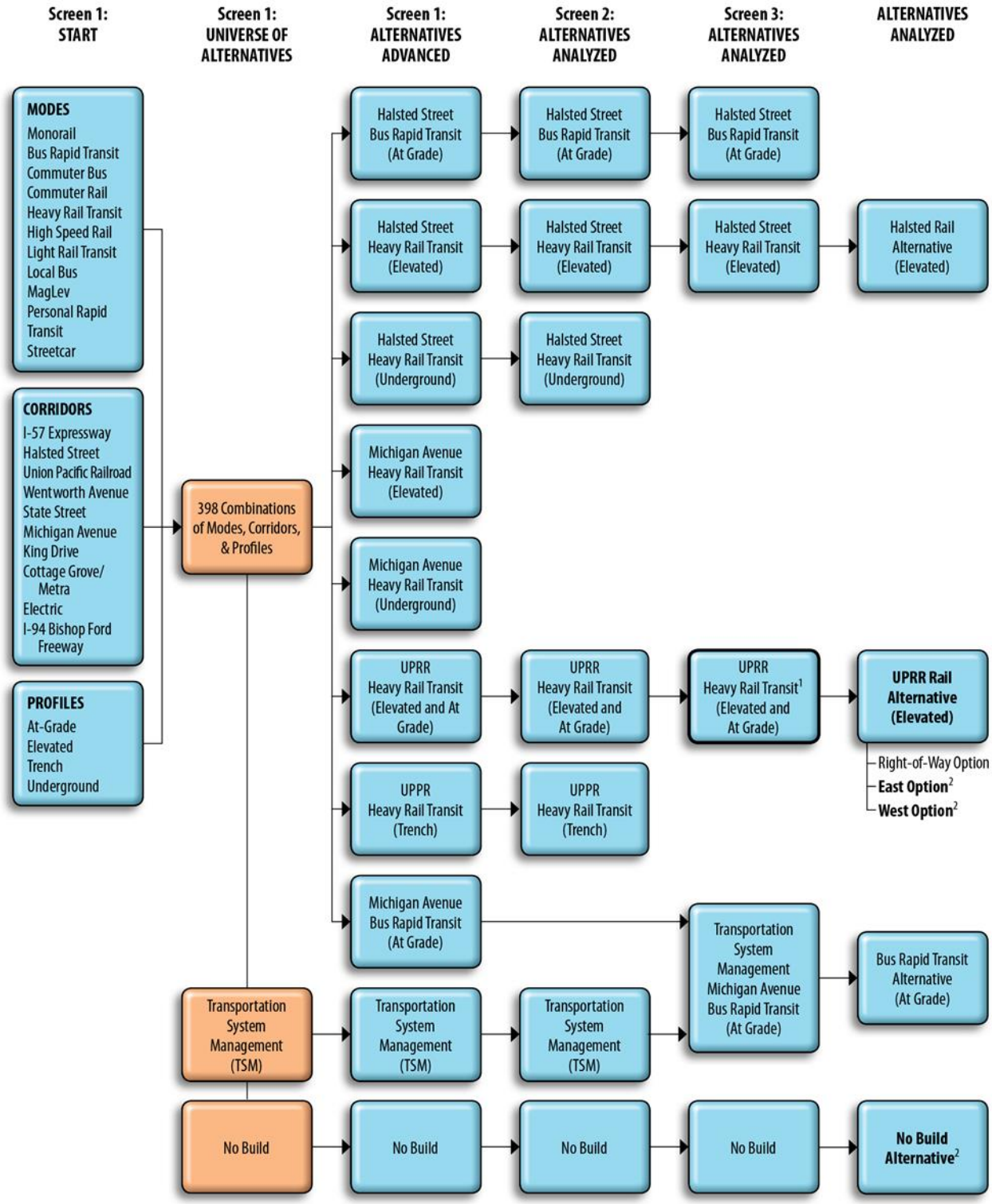
The Screen 1 evaluation began by identifying the universe of alternatives, which included a wide range of transit modes (such as bus, rail, or streetcar), project area corridors, and profiles (where the transit line is in relation to the ground). Combinations of 11 modes, 9 corridors, and 4 profiles were evaluated against the purpose and need. Based on this evaluation, the following alternatives were carried forward for further analysis in Screen 2: two bus rapid transit (BRT) alternatives along Halsted Street and Michigan Avenue; six HRT alternatives along Halsted Street, the UPRR, and Michigan Avenue; the No Build Alternative; and a "low cost" alternative (formerly required for FTA analyses known as the Transportation System Management [TSM] Alternative).

The alternatives carried through to the Screen 2 evaluation were more thoroughly defined to include mapping of a more defined alignment, identification of potential station locations, and preliminary service plans. Station spacing was determined by the type of alternative proposed, project area needs, and consistency with the purpose and need. The eight evaluation factors for the Screen 2 included a mix of qualitative and quantitative factors intended to further evaluate the performance of each alternative with respect to the project goals and objectives. Specific evaluation factors included physical constraints; right-of-way requirements; social and economic factors; demographics and employment; environmental factors; noise, visual, natural, and cultural resource impacts; transportation factors; and travel time, transit connectivity, and traffic.

Based on the results of the Screen 2 evaluation, a BRT alternative along Halsted Street (operating on dedicated lanes), two HRT alternatives along Halsted Street and the UPRR, the No Build Alternative, and the TSM Alternative were recommended for further evaluation in Screen 3. In addition to the alternatives carried forward from the Screen 2 evaluation and based on discussions with FTA, CTA combined the TSM Alternative with a BRT alternative (operating on existing right-of-way rather than dedicated lanes as proposed in Screen 2) along Michigan Avenue to form a single alternative (called the BRT Alternative) for evaluation in Screen 3. Because the Michigan Avenue BRT Alternative would operate in the existing right-of-way, it would require fewer property acquisitions than BRT on dedicated lanes. Screen 3 was a two-step evaluation process that included the further definition and refinement of alternatives, including conceptual design and the evaluation of these alternatives. Nine evaluation factors were used to evaluate the alternatives as part of Screen 3, including physical constraints, public support, social and

economic factors, environmental factors, transportation factors, capital cost comparison, operating and maintenance cost comparison, ridership potential, and FTA's Cost Effectiveness Index. The result of the Screen 3 evaluation was a recommendation for the LPA: the UPRR Rail Alternative.

Based on the results of the AA and considerable public support for the corridor, including a 2004 referendum where 38,000 residents in the 9th and 34th Wards supported the UPRR corridor for the RLE Project, the UPRR Rail Alternative was recommended as the LPA, indicating that it is the alternative that would best meet the purpose and need of the project while addressing potential impacts and other potential constraints. The UPRR Rail Alternative would provide access to the most densely populated portions of the study area, which are primarily residential and transit supportive. The Chicago Transit Board designated the UPRR Rail Alternative as the LPA on August 12, 2009. **Figure 2-1** summarizes the AA process.



[1]The Chicago Transit Board designated the UPRR Rail Alternative as the Locally Preferred Alternative on August 12, 2009.
[2]This Draft EIS presents impacts of the No Build Alternative and two options of the UPRR Rail Alternative: the East Option and the West Option.

EIS = Environmental Impact Statement, UPRR = Union Pacific Railroad

Figure 2-1: Alternatives Development Summary

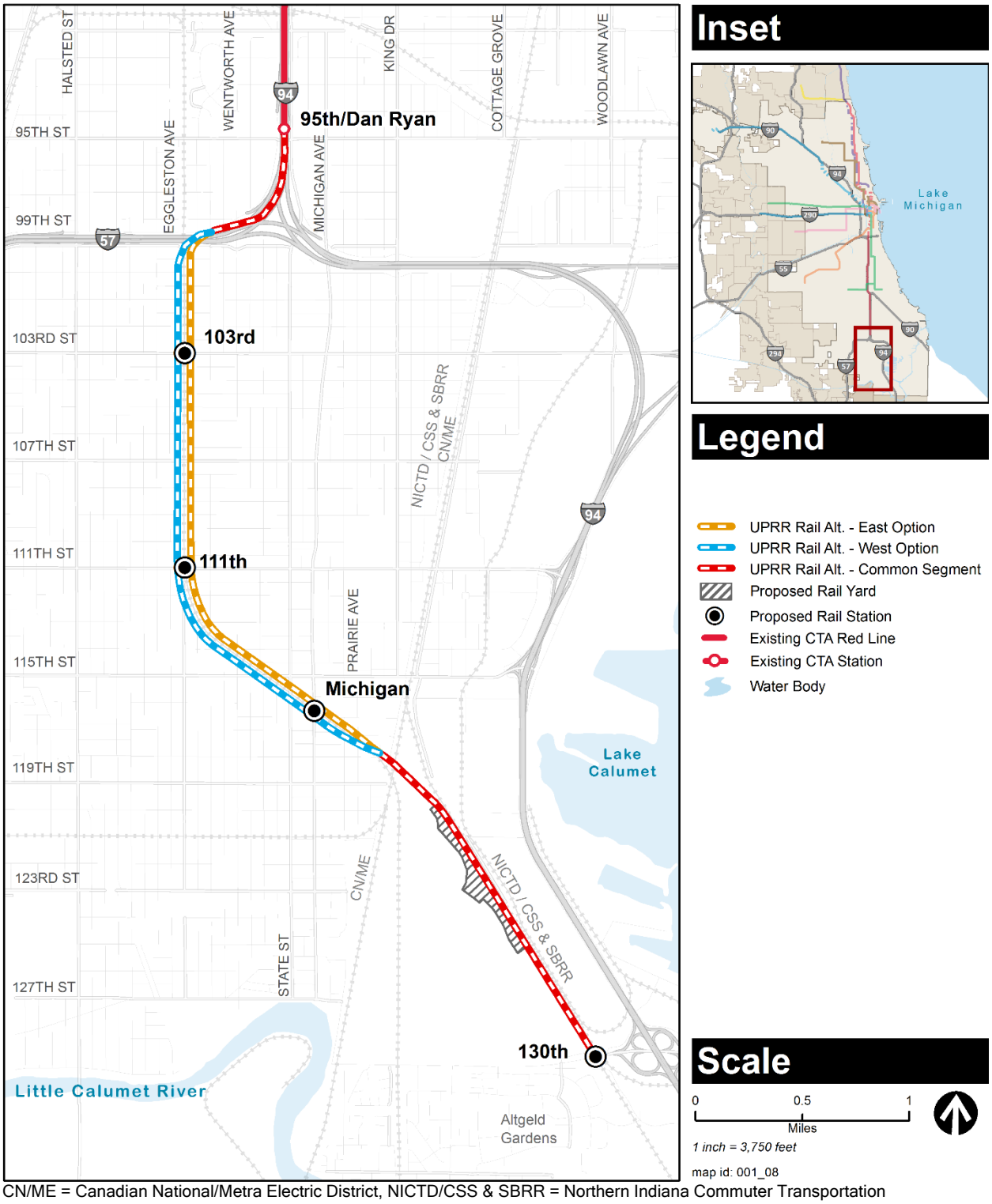
After the AA, CTA further refined the alternatives for presentation during the NEPA scoping process and study in this Draft EIS. At the conclusion of the AA process, the UPRR Rail Alternative was anticipated to be located adjacent to the east or west edge of the UPRR right-of-way. In 2012, CTA learned of a Chicago Department of Transportation (CDOT) feasibility study looking at moving UPRR freight operations out of the existing UPRR corridor before the RLE Project. By moving UPRR freight operations out of the existing UPRR corridor, CTA could use the existing UPRR right-of-way for the RLE Project. CTA evaluated this new option of the UPRR Rail Alternative, known as the Right-of-Way Option, in preparation of this Draft EIS. Subsequent coordination between local agencies and the railroads indicated that relocating UPRR freight operations from this corridor presents considerable challenges and would not be feasible.

During 2012–2014, CTA evaluated benefits and impacts of four alternatives: the No Build Alternative, the BRT Alternative (along Michigan Avenue), the UPRR Rail Alternative, and the Halsted Alternative. CTA evaluated three options for the UPRR Rail Alternative: the Right-of-Way Option, East Option, and West Option. CTA also evaluated two options for the UPRR Rail Alternative 130th Street station: a South Station Option and a West Station Option. **Appendix E**, *Description of Alternatives*, contains details about each of these four alternatives and both options for the 130th Street station. The supporting technical memoranda, included in this Draft EIS as **Appendices H–X**, include analysis of each of these alternatives and options.

In August 2014, based on the technical analysis and public input until then, CTA announced the NEPA Preferred Alternative—the UPRR Rail Alternative. Because the Right-of-Way Option is not feasible, the Draft EIS evaluates only the East and West Options for the UPRR Rail Alternative. CTA has chosen to move forward with the South Station Option at 130th Street based on technical analysis and public feedback. **Section 2.4** contains additional information about the BRT Alternative, UPRR Right-of-Way Option, UPRR West Station Option for the 130th Street station, and Halsted Alternative in the discussion of alternatives considered but not pursued.

2.2 Alternatives Evaluated in the Draft Environmental Impact Statement

This Draft EIS discusses the No Build Alternative and two options of the UPRR Rail Alternative: the East Option and the West Option. **Figure 2-2** shows the UPRR Rail Alternative alignments. For simplicity, this alternative is called the "UPRR Alternative" in the remaining sections of this document and the UPRR Rail Alternative East and West Options are referred to as the "East and West Options." **Appendix F** contains plans and profiles for the East and West Options.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 2-2: Union Pacific Railroad Alternative Options

2.2.1 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 UPRR Alternative.

The No Build Alternative represents future conditions if the UPRR Alternative were not implemented. The No Build Alternative includes all projects currently included in the fiscally constrained portion of the CMAP FY 2014–2019 TIP. Projects in the TIP in the project area include renovation of the 95th Street Terminal, rail line maintenance and improvements, preservation of the North Pullman historic area, road resurfacing, coordination of traffic signal timing, and construction of a new bicycle/pedestrian facility. Impacts related to the construction and operation of the 95th Street Terminal are documented in the approved *95th Street Terminal Improvement Project Environmental Assessment* (CTA 2013b). FTA issued a Finding of No Significant Impact for the 95th Street Terminal Improvement Project in April 2013 and an Amended Finding of No Significant Impact in July 2013. An Environmental Assessment Re-Evaluation performed by FTA in July 2016 confirmed that the Amended Finding of No Significant Impact dated July 2013 remains valid. No new infrastructure would be built as part of the RLE Project under the No Build Alternative.

2.2.2 Union Pacific Railroad Alternative

The UPRR Alternative would extend the heavy rail Red Line 5.3 miles from the existing 95th Street Terminal to 130th Street. As noted above, the Chicago Transit Board designated the UPRR Alternative as the LPA at its August 12, 2009 board meeting. The UPRR Alternative would reduce transit travel times from the project area to points on the Red Line north of 95th Street (from 130th Street to 95th Street) from 28 minutes to approximately 14 minutes (CTA 2009, see **Appendix D**). Two alignment options adjacent to the UPRR are considered for this alternative: the East Option and the West Option.

Alignment

The UPRR Alternative alignment would run south along I-94 from the 95th Street Terminal, then curve west along the north side of I-57 (within the I-57 right-of-way) for nearly ½ mile until reaching the UPRR corridor in the vicinity of Eggleston Avenue, as shown on **Figure 2-2**. The alignment would turn south to follow the UPRR corridor. Two options are being considered for the alignment along the UPRR corridor. The CTA elevated structure would be located either east or west of the existing UPRR corridor. The alignment would follow the UPRR corridor to Prairie Avenue, where it would cross over the Canadian National/Metra Electric District (CN/ME) tracks near 119th Street. South of this point, the East and West Options would follow the same alignment southeast along the NICTD/Chicago South Shore & South Bend Railroad (NICTD/CSS & SBRR) right-of-way using a portion of the Norfolk Southern Railway and Consolidated Rail Corporation (Conrail) right-of-way to the terminus (end) of the RLE at 130th Street.

As described, two UPRR Alternative options for the segment of the proposed alignment between I-57 and the CN/ME tracks near 119th Street are studied in this Draft EIS:

- East Option - The CTA elevated structure would be placed immediately adjacent to the east side of the UPRR right-of-way.

- West Option - The CTA elevated structure would be placed immediately adjacent to the west side of the UPRR right-of-way.

Structure and Tracks

In the UPRR Alternative, the tracks would be on a new elevated (aerial) track structure from the 95th Street Terminal through the CN/ME track crossing near 119th Street. South of this elevated crossing, the tracks would transition to an at-grade profile (they would continue at ground level).

The proposed elevated structure would be a closed-deck, steel and concrete, aerial track structure with direct-fixation track and welded rail (welded at joints). With direct-fixation track, rails are mounted to specially designed concrete blocks fixed to the concrete deck. Noise barriers (approximately 4 feet in height, measured from the top surface of the concrete deck) are proposed for portions of the structure on both sides of the track deck to reduce noise transmission at and below track level. The structure would vary in height from 14 feet 9 inches to 40 feet above existing grade, depending on required clearances above existing roadways and railroads. The two tracks would have a spacing of 13 feet (13 feet between the track centerlines). The elevated deck, on which the tracks would run, would vary in width from approximately 30 feet to approximately 52 feet at stations.

Figure 2-3 is a photo simulation of a typical proposed elevated structure above the UPRR right-of-way. The design shown is conceptual, and the actual design would vary based on further engineering and community input.

Figure 2-3: Photo Simulation of Union Pacific Railroad Alternative East Option at 111th Street Facing West - Typical Proposed Elevated Structure

Stations

As part of either the East or West Option, four new stations would be constructed at the following locations along the proposed alignment:

- 103rd Street (elevated station)
- 111th Street (elevated station)
- Michigan Avenue (elevated station)

- 130th Street (at-grade station)

At 103rd Street, 111th Street, and Michigan Avenue, East Option stations would be located east of the UPRR tracks, and West Option stations would be located west of the UPRR tracks. Each station would have a center platform, approximately 26 feet wide and 520 feet long. Platforms would accommodate ten-car trains. Each station would be Americans with Disabilities Act (ADA) accessible with elevators. Each station area would include areas for bus boarding, new crosswalks where needed to accommodate pedestrian traffic, and park & ride facilities. **Figure 2-4** is a photo simulation of a typical proposed station. The design shown is conceptual, and the actual design would vary based on further engineering and community input.

Figure 2-4: Photo Simulation of Union Pacific Railroad Alternative East Option at 103rd Street Facing Northwest - Typical Proposed Elevated Station

The 130th Street station would be located immediately west of the NICTD/CSS & SBRR right-of-way at 130th Street. Pedestrians from Altgeld Gardens would access the station from 130th Place. Pedestrians would not need to cross 130th Street to access the station because 130th Street goes over 130th Place and the railroad tracks.

Park & Ride Facilities

To accommodate passengers arriving at either the East or West Option stations by car, park & ride facilities would be constructed near each station. **Table 2-1** lists the park & ride locations, number of parking spaces at each location, and the proposed parking facilities for both the East and West Options. A total of 3,700 parking spaces would be available along the corridor. CTA estimated parking demand based on travel demand modeling performed in 2009. Bus turnarounds would be provided in the parking areas. The ground floor of the parking structure at the Michigan Avenue station would contain space for retail and community facilities.

Table 2-1: Summary of Park & Ride Facilities

Station	Number of Parking Spaces	Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
103rd Street	200	Divided between two surface parking lots (one on the east side of the tracks and one on the west side of the tracks)	One surface parking lot
111th Street	200	Divided between two surface parking lots (one on the east side of the tracks and one on the west side of the tracks)	One surface parking lot
Michigan Avenue	1,000	Divided between a three-story parking structure and a surface parking lot (a surface parking lot on the east of the tracks and a parking structure on the west of the tracks)	Five-story parking structure
130th Street	2,300	Seven-story parking structure	

Yard and Shop

The 120th Street yard and shop, with a capacity of 340 train cars, would be sited on a combination of industrial and vacant land east of the CN/ME tracks and west of the NICTD/CSS & SBRR tracks near 120th Street and Cottage Grove Avenue. The yard would be entirely at grade. Parking spaces for CTA employees would be included at the yard. The existing 98th Street Yard and Shop at the south end of the existing Red Line would be used for other purposes, such as non-revenue equipment repairs once the 120th Street yard and shop is constructed. The yard could also function as a location where trains could be turned back from south to north for irregular or emergency service.

Substations

Substations are buildings along the alignment that house equipment to regulate the flow of electricity to the third rail, which supplies power to the trains. Substations would be placed approximately 0.8 to 1 mile apart along the alignment. Six new and upgraded substation locations are proposed: 98th Street Yard and Shop, near 101st Street, near 107th Street, near Lafayette Avenue, within the 120th Street yard and shop area, and near the 130th Street station. CTA would confirm the need and location for substations during future design phases.

Operating Plan

The UPRR Alternative would operate 24 hours a day, each day of the year. Service frequency is anticipated to be the same as with the current service (April 2016) at 95th Street—approximately 6-minute headways during morning peak hours and approximately 3-minute headways during afternoon peak hours. Headways at night (between 1 AM and 4 AM) would be approximately 13–15 minutes. Service frequency would be adjusted to accommodate demand once the RLE service has been implemented. Train frequencies would vary throughout the day (like existing Red Line service), and late night service would operate approximately every 15 minutes. Based on the estimated running time for the RLE, an additional 78 rail cars would be required as part of this project. The additional 78 rail cars would include 64 rail cars to meet the peak period schedule, plus 14 spare rail cars. Train sets would be eight cars long. Stations and track alignment would accommodate ten-car trains to maintain the option of running ten-car trains in the future. With the extension of the Red Line, some existing bus routes would be rerouted to feed into the proposed stations.

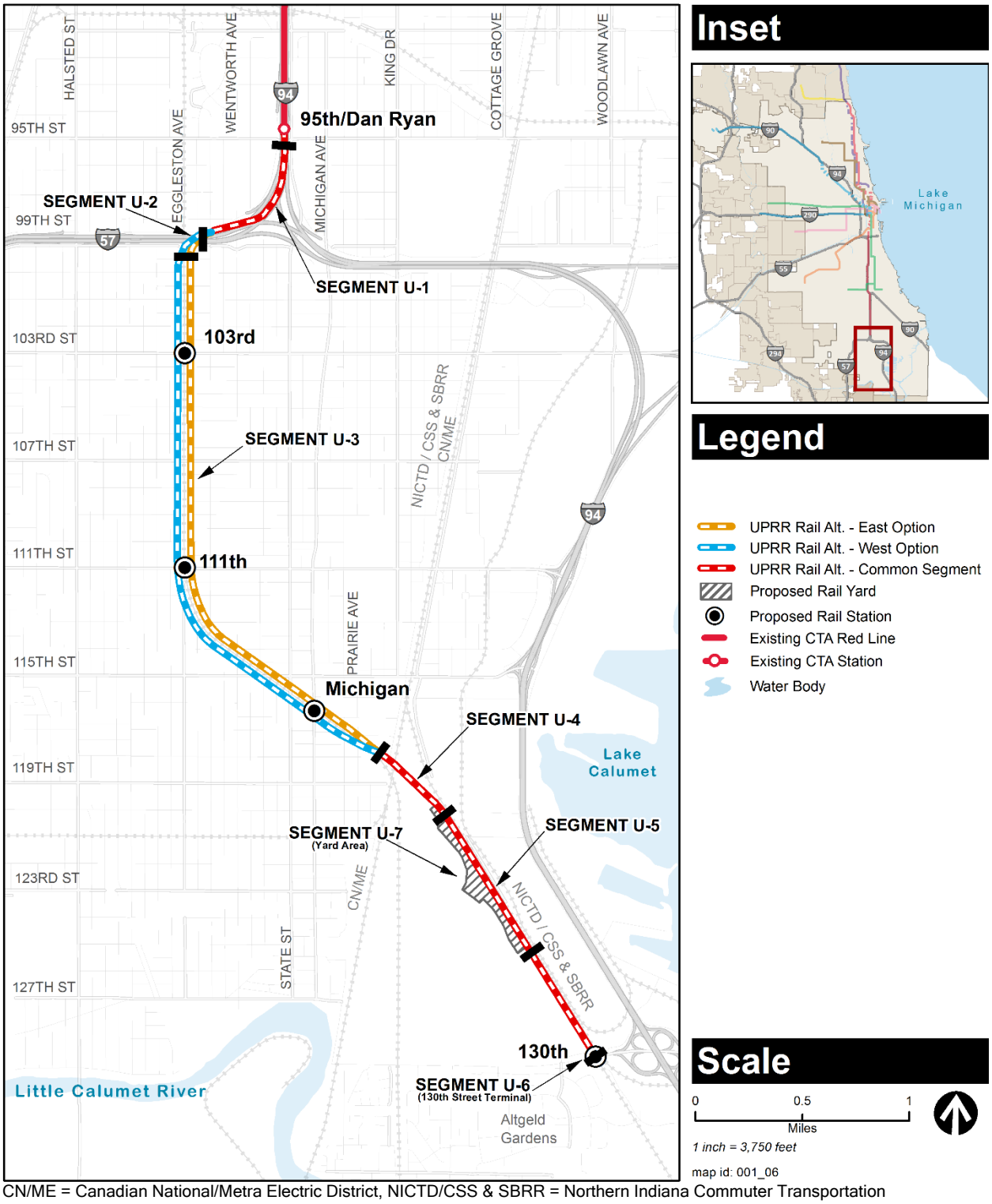
2.3 Summary of Construction Activities

This section summarizes the construction that would be needed for the UPRR Alternative. The *Description of Construction and Phasing for Build Alternatives* (**Appendix G**) provides additional details. Final engineering and pre-construction activities (see **Section 2.3.3**) would occur during 2018–2021. Heavy construction work would occur during 2022–2025, which would include 1 year of testing. The tentative opening year for the RLE is 2026. The construction timeline is dependent on federal reviews and federal, state, and local funding.

2.3.1 Construction Segments and Phasing

Construction activities would be grouped by type of work and location. Overall schedule and coordination of all construction segments would be phased and scheduled to maintain CTA operations at the 95th Street Terminal and 98th Street Yard and Shop and vehicular traffic on affected expressways and roadways.

For the purposes of describing construction activities, the RLE corridor would be divided into seven segments. **Figure 2-5** shows proposed construction segments. **Table 2-2** describes work activities for each construction segment. The construction segments and phasing plans described here are based on conceptual engineering completed to date and provide the greatest amount of flexibility for future design within a maximum envelope for evaluating environmental impacts. It is anticipated that construction of the RLE Project would be completed from north to south; however, future design phases may determine a different sequencing of construction activities.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 2-5: Construction Segments

Table 2-2: Construction Segments and Summary of Work Activities

Segment	Location	Work Activities
U-1	From the 95th Street Terminal to the beginning of the horizontal curve at the UPRR crossing	▪ Install trackwork and signals to tie into the 95th Street Terminal. Possibly relocate trackwork between the 95th Street Terminal and the 98th Street Yard and Shop. ▪ Construct approximately 500 feet of retained fill structure south of 95th Street Terminal. ▪ Construct single-track, elevated structures over existing CTA tracks leading to the 98th Street Yard and Shop and over the existing CTA/southbound I-94 tunnel. ▪ Construct the dual-track, elevated structure through the I-94/I-57 interchange, across the westbound I-57 entrance ramp from southbound I-94, and north of the southbound I-57 lane. ▪ Upgrade the substation currently serving the 98th Street Yard and Shop.
U-2	The horizontal curve at the UPRR crossing	▪ Construct the dual-track, elevated structure spanning both lanes of I-57.
U-3	From the end of the horizontal curve at the UPRR crossing to the CN/ME track crossing near 119th Street	▪ Demolish existing buildings and structures in the proposed right-of-way where necessary. ▪ Construct the dual-track, elevated structure along the UPRR corridor. ▪ Construct stations at 103rd Street, 111th Street, and Michigan Avenue. ▪ Construct parking lots/structures and bus turnarounds at stations. ▪ Construct three substations. ▪ East Option only - Relocate the Block Park communications tower.
U-4	From the CN/ME track crossing near 119th Street to the at-grade track	▪ Demolish existing buildings and structures in the proposed right-of-way where necessary. ▪ Construct the dual-track, elevated structure along the UPRR corridor and over the CN/ME tracks near 119th Street. ▪ Construct the 120th Street yard and shop track tie-in. ▪ Construct retained embankment structure to carry the elevated structure to grade. ▪ West Option only - Construct the dual-track, elevated structure along and across the UPRR corridor and Prairie Avenue.
U-5	From the end of the aerial structure crossing the CN/ME tracks near 119th Street to the lead tracks into the 130th Street station (which would begin near the south end of the proposed yard)	▪ Construct the track roadbed. ▪ Construct the MWRD access road and bridge over the RLE tracks and the NICTD/CSS & SBRR crossing.
U-6	130th Street station (including lead tracks)	▪ Construct the track roadbed. ▪ Construct the 130th Street station. ▪ Construct the parking structure for the 130th Street station. ▪ Construct bus bays and road access for the 130th Street station. ▪ Construct the MWRD access road to 130th Street. ▪ Construct the substation.
U-7	120th Street yard and shop	▪ Construct the yard and track. ▪ Construct the shop building. ▪ Construct the access road and CTA employee parking. ▪ Construct the substation.

UPRR = Union Pacific Railroad, CTA = Chicago Transit Authority, CN/ME = Canadian National/Metra Electric District, MWRD = Metropolitan Water Reclamation District of Greater Chicago, RLE = Red Line Extension, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

2.3.2 Construction Staging

Construction staging areas provide space to store equipment and materials, load trucks, and have workers perform parts of the construction process. Construction staging areas would be within the proposed right-of-way or within property acquired for stations, park & ride facilities, and the yard and shop. Nearby vacant properties and parking lots may also be used through the establishment of temporary construction easements. Staging and item assembly would be performed off-street to the fullest extent possible, to minimize traffic and community disruption. Along I-57, temporary construction easements on the expressway may be required, requiring shoulder and lane closures as well as temporary shutdown of traffic. Temporary construction easements on Metropolitan Water Reclamation District of Greater Chicago (MWRD) property near the yard and shop may be required as well.

Construction vehicles would access the staging areas on a regular basis, and would require special hauling routes and queuing locations to deliver materials and equipment, as well as remove debris. These special routes may require temporary lane closures or reconfigurations. Hauling routes would be designed to minimize impacts on noise- and dust-sensitive areas, such as residential neighborhoods, to the extent feasible. Specific design of each construction staging area would be determined during future design phases.

2.3.3 Pre-Construction Activities

Pre-construction activities would include development of construction schedules, quality plans, and procurement schedules. Utility protection and relocation information would be coordinated and verified in advance of the early construction activities. CTA and the construction contractor would initiate community notifications as early as possible to provide opportunities for community input and preparation. Demolition and building permits would be obtained during pre-construction as well. Construction mitigation measures, such as fencing, would be put in place in advance of commencing major construction activities. Materials requiring mitigation, such as asbestos, lead paint, and contaminated soil, would be identified and addressed before the start of demolition and excavation activities. The proposed UPRR alignment is in a residential area with homes, parks, schools, and businesses. Construction activities would be evaluated such that the local dynamics of the area and the needs of the property owners and businesses, as well as the end users, are incorporated into the project.

2.3.4 Traffic Rerouting

During construction, auto traffic, pedestrians, and buses may need to be rerouted around the construction sites. Rerouting of traffic is normally done by using detours and complete street closures. Street closures may include main streets, side streets, alleys, and driveways. Temporary traffic lanes and driveways would be used as needed to provide alternate access. The following activities would occur as part of traffic rerouting:

- Placement of construction signage and temporary traffic barriers
- Temporary reduction in the number of available lanes or complete street closures
- Conversion of two-way streets to one-way operation on a temporary basis
- Implementation of detours around lane and street closures

- Provision of temporary traffic lanes
- Provision of special access points for construction vehicles traveling to and from construction staging areas and the proposed rail right-of-way
- Implementation of sidewalk detours and temporary parking restrictions
- Temporary partial closure of the 95th Street Terminal and tracks leading to the 98th Street Yard and Shop, with provision of alternate bus service

Specific maintenance of traffic measures for each affected roadway and for each construction phase would be determined in a traffic management plan. The traffic management plan would be developed in the design phase of this project and would be reviewed by the agency or agencies with jurisdiction over the affected roadways.

2.3.5 Demolition

Construction of either the East or West Option would require building demolition. The demolition process would temporarily result in increased noise and debris. Work would be performed in accordance with local ordinances for construction activities. Pedestrian and vehicular traffic would not be allowed into demolition areas. The demolition process may include concrete removal, use of jackhammers, excavation, and removal of foundations. Materials requiring disposal would be stored in construction staging areas, loaded into dump trucks, and moved off-site. All materials would be handled and disposed of in a proper manner, in accordance with applicable federal, state, and local regulations.

2.3.6 Elevated Structures and Track Placement

Foundations for elevated structures and parking garages can consist of concrete and steel footings or drilled concrete shafts, depending on site conditions. A geotechnical engineer would perform exploratory borings during future design phases to determine soil type, soil capacity, and physical obstructions. The soil would be sampled to determine whether contaminants are likely to be present in the soil. All types of foundations would require excavation and removal of soil from the construction area via truck. Materials shipped off-site for disposal would be handled through approved facilities. Large cranes would be used to guide piles into position, and impact pile-driving may be needed. As described in later sections, impact pile-driving would be avoided in the vicinity of the historic Roseland Pumping Station.

After placement of foundations for the elevated structures, reinforced cast-in-place concrete piers would be constructed. The superstructure would consist of steel or concrete girders with a concrete deck to support the tracks. Along at-grade segments, tracks would be placed on ballast and ties after grading and soil preparation.

2.3.7 Earth Retention Structures

Two general categories of earth structures may be used on this project. The first is earth embankment, which consists of compacted earth with slopes on either side of the tracks. Typically, the slopes would include vegetation. Fencing for security would also be included. Earth embankments are appropriate in areas without right-of-way constraints, such as east of the CN/ME track crossing near 119th Street. The second category of earth structures is earth retained

between concrete walls. These walls may use cast-in-place concrete or precast concrete panels. Retained embankments are appropriate in areas where additional right-of-way acquisition would cause additional impacts.

2.3.8 Temporary Shoring

During excavation, temporary shoring may be required to facilitate construction and protect adjacent structures. Shoring would consist of steel sheet piling driven into the ground. Temporary shoring for excavations may also include h-piles and lagging, cofferdams, and trench boxes. Temporary shoring of elevated structures may include temporary columns, footings, and shoring towers. Elevated structural work may include temporary protective barriers, fencing, barricades, and containments. The rig for the vibratory pile driver may be located within the construction staging areas, the permanent right-of-way for the project, or the street right-of-way depending on the space limitations and access points.

2.4 Alternatives Considered but not Pursued

During development of the project, CTA fully evaluated the BRT Alternative, the Right-of-Way Option for the UPRR Alternative, and the Halsted Rail Alternative (Halsted Alternative). In addition, CTA fully evaluated a West Station Option for the 130th Street station. These alternatives and the station option were analyzed as part of the technical memoranda preparation for the Draft EIS, but are not included in this Draft EIS. They were eliminated from analysis based on public input, technical constraints, potential impacts, and the extent to which they did not meet the project's purpose and need.

CTA also evaluated a variation of the UPRR Alternative where the tracks would be at grade rather than elevated, described in **Section 2.4.2**.

2.4.1 Bus Rapid Transit Alternative

CTA considered a BRT Alternative along Michigan Avenue between 95th Street Terminal and Altgeld Gardens. This limited-stop enhanced bus route along the existing #34 South Michigan Avenue bus route would have transit signal priority along Michigan Avenue. The alternative included four stops, each with park & ride facilities. Although the BRT Alternative was a lower-cost alternative than the UPRR Alternative, it was eliminated in August 2014 based on public feedback including the following concerns:

- The BRT Alternative would have minimal travel time improvements compared to the No Build Alternative (23 minutes from 130th Street to 95th Street under the BRT Alternative, compared to 28 minutes for existing conditions [CTA 2009] or 14 minutes for the UPRR Alternative over the same distance).

- Approximately 1 million riders per year were anticipated for the BRT Alternative—in comparison to 13 million riders per year anticipated for the UPRR Alternative (CTA 2009).

- The BRT buses would not have traveled on a dedicated lane along Michigan Avenue because of limited right-of-way. Although transit signal priority was planned, additional travel time savings would not have been realized without dedicated lanes for BRT buses.

2.4.2 Union Pacific Railroad Alternative

This Draft EIS summarizes the benefits and impacts of the East and West Options. In preparation of the Draft EIS, CTA fully evaluated the Right-of-Way Option and the 130th Street Station West Station Option. CTA also considered an at-grade (rather than elevated) track structure for the UPRR Alternative. Engineering memos, included with the plans and profiles in **Appendix F**, provide additional details on the at-grade evaluation of the UPRR Alternative.

Right-of-Way Option

As part of the UPRR Right-of-Way Option, the elevated CTA structure would have been placed in the UPRR right-of-way. This option was added in 2012 in response to the CDOT feasibility study looking at moving UPRR freight operations out of the existing UPRR corridor before the RLE Project. The Right-of-Way Option would only be feasible if the separate project were implemented before implementation of the RLE Project. Coordination between local agencies and the railroads indicted that relocation of UPRR freight operations from this corridor presents considerable challenges; therefore, this option is no longer feasible. Estimated travel times and ridership were the same for the Right-of-Way Option as for the East and West Options. Because the elevated CTA structure would have been placed in the UPRR right-of-way, the Right-of-Way Option would have resulted in fewer displaced properties than either the East or West Option.

130th Street Station - West Station Option

CTA initially considered two options for the 130th Street station: a South Station Option and a West Station Option. The South Station Option (described as part of the Build Alternative in **Section 2.2.2**) would be located immediately west of the NICTD/CSS & SBRR right-of-way at 130th Street. The West Station Option would be located along the north side of 130th Street at Evans Avenue. Pedestrians from Altgeld Gardens would access the West Station Option through a pedestrian crosswalk on 130th Street. A traffic signal would be required at this intersection to allow pedestrians to safely cross 130th Street.

The South Station Option is supported by the community and the Chicago Housing Authority because it would be more accessible from Altgeld Gardens. The West Station Option would incur additional costs because it would require approximately 1,100 feet of additional track due to its location, and would require intersection improvements to allow pedestrians to safely cross the street. The South Station Option would provide the best opportunity for a future connection to NICTD, improving regional rail connections and linkages to other modes of public transportation. Based on public feedback and technical analysis, CTA is considering only the South Station Option for 130th Street station.

At-Grade Track Structure

CTA considered a variation of the UPRR Alternative in which the RLE tracks would run at grade along the UPRR rail corridor (between I-57 and Prairie Avenue). In this variation, the existing east-west roadways would run either above or below the new at-grade CTA tracks and the existing at-grade UPRR tracks. Like the proposed UPRR Alternative, this variation would be elevated from the 95th Street Terminal to south of I-57, then at grade from I-57 to Prairie Avenue, elevated to cross the CN/ME tracks near 119th Street, then at grade near the proposed yard and shop and 130th Street station. CTA evaluated potential impacts and cost implications to run the east-west roadways both above (using overpasses) and below (using underpasses) the at-grade UPRR tracks and the proposed at-grade CTA tracks.

Roadway Overpasses

For an at-grade track structure, one option would be to use overpasses to carry roadways over the tracks. If roadway overpasses were used, they would need to be constructed at eight locations. More than 100 properties (primarily residential homes) would be displaced due to the overpass footprint, elimination of access to existing alleyways or driveways, and proximity of the embankment structure to the residential homes. The overpass structure and associated embankment could be as high as 30 feet, creating a substantial visual impact on the adjacent one-story residential buildings. In addition, permanent north-south residential street closures would be required where the streets would intersect with the embankment, which would disrupt neighborhood connectivity. Utilities that currently run within the street rights-of-way would have to be relocated. The potential construction cost savings between the elevated track structure and the at-grade structure would be insignificant when the cost of additional right-of-way acquisition and utility relocations is included. Roadway overpasses would also increase community impacts.

Roadway Underpasses

A second option for an at-grade track structure would be to use underpasses to carry roadways under the tracks. If underpasses were used, they would need to be constructed at eight locations. The underpass variation would have property displacements and community impacts similar to those of the roadway overpass option except a large retaining wall would be located in front of the residential homes. Because the cost of a roadway underpass structure may be as much as double the cost of an overpass structure, this variation would provide no additional cost savings over the elevated track structure alternative and would have significantly more community impacts and right-of-way costs.

Based on the property displacements and community impacts that would be created by grade-separating the roadways from the proposed CTA tracks (through either roadway overpasses or underpasses), CTA eliminated this variation from further consideration.

2.4.3 Halsted Alternative

CTA considered the Halsted Alternative, which would extend the Red Line from 95th Street Terminal along I-57, and south along Halsted Avenue to Vermont Avenue on a new elevated structure. The Halsted Alternative would run above Halsted Avenue with center piers, except at the station locations where the structures would span Halsted Avenue. The Halsted Alternative would result in travel times similar to those of the UPRR Alternative. The alternative included four stations, each with park & ride facilities. Construction costs for the Halsted Alternative were approximately 6 percent higher than for the UPRR Alternative. The Halsted Alternative was eliminated in August 2014 based on technical analysis and public feedback including the following concerns:

- The Halsted Alternative would not have the potential for a direct connection to other regional transit services[2] like the UPRR Alternative would; therefore, it would not meet the purpose and need for the project.

[2] Although the Halsted Alternative alignment would intersect the ME Blue Island branch, the southern terminus of that branch is less than 3 miles from the intersection at Halsted Street and is just west of the project area. The northern terminus of the ME Blue Island branch is only two blocks from the Red Line in the Loop. Intersection with the ME Blue Island branch would not provide regional service.

- The Halsted Alternative would affect four historic resources, resulting in adverse effects on historic properties, while the UPRR Alternative would not affect any historic resources.
- The proposed seven-story parking structure at Vermont Avenue would result in adverse visual impacts because of its location within a neighborhood with single-family homes.
- The Halsted Alternative would not directly serve as many affordable housing locations in the project area as the UPRR Alternative would serve, including Altgeld Gardens.
- The public expressed concern that implementation of the Halsted Alternative would be disruptive to the surrounding community and would increase shadows, crime, and noise along the Halsted Street.
- The Halsted Alternative did not receive the considerable public support before and during scoping in 2009 that the UPRR Alternative received.

2.5 Environmental Process

CTA will comply with applicable environmental regulations and will responsibly and reasonably mitigate adverse environmental impacts resulting from the RLE Project to the extent feasible in accordance with NEPA and FTA guidance. This Draft EIS identifies and analyzes worst-case scenario impacts of the East and West Options and proposes candidate mitigation measures to address the potentially adverse impacts. Throughout the Draft EIS, needs have been identified for more refined analyses such as traffic and noise, to further evaluate potential impacts. This additional analysis would be specific to the option (East or West Option) that is selected after the Draft EIS public hearing. Actual impacts may be smaller in magnitude and therefore may ultimately require less mitigation. The candidate mitigation measures will be refined as part of the Final EIS process, and a final set of commitments to mitigate adverse impacts would be included in the Final EIS and adopted by FTA upon issuance of the Record of Decision (ROD). In addition, CTA would continue to avoid and minimize environmental impacts wherever feasible.

2.5.1 Draft Environmental Impact Statement Review and Comment Period

Based on the analysis prepared to date and public comments received thus far, the NEPA Preferred Alternative is the UPRR Alternative. FTA and CTA will distribute this Draft EIS to affected federal, state, and local agencies; tribes; community groups; interested individuals; and other interested parties. The document will be made available at CTA headquarters, public libraries near the project area, and in electronic format on CTA's website (www.transitchicago.com). A formal public comment period will be initiated after release of this Draft EIS. CTA will hold a public hearing during the comment period to provide information and receive comments about this Draft EIS and the NEPA Preferred Alternative. Comments may also be submitted by mail or e-mail.

2.5.2 Final Environmental Impact Statement and Record of Decision

After public review of the Draft EIS, CTA and FTA will complete any additional analyses required and prepare the Final EIS. The Final EIS will include and address all of the comments received during the Draft EIS public comment period. The Final EIS will document the results of the Draft EIS process, confirm whether the East or West Option is the selected option, and include a list of committed final mitigation measures.

In accordance with the FAST Act and 23 United States Code (USC) § 139(n), FTA intends to issue a single document that consists of the Final EIS and ROD unless it is determined that circumstances, such as changes to the proposed action, anticipated impacts, or other new information, preclude issuance of such a combined document. The ROD will include the alternatives and options that FTA considered and CTA's commitments to mitigate the adverse impacts of the RLE Project. Additionally, in accordance with 40 CFR § 1505.2(b) of NEPA, the ROD will include an identification of the environmentally preferable alternative. Finally, the ROD will include a list of mitigation commitments that must be implemented when the project is initiated. FTA's issuance of the ROD concludes the NEPA environmental process and is required for federal funding and approvals to proceed.

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Chapter 3
Transportation

This chapter describes the potential benefits and adverse impacts that would result from the East and West Options on the existing transportation facilities in the project area, including public transportation, vehicular and freight traffic, bicycling, pedestrians, and parking facilities. Also described here are mitigation measures to minimize adverse impacts where feasible. The information in this chapter is based on the *Transportation Technical Memorandum* (**Appendix H**). **Table 3-1** summarizes the transportation impact findings.

In this chapter, permanent and construction-related impacts are included as part of the discussion of each resource area. The *Construction Impacts Technical Memorandum* (**Appendix I**) describes how construction activities would potentially affect transportation facilities as well as the resources described in **Chapter 4**.

Table 3-1: Transportation - Impacts Summary

Alternative	Permanent Impacts						Construction Impacts
	Public Transportation	Vehicular Traffic	Pedestrians	Bicycle Facilities	Freight Transportation	Parking	
No Build	No impacts	Adverse Impacts	No impacts	No impacts	No impacts	No impacts	No impacts
Union Pacific Railroad - East Option	Benefits	Impacts would not be adverse after mitigation	Impacts would not be adverse after mitigation	Benefits	No impacts	No impacts	No impacts
Union Pacific Railroad - West Option	Benefits	Impacts would not be adverse after mitigation	Impacts would not be adverse after mitigation	Benefits	No impacts	No impacts	No impacts

3.1 Regulatory Framework/Methods

CTA conducted the transportation analysis in compliance with current FTA guidelines, NEPA regulations, and the FAST Act. Illinois state law does not require additional analysis beyond the requirements of NEPA.

CTA studied local resources to understand the existing transportation network and other planned projects near the project corridor. These resources included *GO TO 2040*, City of Chicago transportation and community plans, and IDOT studies. *GO TO 2040* provides strategies and priorities for the future development of the regional transportation network.

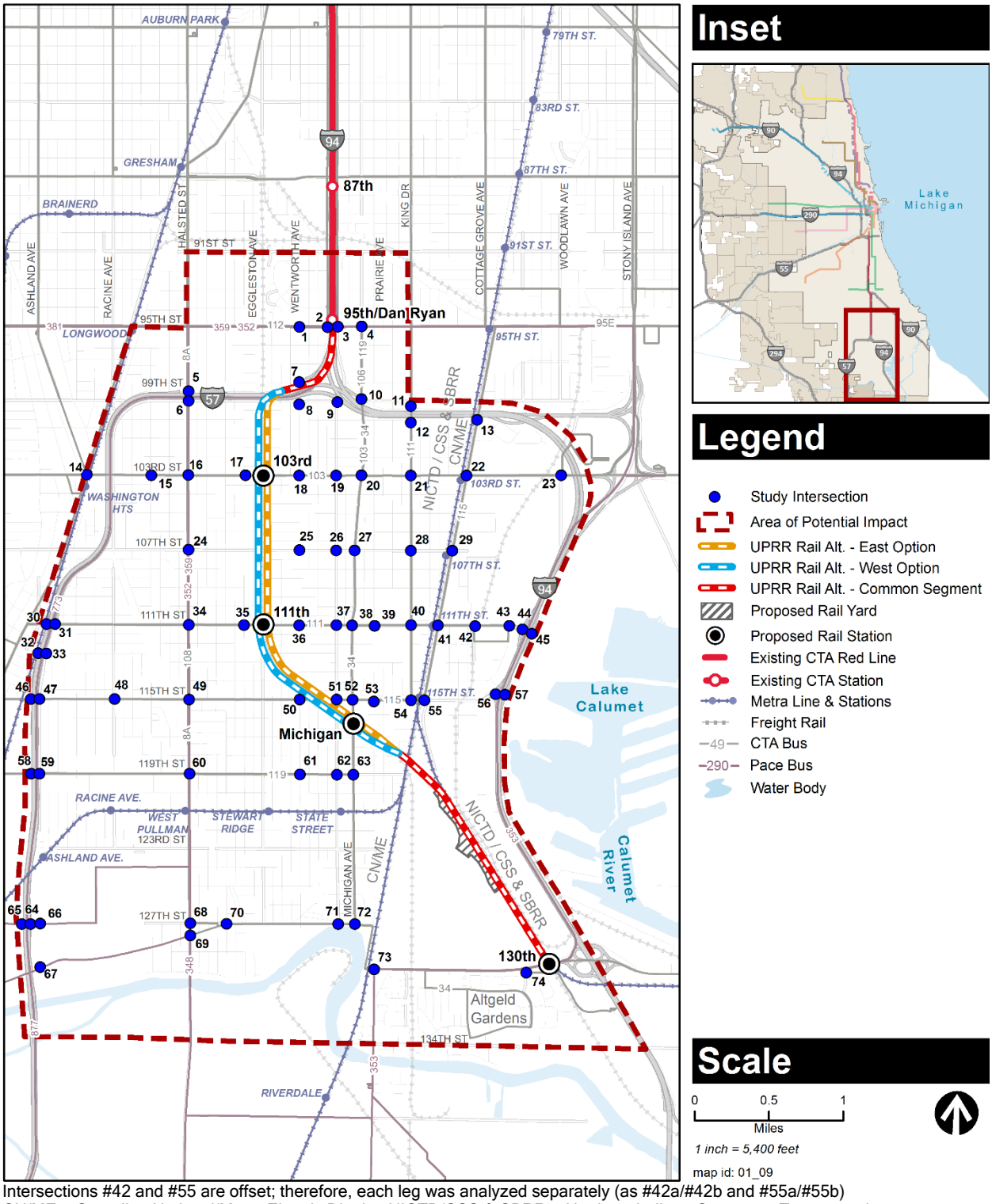
3.1.1 Public Transportation

CTA reviewed existing public transportation data (CTA, Metra, and Pace) within the project area. The analysis included a review of geographic coverage of service, travel time, frequency and hours of service, ridership, transit mode share, and train station and bus stop locations.

Benefits to public transportation would result from improvements in transit service. An adverse impact on public transportation would occur if there were negative changes associated with geographic areas of service and routing, travel time, frequency and hours of service, transit patronage and demand (including transit mode share), station access and circulation, and/or traffic around stations.

3.1.2 Vehicular Traffic

The RLE Project would include park & ride facilities that could cause vehicular traffic impacts because of additional vehicular traffic introduced near the new stations. CTA conducted a detailed vehicular traffic analysis at 74 locations within the area of potential impact (API). A total of 76 intersections were analyzed; two of the intersections are offset and were therefore analyzed as separate intersections near the same location. **Figure 3-1** shows the API and the intersections analyzed.



Intersections #42 and #55 are offset; therefore, each leg was analyzed separately (as #42a/#42b and #55a/#55b)
CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 3-1: Study Intersections for Transportation Impact Analysis

To understand the existing vehicular traffic conditions within the project area and identify peak-hour turning movements, CTA compiled existing traffic count data from IDOT, CMAP, and CDOT. In addition, CTA collected new manual traffic counts at major intersections and intersections where existing data were not available. CTA compiled and reviewed the following traffic data:

- Traffic distribution and local circulation patterns
- Vehicle occupancy levels
- Road capacity levels
- Road peak-hour traffic volumes
- Intersection lane geometry and traffic signal timing plans
- Planned roadway improvements

CTA used the data to calculate existing intersection level of service (LOS) using Synchro 7.[3] The *Transportation Technical Memorandum* (**Appendix H**) includes peak-hour traffic volumes and lane geometry used for the intersection LOS analysis.

For this Draft EIS, construction of the RLE is anticipated to occur from the year 2022 through 2025. Project construction is dependent on the availability of project funding and approvals. For the traffic analysis, CTA used the project construction (opening) year of 2026 and the horizon year of 2030 to determine potential traffic impacts. The 2030 horizon year is consistent with the ridership analysis conducted for the RLE Project.

CTA used data from CMAP's 2030 Regional Travel Demand model (CMAP 2012c) to develop "no-project" intersection-level traffic projections. These "no-project" traffic projections accounted for the background growth in traffic due to additional regional and subregional land use development and population growth. CTA determined the background growth of traffic for roadway segments using the data from the regional model. Average annual traffic growth for roadway segments was 0–1.3 percent.

To simulate opening year (2026) conditions without the project, CTA interpolated background traffic growth between existing year (2012) and horizon year (2030) No Build Alternative conditions. The No Build Alternative traffic projections served as the baseline for evaluating the future "with project," (i.e., the build alternative - East or West Option). Conditions for the East and West Options included the generation of park & ride automobile trips to the proposed stations. The analysis did not include a mode shift from vehicles to transit, which is anticipated to occur when the project is built. The traffic analysis represents the "worst-case" scenario for impact analysis.

The build alternative-generated trips were added to the No Build Alternative traffic projections to develop the build alternative traffic volumes. The build alternative intersection LOS analyses were

[3] Synchro 7 is a software package used for performing intersection capacity analysis and optimizing traffic signal timing.

conducted for the study intersections. For this Draft EIS, a traffic (passenger or freight vehicle) impact would be substantial if it would result in a degradation in peak-hour LOS at any intersection within the API that leads to a change in traffic distribution and local circulation patterns, a change in vehicle occupancy levels, a change in road capacity, or a change in road traffic volumes.

The LOS for roadway intersections typically ranges from A to F (Transportation Research Board 2010). LOS is defined as follows:

- LOS A - Virtually free flow of traffic with no congestion or delay.
- LOS B - Stable traffic flow, but other vehicles in the flow are noticeable.
- LOS C - Stable flow, but this LOS marks the beginning of the range where individual vehicles become affected by interactions with other vehicles in the traffic stream.
- LOS D - High density of traffic but stable flow.
- LOS E - Operating conditions at or near capacity level. All speeds are reduced to a low but relatively uniform flow.
- LOS F - A breakdown in the operating conditions resulting in congestion and delay.

CTA coordinated with IDOT and CDOT regarding LOS thresholds, and for this analysis a change in intersection LOS from LOS A, B, C, or D under the No Build Alternative to LOS E or F under the build alternative would result in an adverse or substantially adverse impact. CTA identified mitigation measures to reduce the impacts to a more acceptable LOS for adverse impacts caused directly by project facilities, when those impacts would not be offset by the additional transportation benefits provided by the project alternative.

3.1.3 Pedestrians

To describe existing conditions for pedestrians, CTA reviewed aerial photographs, City of Chicago geographic information system and geospatial datasets, and the *Chicago Pedestrian Plan (*City of Chicago 2012b). CTA reviewed pedestrian facilities within the immediate area of the proposed station locations for ADA accessibility and conformity to transit station planning.

For this Draft EIS, a pedestrian impact would be adverse if it were to result in the disruption of an existing or planned pedestrian pathway, if it were to limit pedestrian access to proposed station entrances, or if pedestrian access to a proposed station were limited because the vicinity around the station did not have sidewalks or the sidewalks were not ADA-accessible.

3.1.4 Bicycle Facilities

To describe existing conditions for bicycle facilities, CTA reviewed IDOT's 2012 bicycle map and existing and proposed bicycle facilities for the City of Chicago based on the *Chicago Streets for Cycling Plan 2020* (City of Chicago 2012a). CTA evaluated the relationship of the existing bicycle facilities to the proposed station location and assessed whether the proposed station locations would conform to the objectives of the bicycle plans for an area within ½ mile of the stations.

For this Draft EIS, a bicycle facility impact would be adverse if it were to result in a disruption of existing or planned bicycle pathways or bicycle parking facilities.

3.1.5 Freight Transportation

This Draft EIS includes a qualitative discussion of impacts from the RLE Project on freight traffic (both rail and truck). CTA qualitatively examined the existing and projected freight traffic in the project area and determined whether the RLE Project would permanently interrupt freight movements. Through a coordination process, CTA and UPRR identified potential impacts and discussed them qualitatively.

For this Draft EIS, an impact on freight transportation would be adverse if the movement of goods and services would be disrupted or delayed.

3.1.6 Parking

To describe existing parking conditions, CTA reviewed community resources and aerial photographs and performed field observations. Using the No Build Alternative as the baseline, CTA analyzed the extent to which the East and West Options would affect on-street parking and off-street parking facilities. CTA reviewed parking capacity near the location of each proposed station and park & ride facility for potential impacts on the surrounding neighborhoods. Potential parking impacts would include changes in parking supply as a result of transit facility construction/service expansion, addition of park & ride facilities, and removal of existing parking spaces. To determine the potential for impacts and the intensity of those impacts, CTA developed guidelines based on standard industry practices.

For this Draft EIS, a parking impact would be adverse if it were to result in the following:

- Reduction in parking spaces by 10 to 50 spaces. A reduction by 50 or more parking spaces would be a substantially adverse impact.
- Reduction in accommodation for future programs requiring parking spaces, such as car sharing.
- Reduction in existing transit parking and park & ride capacity.
- Inadequate parking capacity for proposed transit service.

3.2 Existing Conditions

The existing transportation environment includes transit facilities for rail and bus, expressways, regional arterials (through roads), truck routes, intermodal connectors, secondary arterials, local streets, and bicycle and pedestrian facilities. Expressways in the project area include I-57 and I-94.

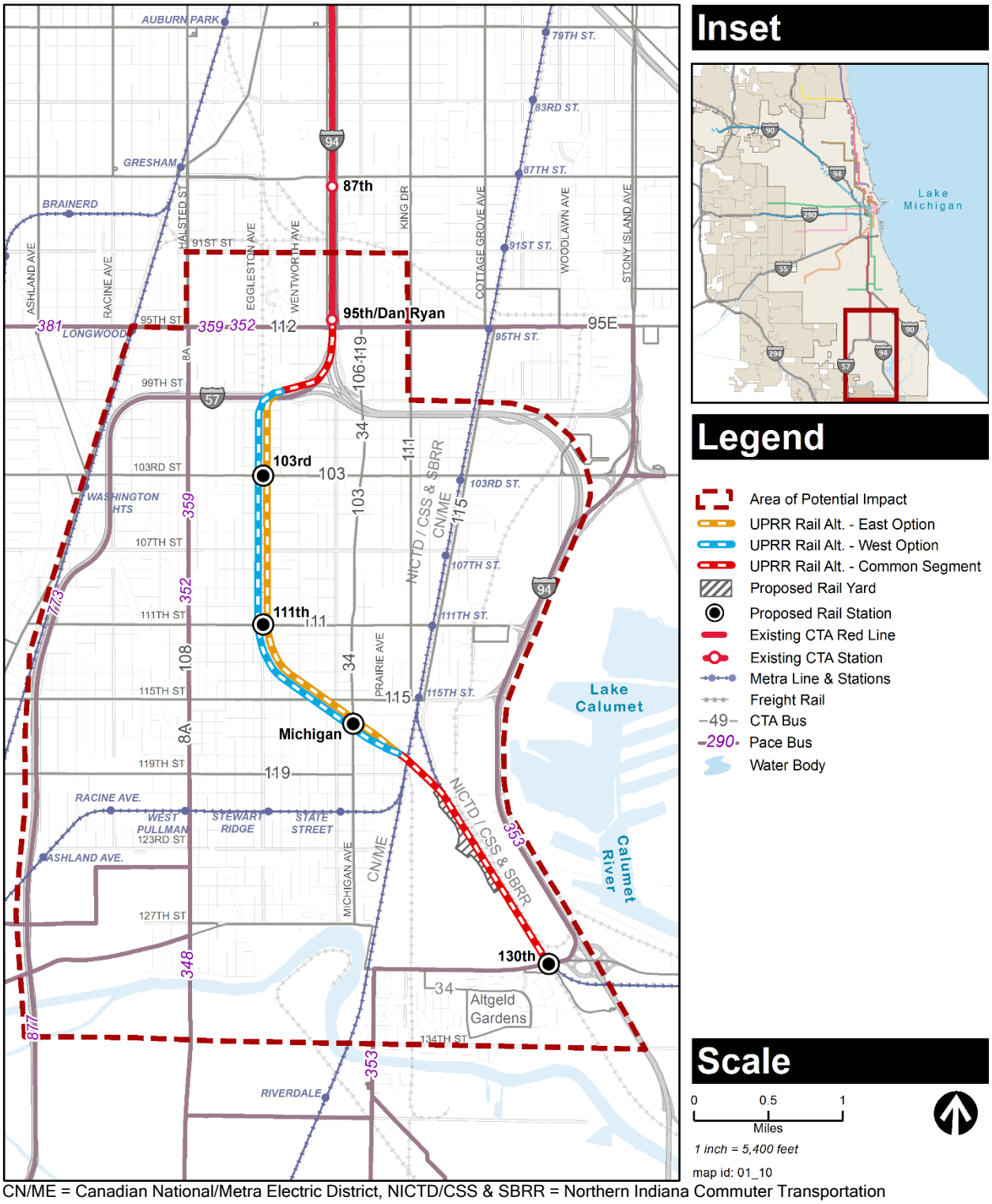
The 95th Street Terminal is currently the southern end of the Red Line. Many existing bus routes within the project area terminate at this location. From this station, passengers travel north on the Red Line or transfer to a different bus route. Passengers accessing the station by bus experience delays resulting from poor performance of the surrounding roadway network. The availability of alternative modes of transportation to reach the 95th Street Terminal is limited, resulting in lengthy travel times by both auto and transit to jobs north of 95th Street, including

the major employment centers in downtown Chicago. According to the American Community Survey, from 2005 to 2010 the average travel time to work for residents within the project area was 39 minutes. This number is approximately 20 percent higher than the 32-minute average commute time for the seven-county region. The current transit travel time from 130th Street to the 95th Street Terminal is 28 minutes and it is 25 minutes from the 95th Street Terminal to Jackson station (CTA 2009). The limited transit services in the project area and complex transfers to reach the 95th Street Terminal make commute times to the downtown Chicago area more than an hour for some residents. Approximately 10 percent of the project area residents (as of 2010) do not own a car and depend on transit for mobility (U.S. Census Bureau 2010). One-fourth of the trips that project area residents make between their home and work are with transit (U.S. Census Bureau 2010).

Substantial expressway congestion occurs within and surrounding the project area. The expressway network was at or over capacity during the morning peak periods in 2010 and congestion is expected to worsen by 2030. Arterial street reliability is compromised by delays from at-grade freight railroad crossings, affecting travel times to the 95th Street Terminal. ME commuter trains that operate at grade and cross several arterials in the project area also cause short traffic delays.

3.2.1 Public Transportation

The existing public transportation systems in use in the project area are CTA rail service, CTA bus routes, Pace bus routes, and Metra commuter rail service. The Red Line 95th Street Terminal is the only CTA rail station within the API and is the southern end of the CTA Red Line. Greyhound and Indian Trail intercity bus service operate from the 95th Street Terminal, with fixed routes outside the project area. The 2014 average weekday rail ridership for 95th Street Terminal was approximately 11,598 passengers (CTA 2014). Rail service is provided 24 hours per day, and rail service frequency is 6 minutes during morning peak periods and 3 minutes during afternoon peak periods. CTA and Pace bus routes are on east-west and north-south thoroughfares through the project area, with 16 CTA and 6 Pace bus routes operating within the API (not including night bus routes). Of those bus routes, 18 serve the 95th Street Terminal. **Figure 3-2** shows the existing CTA and Pace bus routes as well as Metra routes and station locations. **Table 3-2** provides a summary of existing bus service in the API.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 3-2: Existing Public Transportation in the Project Area

Table 3-2: Existing Bus Service

Bus Route Number and Name	Operating Agency	2014 Average Weekday Ridership	Maximum Monthly Average Weekday Ridership (October 2014)	Serves 95th Street Terminal
#3 King Drive	CTA	19,224	20,520	No
#8A South Halsted	CTA	3,238	3,674	No
#9 Ashland	CTA	26,871	29,256	Yes
#28 Stony Island	CTA	7,208	7,742	No
#29 State	CTA	13,342	13,655	Yes
#34 South Michigan	CTA	5,150	5,793	Yes
#95E 93rd/95th	CTA	3,830	4,263	Yes
#95W West 95th	CTA	2,369	2,595	Yes
#100 Jeffery Manor Express	CTA	674	700	Yes
#103 West 103rd	CTA	2,674	3,143	Yes
#106 East 103rd	CTA	1,831	2,241	Yes
#108 Halsted/95th	CTA	1,322	1,572	Yes
#111 111th/King Drive	CTA	3,763	4,338	Yes
#112 Vincennes/111th	CTA	2,289	2,700	Yes
#115 Pullman/115th	CTA	3,990	4,600	Yes
#119 Michigan/119th	CTA	4,725	5,092	Yes
#348 Harvey - Riverdale - Blue Island	Pace	333	399	No
#352 Halsted	Pace	6,100	6,574	Yes
#353 95th - Riverdale- Homewood	Pace	1,769	2,011	Yes
#359 Robbins/South Kedzie Avenue	Pace	1,461	1,643	Yes
#381 95th Street	Pace	4,038	4,593	Yes
#395 95th/Dan Ryan CTA - UPS	Pace	530	669	Yes

Source: CTA 2014, Regional Transportation Authority Asset Management System 2014
Notes:
1. #9 Ashland serves the 95th Street Terminal only with the Night Owl Service.
2. Night service route #N5 is not included in the above table.
3. Service to the 95th Street Terminal is based on route maps current as of July 2015.

NICTD/CSS & SBRR provided limited commuter rail service to the Kensington/115th Street station until early 2012, when service was discontinued at this station. Metra commuter rail service in the API includes the ME mainline, the ME Blue Island branch, and the Metra Rock Island District mainline. There are 11 commuter rail stations within the API. **Figure 3-2** shows Metra station locations. **Table 3-3** summarizes the existing commuter rail stations and ridership within the API.

Table 3-3: Existing Commuter Rail Stations

Line/Station	2014 Daily Boardings	Parking Available	Parking Spaces Available (2012)	Parking Utilization Rate (2012)
Metra Electric District Mainline				
103rd Street (Rosemoor)	43	Yes	38	5%
107th Street	31	No	-	-
111th Street (Pullman)	19	No	-	-
Kensington/115th Street	1,081	Yes	402	90%
Metra Electric District Blue Island Branch				
State Street	54	No	-	-
Stewart Ridge	37	No	-	-
West Pullman	21	Yes	27	0%
Racine Avenue	33	Yes	29	24%
Ashland Avenue	98	Yes	90	52%
Metra Rock Island Mainline				
95th Street/Longwood	85	Yes	104	51%
103rd Street/Washington Heights	168	Yes	267	30%

Source: Regional Transportation Authority Management System 2015

3.2.2 Vehicular Traffic

The following interstate, regional, and local roadways provide east-west and north-south routes within the API:

East-West
- 95th Street
- 99th Street
- 103rd Street
- 107th Street
- 111th Street
- 115th Street
- 119th Street
- 127th Street
- 130th Street

North-South
- I-57
- Halsted Street
- Wentworth Avenue
- State Street
- Michigan Avenue
- Indiana Avenue
- Martin Luther King Drive
- Cottage Grove Avenue
- I-94 (Dan Ryan Expressway/Bishop Ford Freeway)

Table 3-4 summarizes existing (2012) traffic conditions. Under existing conditions, most of the study intersections within the API operate at LOS D or better in both the AM and PM peak periods. Intersections operating at LOS E or F under existing conditions are highlighted in **Table 3-4**.

Table 3-4: Existing (2012) Intersection Level of Service

ID	Intersection	Control Type	AM Peak Hour LOS[1]	PM Peak Hour LOS[1]
1	95th Street and Wentworth Avenue	Signalized	B	B
2	95th Street and Lafayette Avenue	Signalized	D	D
3	95th Street and State Street	Signalized	C	C
4	95th Street and Michigan Avenue	Signalized	B	B
5	98th Place and Halsted Street	Signalized	**F**	**F**
6	99th Street and Halsted Street	Signalized	C	D
7	98th Place and Wentworth Avenue	Signalized	B	B
8	99th Street and Wentworth Avenue	Signalized	B	B
9	99th Street and State Street	Signalized	A	B
10	99th Street and Michigan Avenue	Signalized	B	B
11	99th Place and Martin Luther King Drive	Signalized	B	B
12	100th Street and Martin Luther King Drive	Signalized	B	A
13	100th Street and Cottage Grove Avenue	Unsignalized	A	B
14	103rd Street and Vincennes Avenue and Beverly Avenue	Signalized	D	**F**
15	103rd Street and Morgan Street	Signalized	B	B
16	103rd Street and Halsted Street	Signalized	**E**	D
17	103rd Street and Normal Avenue	Signalized	B	B
18	103rd Street and Wentworth Avenue	Signalized	B	B
19	103rd Street and State Street	Signalized	B	B
20	103rd Street and Michigan Avenue	Signalized	B	B
21	103rd Street and Martin Luther King Drive	Signalized	C	C
22	103rd Street and Cottage Grove Avenue	Signalized	B	B
23	103rd Street and Woodlawn Avenue	Signalized	A	A
24	107th Street and Halsted Street	Signalized	**F**	C
25	107th Street and Wentworth Avenue	Signalized	B	B
26	107th Street and State Street	Signalized	A	A
27	107th Street and Michigan Avenue	Signalized	B	B
28	107th Street and Martin Luther King Drive	Signalized	B	B
29	107th Street and Cottage Grove Avenue	Signalized	B	B
30	111th Street and Marshfield Avenue	Signalized	C	C
31	111th Street and Hamlet Avenue	Signalized	C	C
32	112th Place and Marshfield Avenue	Signalized	C	C
33	112th Place and Hamlet Avenue	Signalized	D	C
34	111th Street and Halsted Street	Signalized	C	C
35	111th Street and Normal Avenue	Signalized	A	A
36	111th Street and Wentworth Avenue	Signalized	A	A
37	111th Street and State Street	Signalized	A	B
38	111th Street and Michigan Avenue	Signalized	B	B

ID	Intersection	Control Type	AM Peak Hour LOS[1]	PM Peak Hour LOS[1]
39	111th Street and Indiana Avenue	Signalized	B	B
40	111th Street and Martin Luther King Drive	Signalized	B	A
41	111th Street and Cottage Grove Avenue	Signalized	B	C
42a[2]	111th Street and Langley Avenue	Signalized	B	C
42b[2]	111th Street and Ellis Avenue	Signalized	C	B
43	111th Street and Doty Avenue	Signalized	C	C
44	111th Street and Bishop Ford Freeway eastbound Ramps	Unsignalized	C	B
45	111th Street and Bishop Ford Freeway westbound Ramps	Unsignalized	C	B
46	115th Street and Marshfield Avenue	Signalized	B	B
47	115th Street and Ashland Avenue	Signalized	B	B
48	115th Street and Racine Avenue	Signalized	B	C
49	115th Street and Halsted Street	Signalized	C	C
50	115th Street and Wentworth Avenue	Signalized	B	B
51	115th Street and State Street	Signalized	B	B
52	115th Street and Michigan Avenue	Signalized	B	C
53	115th Street and Indiana Avenue	Signalized	B	B
54	115th Street and Martin Luther King Drive	Unsignalized	D	**F**
55a[2]	115th Street and Cottage Grove Avenue	Signalized	C	C
55b[2]	115th Street and Cottage Grove Avenue East	Signalized	D	C
56	115th Street and Bishop Ford Freeway eastbound Ramps	Unsignalized	C	B
57	115th Street and Bishop Ford Freeway westbound Ramps	Unsignalized	D	B
58	119th Street and Marshfield Avenue	Signalized	D	D
59	119th Street and Ashland Avenue	Signalized	D	**F**
60	119th Street and Halsted Street	Signalized	C	C
61	119th Street and Wentworth Avenue	Signalized	B	B
62	119th Street and State Street	Signalized	B	B
63	119th Street and Michigan Avenue	Signalized	A	A
64	127th Street and Paulina Street	Signalized	C	C
65	127th Street and Marshfield Avenue	Signalized	C	B
66	127th Street and Ashland Avenue	Signalized	C	C
67	Ashland Avenue and Vermont Avenue	Signalized	C	C
68	127th Street and Halsted Street	Signalized	C	C
69	Vermont Avenue and Halsted Street	Signalized	B	B
70	127th Street and Vermont Avenue and Wallace Street	Signalized	C	D
71	127th Street and State Street	Signalized	A	B

ID	Intersection	Control Type	AM Peak Hour LOS[1]	PM Peak Hour LOS[1]
72	127th Street and Michigan Avenue	Signalized	A	B
73	130th Street and Indiana Avenue	Signalized	B	C
74	130th Street and Ellis Avenue	Signalized	A	A

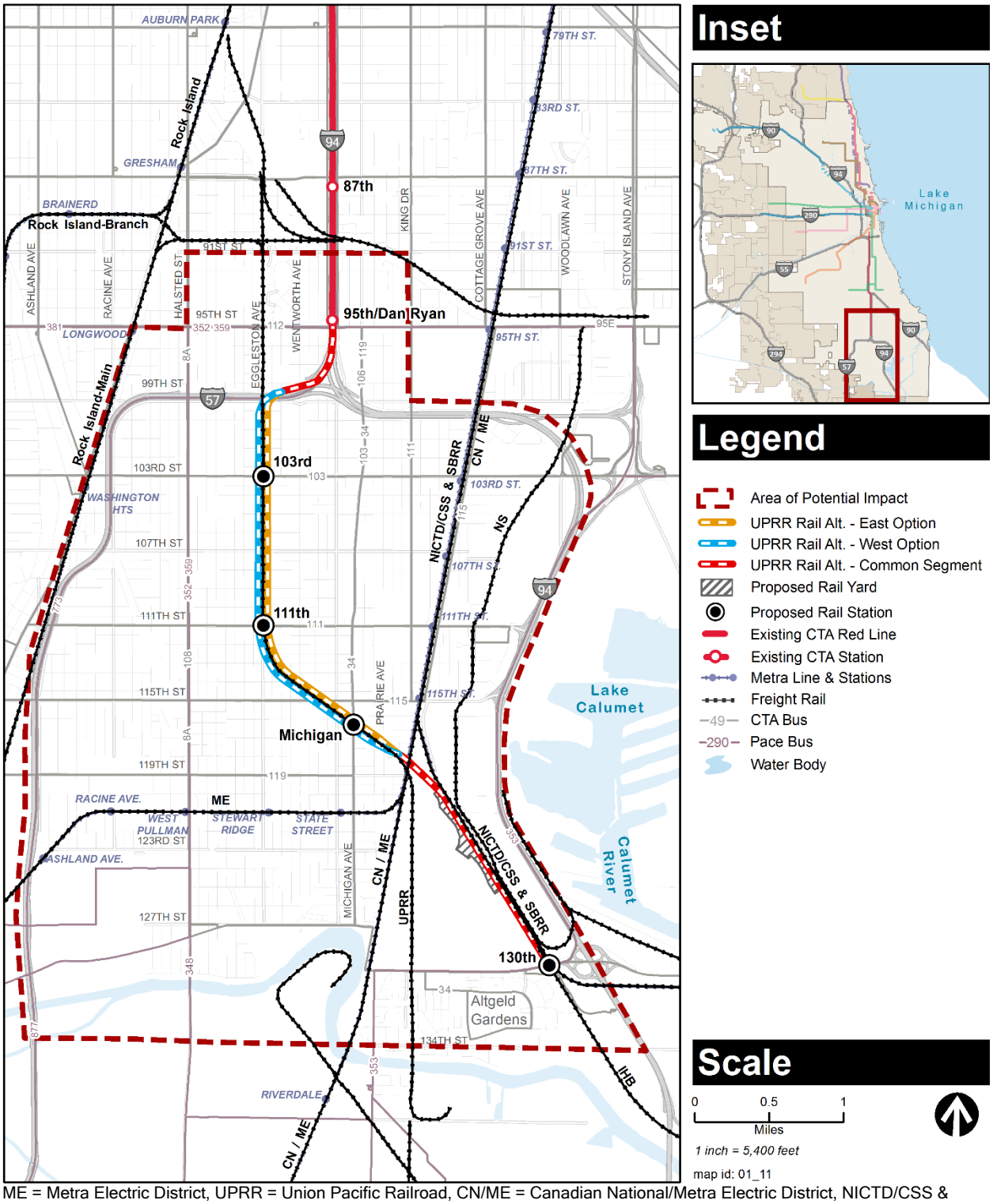
LOS = level of service
[1] Signalized intersection LOS is reported as the average for all movements. Unsignalized intersection LOS reported is the LOS of the worst movement. Intersections with LOS E and F that would be worse than the No Build conditions are shown in bold.
[2] Intersections #42 and #55 are offset; therefore, each leg was analyzed separately (as #42a/42b and #55a/55b).

3.2.3 Freight Transportation

Nearly 500 freight trains per day operate in the Chicago region (Chicago Metropolis 2020, 2004). In 2007, regional rail tonnage was estimated at more than 631 million tons, with about 24,000 trailers and containers and about 16,800 carload units moving into, out of, or through the region daily (CMAP 2012b). The following active freight railways operate through the API and are identified on **Figure 3-3**:

- UPRR
- CN/ME
- NICTD/CSS & SBRR
- Norfolk Southern Railway
- Indiana Harbor Belt Railroad
- Conrail

The UPRR reported 27 freight trains per day within the API. In addition, Amtrak runs two passenger trains per day on the UPRR tracks within the API. The CN/ME tracks carry both passenger and freight trains. The NICTD/CSS & SBRR tracks converge with the CN/ME tracks between 115th Street and Kensington Avenue and both carry passenger and freight trains.



ME = Metra Electric District, UPRR = Union Pacific Railroad, CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad, NS = Norfolk Southern, IHB = Indiana Harbor Belt Railroad

Figure 3-3: Freight Railroads within the Area of Potential Impact

3.2.4 Bicycle Facilities

Chicago has over 200 miles of on-street bicycle pathways and 36 miles of trails. In addition, the city has more than 12,000 racks for bicycle parking, including racks at CTA stations (City of Chicago 2012a). The *Chicago Streets for Cycling Plan 2020* guides the development of a citywide network of innovative bicycle pathways and proposes 645 miles of on-street cycling routes. CTA identified existing bicycle facilities within ½ mile of the alternative alignments (see **Figure 3-4**). Bicycle facilities recommended in the Chicago Bike 2015 Plan (City of Chicago 2006) and pertinent recommended cycling routes from the *Chicago Streets for Cycling Plan 2020* are also shown on the figure.

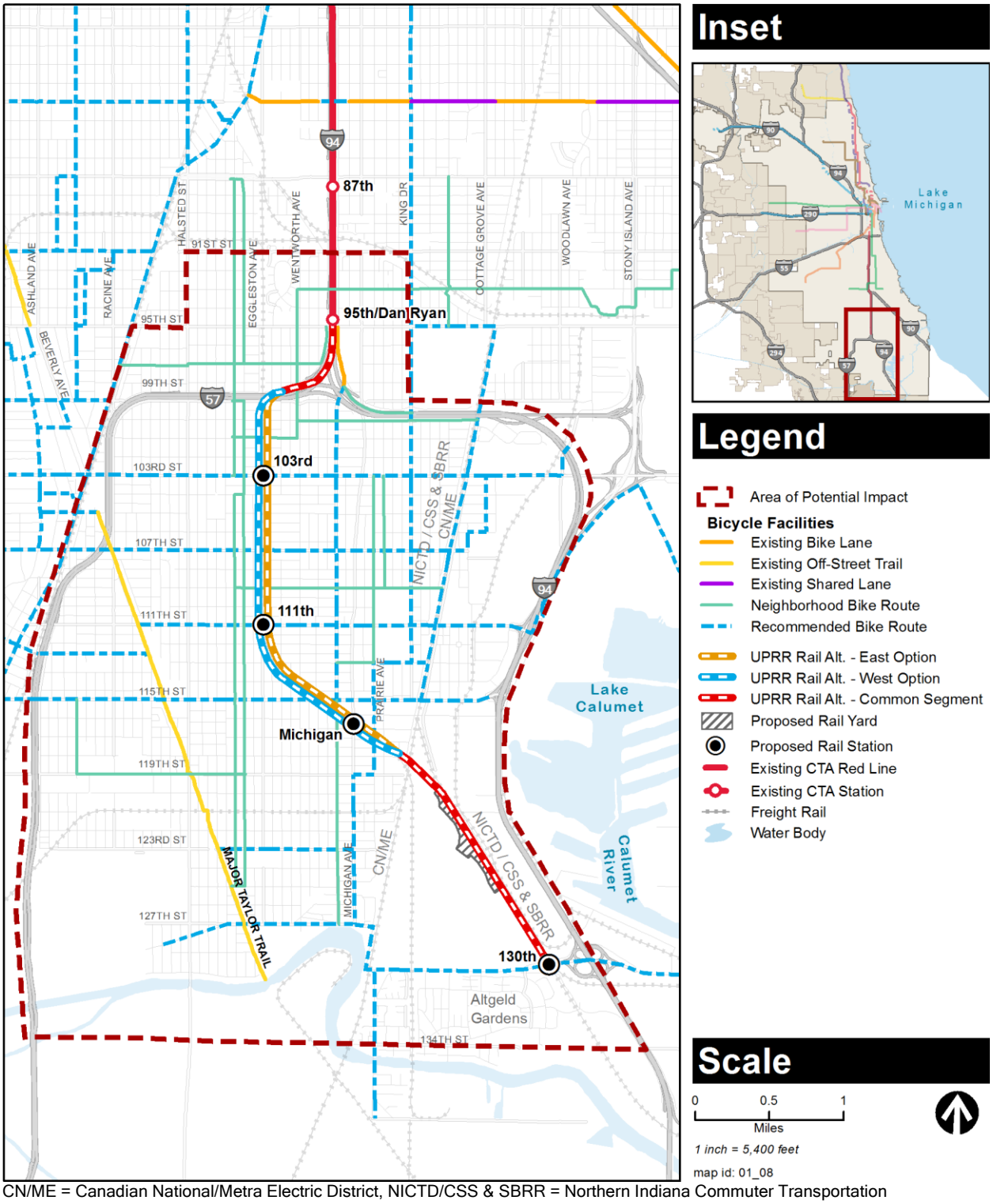
Major Taylor Trail is an off-street cycling trail that runs through the project area. There are no other marked bicycle lanes within the roadway along or crossing the alternative alignments.

3.2.5 Pedestrians

Throughout the project area, sidewalks are located on both sides of most of the arterial and collector roads. CTA qualitatively reviewed sidewalks within the API. Sidewalk width varies throughout the API. Arterial streets have a standard, 6-foot-wide sidewalk and collector streets have sidewalks that are 12 to 17 feet wide. There are no pedestrian gates along the sidewalks at the existing UPRR grade crossings within the API.

The City of Chicago is continually updating intersection curb ramps to meet current ADA guidelines and design standards. There are wheelchair accessible curb ramps at most of the intersections within the API, but most of these curb ramps are not fully compliant under current ADA standards, which require detectable warning tiles for the visually impaired.

CDOT is implementing its *Chicago Pedestrian Plan* (City of Chicago 2012b). The plan aims to increase pedestrian safety, identify and eliminate gaps and barriers in the pedestrian network, increase the amount and quality of pedestrian space, and increase the number of pedestrian trips for enjoyment, school, work, and daily errands.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 3-4: Existing and Recommended Bicycle Facilities within the Area of Potential Impact

3.2.6 Parking

Most of the streets in the API have on-street parking. **Table 3-5** summarizes the on-street parking along the major roadways along the alternative alignments. On-street parking is allowed (as posted) on most of the local streets not listed in this table. There is currently no park & ride facility at the existing 95th Street Terminal.

Table 3-5: Existing On-Street Parking

Street	Roadway Functional Class	On-Street Parking
95th Street	strategic regional arterial	No
99th Street	local road or street	Yes
103rd Street	minor arterial	Yes
107th Street	major collector	No
111th Street	minor arterial	Yes
115th Street	major collector	Yes
119th Street	minor arterial	Yes
127th Street	other principal arterial	No
130th Street	other principal arterial	No
Wentworth Avenue	major collector	Yes
State Street	minor arterial	Yes
Michigan Avenue	major collector	Yes
Indiana Avenue	minor arterial	No

A permit or fee is not required to park on the streets within the API. There are no existing off-street surface parking lots or garages used for public parking within the API. Many of the commercial and retail buildings within the API have parking available either through on-street parking or parking lots associated with the buildings.

3.3 Environmental Consequences

The following sections summarize the potential transportation impacts and mitigation measures of the No Build and UPRR Alternative.

3.3.1 No Build Alternative

Under the No Build Alternative, the project would not be constructed and traffic flow in the project area would continue to deteriorate. There would be a continued lack of rapid transit rail service south of 95th Street. *GO TO 2040* calls for investment in the existing transit infrastructure in the region, and the No Build Alternative would not achieve this. **Table 3-6** summarizes 2030 baseline (No Build Alternative) LOS. The intersections shown in **Table 3-6** would operate at a LOS D or worse under the No Build Alternative by 2030. There would be an adverse impact on transportation under the No Build Alternative. There would be no major construction associated with No Build Alternative; therefore, no construction-related transportation impacts would occur.

Table 3-6: No Build Alternative - Intersection Level of Service (2012 and 2030)

ID	Intersection	2012 Conditions		2030 Baseline	
		AM Peak-Hour LOS	PM Peak-Hour LOS	AM Peak-Hour LOS	PM Peak-Hour LOS
2	95th Street and Lafayette Avenue	D	D	D	D
3	95th Street and State Street	C	C	D	C
5	98th Place and Halsted Street	**F**	**F**	**F**	**F**
6	99th Street and Halsted Street	C	D	D	D
14	103rd Street and Vincennes Avenue and Beverly Avenue	D	**F**	**E**	**F**
16	103rd Street and Halsted Street	**E**	D	**F**	**E**
24	107th Street and Halsted Street	**F**	C	**F**	C
31	111th Street and Hamlet Avenue	C	C	D	D
33	112th Place and Hamlet Avenue	D	C	**E**	C
41	111th Street and Cottage Grove Avenue	B	C	C	D
44	111th Street and Bishop Ford EB Ramps	C	B	**E**	C
45	111th Street and Bishop Ford WB Ramps	C	B	**E**	B
52	115th Street and Michigan Avenue	B	C	B	D
54	115th Street and Martin Luther King Drive	D	**F**	D	**F**
55a	115th Street and Cottage Grove Avenue	C	C	D	C
55b	115th Street and Cottage Grove Avenue East	D	C	**E**	C
56	115th Street and Bishop Ford Freeway EB Ramps	C	B	D	C
57	115th Street and Bishop Ford Freeway WB Ramps	D	B	D	C
58	119th Street and Marshfield Avenue	D	D	D	D
59	119th Street and Ashland Avenue	D	**F**	D	**F**
70	127th Street and Vermont Avenue and Wallace Street	C	D	D	D

LOS = level of service, EB = eastbound, WB = westbound

3.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

Because the East and West Options would both run along the same corridor, the nature of transportation impacts for both options would be similar.

Public Transportation

With the extension of the Red Line, some existing bus routes would be rerouted to feed into the proposed stations (see **Appendix H** for additional details). CTA passengers would benefit from faster travel times by accessing rail service farther south. Year 2030 average weekday projected boardings with the UPRR Alternative would total approximately 42,000 passengers (CTA 2009). These estimates were developed using computerized travel forecasting models. Project boardings include the number of boardings at each new station and the number of travelers who are on board the trains on the extension as they leave the 95th Street Terminal. Implementation of the East Option would reduce congestion at 95th Street Terminal by reducing the number of bus transfers that passengers would need because they could transfer or directly board the Red Line at the proposed stations.

Public transportation would benefit from the East Option because of the new, direct rail service within the project area. The East Option would also allow for potential connections to regional commuter rail, particularly to NICTD at the 130th Street station where the NICTD tracks would be parallel to the RLE tracks. The park & ride facility at the 130th Street station may also benefit future commuter rail passengers, such as NICTD passengers, if future connections are built.

Vehicular Traffic

Traffic impacts would arise from changed travel patterns to reach the proposed stations. Traffic impacts for both the East and West Options would be similar. Both the East and West Options would operate along an existing active freight railroad corridor and impacts would occur due to the active roadway-railroad grade crossings. Additional delay analysis for vehicular traffic due to the freight railroad operations was not conducted. Depending on the option selected, a delay analysis may be warranted. The delay analysis would include the vehicular traffic generated by the park & ride facilities and would determine the additional delay that might be created at the at-grade crossings. The delay analysis would be dependent upon projected traffic growth, projected freight traffic, and location of the park & ride facilities.

Under both the East and West Options, adverse vehicular traffic impacts (2026 and 2030) would occur under 2026 and 2030 conditions at the intersections identified in **Table 3-7**. Adverse impacts would occur because these intersections would operate at a LOS worse than they would with the No Build Alternative. All increases in traffic volumes would be related to vehicle access at park & ride facilities.

Table 3-7: Union Pacific Railroad Alternative (2026 and 2030) Intersection Level of Service

ID	Intersection	Control Type	2026 Union Pacific Railroad Alternative		2030 Union Pacific Railroad Alternative	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
16	103rd Street and Halsted Street	Signalized	**F**	**E**	**F**	**E**
41	111th Street and Cottage Grove Avenue	Signalized	C	D	C	**E**
52	115th Street and Michigan Avenue	Signalized	**F**	**E**	**F**	**E**
54	115th Street and Martin Luther King Drive	Unsignalized	D	**F**	**E**	**F**
55a	115th Street and Cottage Grove Avenue	Signalized	**F**	**F**	D	**F**
55b	115th Street and Cottage Grove Avenue East	Signalized	**E**	D	**F**	D
59	119th Street and Ashland Avenue	Signalized	D	**F**	**E**	**F**
61	119th Street and Wentworth Avenue	Signalized	B	**E**	B	**F**
62	119th Street and State Street	Signalized	**F**	**F**	**F**	**F**
63	119th Street and Michigan Avenue	Signalized	**E**	B	**E**	B
68	127th Street and Halsted Street	Signalized	**E**	**F**	**E**	**F**
70	127th Street and Vermont Avenue and Wallace Street	Signalized	**F**	**F**	**F**	**F**

ID	Intersection	Control Type	2026 Union Pacific Railroad Alternative		2030 Union Pacific Railroad Alternative	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
71	127th Street and State Street	Signalized	D	**E**	**E**	**E**
73	130th Street and Indiana Avenue	Signalized	**F**	**F**	**F**	**F**
74	130th Street and Ellis Avenue	Signalized	A	D	B	**E**

UPRR = Union Pacific Railroad, LOS = level of service
Signalized intersection LOS reported as the average for all movements. Unsignalized LOS reported is the LOS of the worst movement. Intersections with LOS E and F that would be worse than the No Build conditions are shown shaded and in bold.

Mitigation - For intersections where adverse impacts are expected, CTA has identified potential mitigation measures to offset the portion of the LOS deterioration attributable to the East Option (**Table 3-8**). Mitigation measures for intersections near the affected intersection may also be necessary to provide better flow of traffic; therefore, the proposed mitigation measures include the 15 affected intersections as well as 4 adjacent or nearby intersections. If the East Option is selected, CTA will conduct additional traffic analysis to refine and optimize the mitigation measures described in **Table 3-8**.

Table 3-8: Mitigation Measures for the Union Pacific Railroad Alternative (2030) Conditions

ID	Intersection	Mitigation Measure
16	103rd Street and Halsted Street	PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal to improve traffic flow.
41	111th Street and Cottage Grove Avenue	PM: Adjust amount of time allotted to each phase of the signal to improve traffic flow.
52	115th Street and Michigan Avenue	AM: Adjust amount of time allotted to each phase of the signal to improve traffic flow. PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
54	115th Street and Martin Luther King Drive	Remove on-street parking lane for additional eastbound/westbound through lane on 115th Street.
55a	115th Street and Cottage Grove Avenue	AM/PM: Adjust traffic signal timing. Adjust amount of time allotted to each phase of the signal in the PM.
55b	115th Street and Cottage Grove Avenue East	AM/PM: Adjust traffic signal timing. Adjust amount of time allotted to each phase of the signal in the PM.
59	119th Street and Ashland Avenue	PM: Adjust amount of time allotted to each phase of the signal.
61	119th Street and Wentworth Avenue	PM: Adjust amount of time allotted to each phase of the signal.
62	119th Street and State Street	AM/PM: Adjust amount of time allotted to each phase of the signal.
63	119th Street and Michigan Avenue	AM: Adjust amount of time allotted to each phase of the signal.
64	127th Street and Paulina Street	AM/PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
65	127th Street and Marshfield Avenue	AM/PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
66	127th Street and Ashland Avenue	AM/PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
68	127th Street and Halsted Street	AM/PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.

ID	Intersection	Mitigation Measure
70	127th Street and Vermont Avenue and Wallace Street	Add an additional northeast right turn lane. Change westbound through/left lane to dedicated westbound left turn lane. Restrict northeast bound-to-northbound movement. Install traffic detection to provide green signal phases in response to traffic presence and volume. Adjust traffic signal timing and amount of time allotted to each phase of the signal.
71	127th Street and State Street	AM/PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
72	127th Street and Michigan Avenue	PM: Adjust traffic signal timing and amount of time allotted to each phase of the signal.
73	130th Street and Indiana Avenue	AM/PM: Add northbound right turn lane. Adjust traffic signal timing and amount of time allotted to each phase of the signal.
74	130th Street and Ellis Avenue	PM: Adjust amount of time allotted to each phase of the signal.

Mitigation measures proposed for Intersections #64, #65, #66, and #72 would provide for better flow of traffic to help address traffic impacts at nearby intersections.
Traffic signal timing optimization reduces travel time, reduces total system delay, and improves mobility within the urban transportation system. The need to allocate green signal time to certain legs of an intersection changes over time as traffic volumes change. Optimum allocation of the green signal time based on the volume of traffic in each direction would reduce wait times at intersections and improve traffic flow. In a system network, optimizing the system reduces total delay along a corridor.

Under mitigated East Option 2030 conditions, some intersections would operate at LOS E or F; however, these intersections would be no worse than under No Build Alternative (2030) conditions. **Table 3-9** shows the LOS after implementation of mitigation measures. Mitigated conditions would not result in additional intersections with unacceptable LOS. There would be no adverse permanent traffic impacts from the East Option.

Table 3-9: Union Pacific Railroad Alternative - Intersection Level of Service (2012 and 2030)

ID	Intersection	2012 Conditions		2030 Baseline		2030 Union Pacific Railroad Alternative Mitigated	
		AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS
16	103rd Street and Halsted Street	**E**	D	**F**	**E**	**F**	C
41	111th Street and Cottage Grove Avenue	B	C	C	D	C	C
52	115th Street and Michigan Avenue	B	C	B	D	B	C
54	115th Street and Martin Luther King Drive	D	**F**	D	**F**	D	**F**
55a	115th Street and Cottage Grove Avenue	C	C	D	C	B	C
55b	115th Street and Cottage Grove Avenue East	D	C	**E**	C	C	B
59	119th Street and Ashland Avenue	D	**F**	D	**F**	D	**F**
61	119th Street and Wentworth Avenue	B	B	B	B	B	B
62	119th Street and State Street	B	B	B	B	C	B
63	119th Street and Michigan Avenue	A	A	A	A	C	B
64	127th Street and Paulina Street	C	C	C	C	B	C
65	127th Street and Marshfield Avenue	C	B	C	C	C	C

ID	Intersection	2012 Conditions		2030 Baseline		2030 Union Pacific Railroad Alternative Mitigated	
		AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS
66	127th Street and Ashland Avenue	C	C	C	C	C	C
68	127th Street and Halsted Street	C	C	C	C	C	D
70	127th Street and Vermont Avenue and Wallace Street	C	D	D	D	C	D
71	127th Street and State Street	A	B	B	B	B	C
72	127th Street and Michigan Avenue	A	B	A	B	B	C
73	130th Street and Indiana Avenue	B	C	C	C	D	D
74	130th Street and Ellis Avenue	A	A	A	A	B	B

LOS = level of service, N/A = not applicable

Pedestrians

Implementing the East Option would result in benefits for pedestrians at stations by upgrading the intersections immediately adjacent to the stations with ADA-accessible curb ramps and replacing deteriorated sidewalks. These improvements would provide access for all users and would increase pedestrian safety.

Park & ride facilities would be located to the east and west of the East Option alignment at the 103rd Street, 111th Street, and Michigan Avenue stations. Because of the location of the parking, passengers using the park & ride lots would need to cross the active UPRR tracks to reach the 103rd Street, 111th Street, and Michigan Avenue stations. The East Option would therefore result in pedestrian safety impacts. Pedestrians coming from the west would also need to cross the at-grade freight tracks.

Mitigation - If warranted by an engineering traffic study, CTA may install traffic signals to mitigate pedestrian safety impacts. To further mitigate impacts and improve pedestrian safety, CTA would consider installation of security surveillance cameras, alarm notifications (e.g., flashing blue lights), sidewalk lighting in the immediate vicinity of station entrances, pedestrian crossing treatments, such as refuge medians with appropriate signage, and police patrols. To mitigate adverse safety impacts at the roadway-railroad grade crossings, CTA would install safety cameras and would consider other options to increase safety. CTA would install fencing to deter pedestrians from crossing the freight railroad tracks in places other than the designated locations. Permanent impacts on pedestrians would not be adverse after mitigation.

Bicycles

Implementation of the East Option would be beneficial to bicyclists with the addition of bicycle parking at the proposed stations.

Freight Transportation and Parking Facilities

There would be no adverse impacts on freight transportation or parking facilities under the East Option. Sufficient parking capacity would be provided at all stations to avoid spillover parking into residential areas near the stations.

Construction Impacts

Construction associated with the East Option would temporarily affect the physical capacity of roadways and intersections subject to detours. These detours may lead to increased travel times

and possible shifts in traffic volumes, increasing travel times for bus passengers, traffic, and pedestrians. Lane closures and detours would be implemented during off-peak traffic times to minimize construction impacts. CTA would phase construction to minimize impacts on passenger trains.

Construction within the I-94 and I-57 right-of-way would require temporary lane closures. CTA would sequence the structure construction to minimally affect traffic flow on either expressway. For erection of superstructures over expressway traffic lanes, temporary shutdown of all traffic would be required; per IDOT approval, traffic shutdowns would occur at times of low traffic volume. Increased traffic congestion due to construction may temporarily increase travel times along the expressways. During final design of the project and as a requirement for the project, CTA would prepare traffic management and maintenance of traffic plans that identify traffic detours and emergency access routes. CTA would coordinate traffic management with the FHWA, IDOT, Cook County Department of Transportation and Highways, and CDOT. Contractors would follow the Manual on Uniform Traffic Control Devices (MUTCD) design standards for temporary traffic control and would obtain required permits. The application of traffic management and maintenance of traffic plans as well as MUTCD design standards would minimize the temporary construction impacts. Contractors would also consider locations of schools, parks, and daycares when deciding where to route local traffic and construction equipment, and to the extent possible, route traffic away from places where children congregate.

Because UPRR freight operations would still be active in the UPRR right-of-way during construction of the East Option, CTA would need to move signal devices or install temporary signals to replace existing signals during construction of viaducts for the following at-grade crossings: 101st Street, 103rd Street, 107th Street, 109th Street, 111th Street, 115th Street, and State Street. Flagging operations and scheduled track closures would occur during construction activities near or adjacent to railroads.

Impacts Remaining After Mitigation

The East Option would result in permanent benefits to public transportation, pedestrians, and bicycles. Permanent impacts on vehicular traffic would not be adverse after mitigation. There would be no permanent impacts on freight transportation and parking facilities. Construction-related impacts would not be adverse.

3.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

Because the East and West Option alignments would run along the same corridor, the nature of impacts for each of the options would be similar.

Public Transportation

The West Option would have the same impacts on public transportation as the East Option. Like the East Option, the West Option would allow for potential connections to regional commuter rail, particularly to NICTD at the 130th Street station where the tracks are adjacent. The park & ride facility at 130th Street station may also benefit future commuter rail passengers, such as NICTD passengers, if future connections are built.

Vehicular Traffic

With either the East or West Options, impacts on vehicular traffic and pedestrians would occur due to the active roadway-railroad grade crossings. If the West Option were selected, CTA would conduct additional traffic analysis to refine and optimize mitigation measures described in **Table 3-8**.

Pedestrians

Because the West Option park & ride facilities would be on the west side of the UPRR tracks, passengers using the park & ride facilities would not need to cross the active UPRR tracks to access the station, as they would for some park & ride facilities with the East Option. Some pedestrians traveling from the east would need to cross the active UPRR tracks to access the station.

Mitigation - Mitigation measures for the West Option would be same as for the East Option. Permanent impacts on pedestrians would not be adverse after mitigation.

Bicycles

Implementation of the West Option would be beneficial to bicyclists with the addition of bicycle parking at the proposed stations.

Freight Transportation and Parking Facilities

Like the East Option, the West Option would have no adverse impacts on freight transportation or parking.

Construction Impacts

Construction impacts of the West Option would be similar to those of the East Option with the exception that the West Option alignment would cross over the active UPRR tracks at two locations: Fernwood Parkway and Prairie Avenue. Construction at the crossings would be phased to minimize impacts on UPRR freight operations.

Impacts Remaining After Mitigation

The West Option would result in permanent benefits to public transportation and bicyclists. Permanent impacts on vehicular traffic and pedestrians would not be adverse after mitigation. There would be no permanent impacts on freight transportation and parking facilities. Construction-related impacts would not be adverse.

Chapter 4
Environmental Impacts and Mitigation

This chapter describes the potential benefits and adverse impacts that would result from the East and West Options along with possible mitigation measures to avoid or minimize adverse impacts where feasible. Mitigation presented in this Draft EIS consists of potential measures that are provided for public review and comment. Mitigation measures will be confirmed in the Final EIS. For each section in this chapter, a technical memorandum describes the potential environmental impacts and mitigation in more detail. The *Construction Impacts Technical Memorandum* (**Appendix I**) describes how construction activities would potentially affect many of the resources described in this chapter.

4.1 Land Use and Economic Development

This section describes the impacts of the East and West Options on the land uses and economic development in the project area, including consistency with applicable land use plans. The information in this section is based on the *Land Use and Economic Development Technical Memorandum* (**Appendix J**). **Table 4-1** summarizes the land use and economic development impact findings.

Table 4-1: Land Use and Economic Development - Impacts Summary

Alternative	Permanent Impacts		Construction Impacts
	Land Use	Economic Development	
No Build	No impacts	No impacts	No impacts
Union Pacific Railroad - East Option	Impacts would not be adverse after mitigation	Benefits	Impacts would not be adverse after mitigation
Union Pacific Railroad - West Option	Impacts would not be adverse after mitigation	Benefits	Impacts would not be adverse after mitigation

4.1.1 Regulatory Framework/Methods

Regional and local planning bodies govern land use and zoning regulations. Within Chicago, CMAP acts as the regional planning body and defines the regional planning principles, while the City of Chicago regulates land use policies and zoning within its local jurisdictional boundaries. CTA evaluated existing land use, zoning, and relevant land use and economic development plans for parcels directly adjacent to the alignment, for the full length of the alignment, as well as those parcels within ½ mile of stations per FTA's 2004 *Guidelines and Standards for Assessing Transit-Supportive Land Use* (FTA 2004). The project could directly or indirectly affect land uses and economic development plans within ½ mile of project stations.

For this Draft EIS, a land use change may result in an adverse impact if it would be incompatible with surrounding land uses or could encourage land use and development inconsistent with local plans, goals, and objectives. An economic impact may result if one or more of the following occurs:

- Direct or indirect changes to the tax code or property taxes
- Substantial displacement of businesses (especially major employers) and individuals, defined in this analysis as those of a magnitude that would preclude relocation in the immediate area due to lack of available real estate
- Short- and/or long-term disruption of business activities
- Impacts that would influence regional construction costs

For each community area, CTA analyzed whether each option could cause adverse land use and economic impacts using the following:

- Analysis of the potential for short-term and long-term conflict with, or disruption of access to, land uses adjacent to the alternative alignments
- Identification of potential conflicts with local land use plans, policies, or regulations
- Identification of potential land use benefits of the East and West Options, such as opportunities for economic development and transit-supportive land uses

CTA analyzed whether the Build Alternative could cause land use and economic impacts. This analysis included reviewing existing land use plans and zoning maps and using field observations of the project corridor to determine consistency of the project with the goals and policies presented in the local and regional land use plans and studies of the City of Chicago and CMAP, including the following:

- CMAP - *GO TO 2040* (2010)
- City of Chicago - *Calumet Area Land Use Plan* (2002)
- City of Chicago, Chicago Park District, and Forest Preserve District of Cook County - *Cityspace: An Open Space Plan for Chicago (1998)*

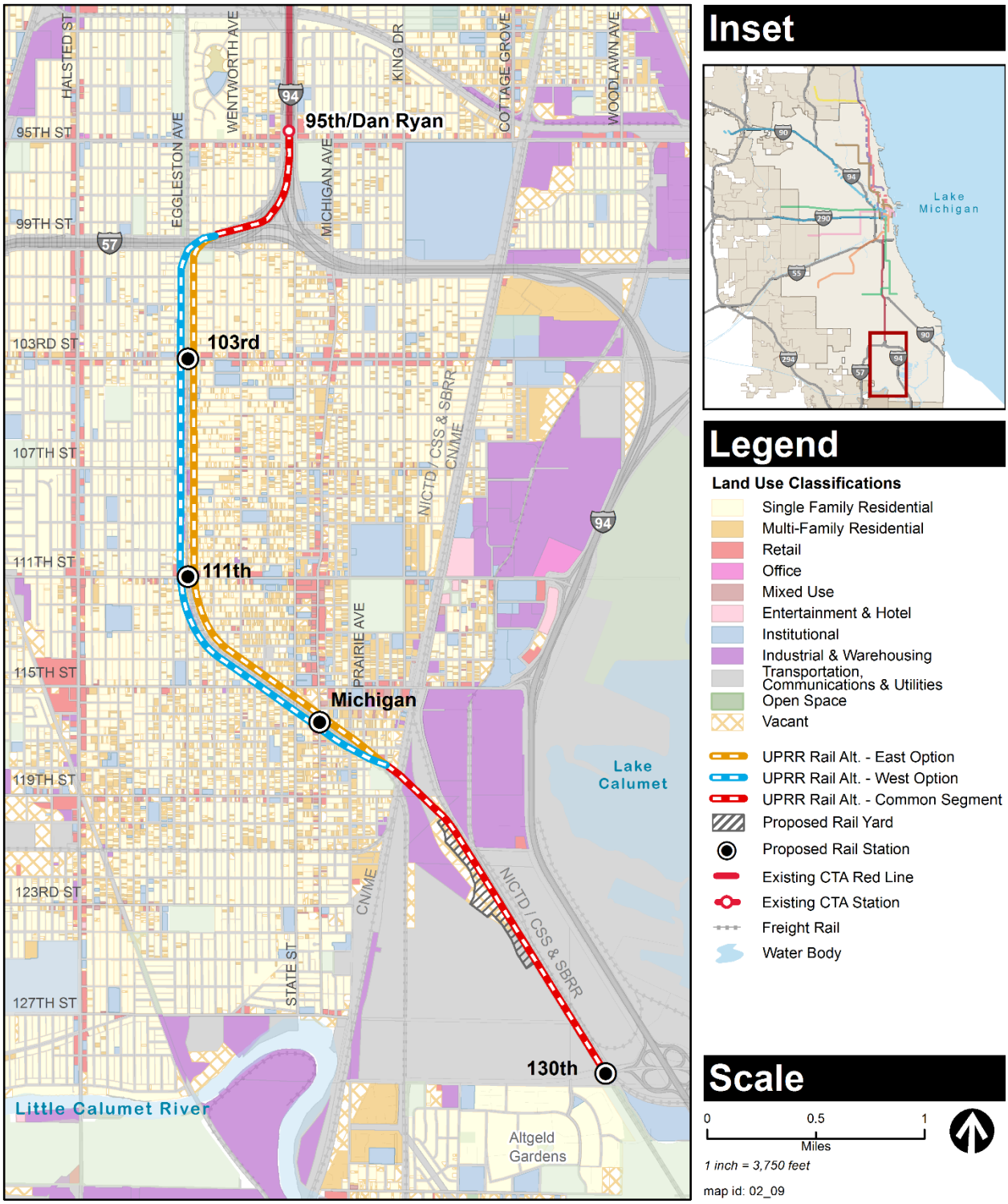
- Chicago Housing Authority - *Plan Forward: Communities That Work* (2013)
- City of Chicago - *Chicago Sustainable Industries, Phase One: A Manufacturing Work Plan for the 21st Century* (2011)
- City of Chicago and CTA - *Transit-Friendly Development Guide* (2009)
- DCP, Metropolitan Planning Council, CMAP, and Center for Neighborhood Technology - *What Will Your Station Look Like?* (2010)
- CMAP, DCP, CTA - *Improving Access, Increasing Livability: The CTA Red Line South Extension* (2012)
- Cook County - *Comprehensive Economic Development Strategy Report* (2009)
- CDOT - *130th Street Station Market/Access Study* (2010)
- University of Illinois at Chicago Voorhees Center - *Transit Equity Matters: A Regional Analysis of the Red Line and Two Other Proposed CTA Transit Line Extensions* (2009)
- University of Illinois at Chicago Voorhees Center - *The Case for Transit-Oriented Development in the Greater Roseland Area* (2005)

The applicable plans promote commercial and residential development around transit stations, as well as economic development region-wide. The plans are also compatible with the project goals of strengthening the linkages between transit and the surrounding neighborhoods. Further, the plans emphasize the integral role that transit service plays in supporting livable communities. Recommendations in the plans include improvement of pedestrian facilities, zoning for transit-oriented development around stations, including affordable housing, and engaging communities in station area planning and development. The *Land Use and Economic Development Technical Memorandum* (**Appendix J**) includes additional details about these plans.

4.1.2 Existing Conditions

The overall project area has residential (primarily single-family), commercial (urban mixed-use), industrial, transportation, utility, and vacant land uses. **Figure 4-1** depicts the overall land uses affected by the RLE Project, and **Figure 4-2** shows the existing zoning.

The UPRR Alternative alignment would begin within the I-57 right-of-way, north of the southbound lanes of I-57, and would follow the UPRR track southward. The surrounding land uses are primarily single-family residential properties north of I-57 and on the eastern side of the alignment, with a mix of primarily single-family residential properties and industrial properties to the west. There are typically one or two vacant properties per block in the residential areas and large vacant parcels near Michigan Avenue, some of which are slated for development. South of 119th Street, the surrounding land uses abruptly transition to industrial, railroad, and major utility sites. The Altgeld Gardens public housing project is at the southern end of the proposed alignment. **Appendix J** contains a more detailed description.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: CMAP 2010a

Figure 4-1: Existing Land Uses in the Project Area

CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: City of Chicago 2012c

Figure 4-2: Existing Zoning in the Project Area

4.1.3 Environmental Consequences

The following sections summarize the potential land use and economic impacts of each alternative.

4.1.3.1 No Build Alternative

Although it does not recommend specific plans for redevelopment, *GO TO 2040* identifies many potential infill areas within the project area that could be developed under the No Build Alternative. *GO TO 2040* estimates that for wards 9, 21, and 34, where the project would take place, the combined population and combined employment would increase by 14 and 39 percent, respectively, if the infill were to occur. Population and employment for the city as a whole is expected to increase by 15 and 17 percent, respectively. The No Build Alternative would be inconsistent with the goals of *GO TO 2040*, which lists the RLE Project as a fiscally constrained project. The No Build Alternative would be inconsistent with Cook County's *Comprehensive Economic Development Strategy Report,* which supports the RLE Project. The No Build Alternative would not create any new inconsistencies to land uses and economic development beyond those that already exist, and therefore would have no impact on land use or economic development.

4.1.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

Displacements would occur as a result of the construction of the track structure and park & ride facilities (see **Section 4.2**). The proposed Michigan Avenue station parking structure would have ground-floor retail and community facility space, which could help offset the land use and economic impacts of displacements. The following potentially adverse impacts would occur:

- The park & ride facilities at the 103rd Street, 111th Street, and Michigan Avenue stations would be inconsistent with adjacent land uses, and zoning designations do not permit large, stand-alone surface parking lots or garages.

- The substation just north of Michigan Avenue would be inconsistent with the adjacent single-family land uses.

Implementation of the East Option could spur economic revitalization and the development of more livable, transit-supportive communities near the proposed stations. More foot traffic near stations would benefit local businesses and encourage community development.

Mitigation - The following mitigation measures would offset the potentially adverse impacts:

- Land for parking facilities would be rezoned, and the facilities would include landscaping and lighting that is compatible with adjacent land uses. Garages would have architectural design and massing (setting back the upper floors away from the edge of the property to shield them from view from the street) that would reduce incompatibilities with adjacent land uses.

- Land for the substation would be rezoned, and the facility would include landscaping and architectural design and massing that would be compatible with adjacent land uses.

Construction Impacts

Construction would take up to 5 years, and would cause temporary impacts such as noise, vibration, fugitive dust, truck traffic, and roadway detours. There could be short-term economic

benefits due to jobs created by construction. Construction could be disruptive to businesses along the alignment, which would be an adverse impact.

Mitigation - To minimize the adverse impact, CTA would work with the community, businesses, aldermen's offices, and the Chicago Department of Planning and Development to develop and implement a Construction Outreach and Coordination Plan. The plan would include a Business Outreach Program to assist local businesses and residents affected by construction. The plan would be tailored to business and community needs, and would include a series of initiatives to minimize construction disruption to businesses and the surrounding community. Examples of these initiatives include a community calendar to inform residents of the construction schedule and avoid affecting special events or festivals, advertising campaigns, any provisions for additional parking during construction, signage, and other economic incentives or tax relief measures for businesses adversely affected by construction.

Impacts Remaining After Mitigation

No permanent or construction-related adverse land use or economic impacts would remain after mitigation.

4.1.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

Like the East Option, the West Option would cause displacements as a result of construction of the track structure and park & ride facilities (see **Section 4.2**). The proposed Michigan Avenue station parking structure would have ground-floor retail and community facility space, which could help offset the land use and economic impacts of displacements. The following potentially adverse impacts would occur:

- The introduction of an elevated track structure in Fernwood Parkway would alter the open space's function as a buffer between the UPRR freight tracks and the single-family neighborhood on the west side of Eggleston Avenue.
- The park & ride facilities at the 103rd Street, 111th Street, and Michigan Avenue stations would be inconsistent with adjacent land uses, and zoning designations do not permit large, stand-alone surface parking lots or garages.
- The substation just north of Michigan Avenue would be inconsistent with the adjacent single-family land uses.

Like the East Option, the West Option could spur economic revitalization and the development of more livable, transit-supportive communities near the proposed stations. Many of the displacements related to the West Option would be industrial land uses, which could be relocated onto nearby vacant land.

Mitigation - The following mitigation measures would minimize and offset the potentially adverse impacts:

- CTA would plant additional trees on both sides of Eggleston Avenue to minimize visual impacts from the elevated track structure in Fernwood Parkway.

- Land for parking facilities would be rezoned, and the facilities would include landscaping and lighting that is compatible with adjacent land uses. Garages would have architectural design and massing that would be compatible with adjacent land uses.

- Land for the substations would be rezoned, and the facility would include landscaping and architectural design and massing that would be compatible with adjacent land uses.

Construction Impacts

Construction impacts and mitigation measures would be similar to those described for the East Option in **Section 4.1.3.2**.

Impacts Remaining After Mitigation

No permanent or construction-related adverse land use or economic impacts would remain after mitigation.

4.2 Displacements and Relocation of Existing Uses

Displacements and relocations may occur when land and/or structures are needed to accommodate construction or the permanent footprint of a project. This section describes the displacement and relocation impacts of the East and West Options. Displacements would occur if land and/or a structure were needed to accommodate construction or the permanent footprint (right-of-way) of the project. Displaced residents and businesses would be relocated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended ("Uniform Act," 42 USC § 4601, et seq.) The *Displacements and Relocation of Existing Uses Technical Memorandum* (**Appendix K**) includes additional details. **Table 4-2** summarizes the displacements and relocation impact findings.

Table 4-2: Displacements and Relocation of Existing Uses - Impacts Summary

Alternative	Total Affected Parcels	Building Displacements	Permanent Impacts	Construction Impacts
No Build	0	0	No impacts	No impacts
Union Pacific Railroad - East Option	260	106	Impacts would not be adverse after mitigation	No impacts
Union Pacific Railroad - West Option	205	46	Impacts would not be adverse after mitigation	No impacts

4.2.1 Regulatory Framework/Methods

The Uniform Act (42 USC § 4601, et seq.) mandates that relocation services and payments be made available to eligible residents, businesses, and non-profit organizations displaced as a direct result of any project undertaken by a federal agency or with federal financial assistance. The Illinois Eminent Domain Act supports the Uniform Act and is the state regulation related to procedures for acquiring property through eminent domain, with similar provisions for reimbursements and relocation as the Uniform Act. The Metropolitan Transit Authority Act (70 Illinois Compiled Statutes [ILCS] § 3605(10)) provides CTA with the authority to use eminent domain to acquire property.

While there are no specific NEPA thresholds for assessing displacement impacts, the Uniform Act and the Uniform Real Property Acquisition Policy (42 USC § 4651, et seq.) include provisions for uniform and equitable treatment of people displaced from their homes or businesses by establishing uniform and equitable land acquisition policies to address impacts.

For this Draft EIS, displacements and relocations would cause an adverse impact if they would result in either of the following:

- Displacement of substantial numbers of existing housing units (a concentrated number of units in one neighborhood), particularly affordable housing, and/or employer units, necessitating the construction of replacement units elsewhere. This analysis uses the definition of affordable housing provided by the Illinois Housing Development Authority for the Chicago Metro area, which is based on data provided by the U.S. Department of Housing and Urban Development.

- Displacement of a substantial number of residents or employees, necessitating construction of replacement housing or employment locations elsewhere.

CTA used the following steps to determine whether each option would cause adverse displacement and relocation impacts:

- CTA prepared counts and locations of private property acquisitions and building displacements using the plan and profile drawings (**Appendix F**), CMAP and City of Chicago geographic information system parcel data, Cook County Assessor data, Google Earth, and aerial photographs. The plans and profiles are based on conceptual engineering and will be subject to revision in future engineering phases. Impacts presented in this section are based on conceptual engineering and represent maximum potential impacts for the East and West Options. Impacts will be confirmed in the Final EIS.

- CTA performed site reconnaissance of the project area and field observation of parcels and buildings to confirm the data. CTA assessed impacts of the potential acquisitions on the surrounding properties and community areas.

- CTA evaluated properties in the project area to determine whether vacancies would be sufficient to accommodate relocation of displaced residents and businesses nearby. CTA conducted qualitative field observations to determine the character of each affected community area and the ability of each to absorb temporary and permanent losses in residential and commercial units.

The following terms are used to describe displacements and relocation impacts in this section:

- Affected Parcel - A partial or a full parcel that would need to be acquired

- Building Displacement - A structure that would need to be removed (the land occupied by the structure would also be counted as an affected parcel)

Publicly owned parcels that *include a roadway* are classified as "easements" for this analysis because CTA would require a use agreement with the public entity. CTA will coordinate with FHWA, IDOT, CDOT, and Cook County regarding use of these parcels. Publicly owned parcels

that *do not include a roadway* are classified as affected parcels or building displacements because CTA would need to negotiate a fee simple property transfer or other agreement with the public entity.

4.2.2 Existing Conditions

Along the UPRR Alternative alignment, the existing development pattern consists primarily of single-family residential properties north of I-57 and between 99th Street and the proposed Michigan Avenue station, with some multifamily units interspersed. Between 103rd and 111th Streets, there are several vacant and light industrial properties along the western edge of the corridor. There are also neighborhood-scale commercial retail buildings near the 103rd Street, 111th Street, and Michigan Avenue station sites. South of the proposed Michigan Avenue station location, the land uses around the alignment transition to industrial, vacant, and public utility sites. The Altgeld Gardens public housing project is at the southern end of the alignment, near 130th Street. Most of the neighborhoods along the alignment have at least a few vacant buildings and parcels per block.

CTA conducted a field verification of all potentially displaced properties on March 5, 2015 and July 7–10, 2015. CTA identified numerous houses that were boarded-up and uninhabited, primarily between 105th Street and 115th Street on the east side of the corridor and along Eggleston Avenue from 107th Street to 108th Street on the west side of the corridor.

4.2.3 Environmental Consequences

The following sections summarize the potential displacement and relocation impacts of each alternative. **Appendix K** contains a full list of displacements and detailed maps.

4.2.3.1 No Build Alternative

There would be no displacements or relocations associated with the No Build Alternative. No adverse displacement and relocation impacts would occur, and no mitigation measures would be required.

4.2.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

UPRR requires that, for safety reasons, the CTA tracks be located at least 50 feet from the existing freight tracks. To maintain the required 50-foot distance, the CTA right-of-way would extend into the residential neighborhoods east of the UPRR right-of-way. A total of 260 parcels and 106 buildings would be acquired for the East Option to accommodate the tracks, stations, 120th Street yard and shop, and ancillary facilities. The East Option would displace more properties and buildings than the West Option. The East Option would not displace any affordable housing units (National Housing Preservation Database 2015).

Table 4-3 summarizes the land use types for the potential property and building displacements.

Table 4-3: Union Pacific Railroad Alternative East Option Displacements

Land Use Type	Total Affected Parcels (With and Without Building Displacements)	Building Displacements[1]
Vacant	50	
Single-Family Residential	87	75
Multifamily Residential	16	15
Commercial	6	3
Mixed-Use Commercial/Residential	1	1
Institutional (Place of Worship)	1	1
Institutional (School)	2	
Industrial	17	10
Utility (MWRD)	15	
Transportation (Union Pacific Railroad)	19	
Transportation (CN/ME)	3	
Transportation (Norfolk Southern Railway)	2	
Transportation (Conrail)	3	
Transportation (NICTD/CSS & SBRR)	2	
Public (City of Chicago)	34	1
Parkland	2	
Totals	**260**	**106**

MWRD = Metropolitan Water Reclamation District of Greater Chicago, CN/ME = Canadian National/Metra Electric District, Conrail = Consolidated Rail Corporation, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

[1] Building displacements are a subset of affected parcels and relate to a primary building displacement and/or an auxiliary structure (such as a garage) displacement. Building displacements are based on conceptual engineering that would be subject to revision during future design phases. Easements are not included in this table.

Figure 4-3 and **Figure 4-4** show the locations of the potential property and building displacements. **Appendix K** contains detailed information and maps of the potentially displaced properties. Displacements would occur for the following reasons:

- **99th Street to 103rd Street** - Twenty-six buildings, mostly single-family residential properties, would be removed to accommodate the right-of-way from 99th Street to 103rd Street, including the 103rd Street station and park & ride facilities.

- **103rd Street to 111th Street** - Eighteen buildings, mostly single-family residential properties with some industrial properties, would be removed to accommodate the right-of-way from 103rd Street to 111th Street, including the 111th Street station, park & ride facility, and substation.

- **111th Street to 115th Street** - Twenty-eight buildings, mostly single-family residential properties, multifamily residential properties, and industrial properties, would be removed to accommodate the right-of-way from 111th Street to 115th Street. One place of worship would also be displaced.

- **115th Street to the CN/ME Tracks near 119th Street** - Thirty-three buildings would be removed to accommodate the right-of-way from 115th Street to 117th Street. Most of the

displacements would result from the Michigan Avenue station park & ride facility. Displacements would consist primarily of single-family residential and multifamily residential properties as well as two industrial buildings.

- **120th Street Yard and Shop** - The 120th Street yard and shop would require removal of one industrial building.

- **Easements** - At the north end of the project area, a total of 21 easements would be required to accommodate the East Option in the I-57 right-of-way and at the crossing of I-57 where the tracks would curve south. Five easements would also be required from 115th Street to 117th Street.

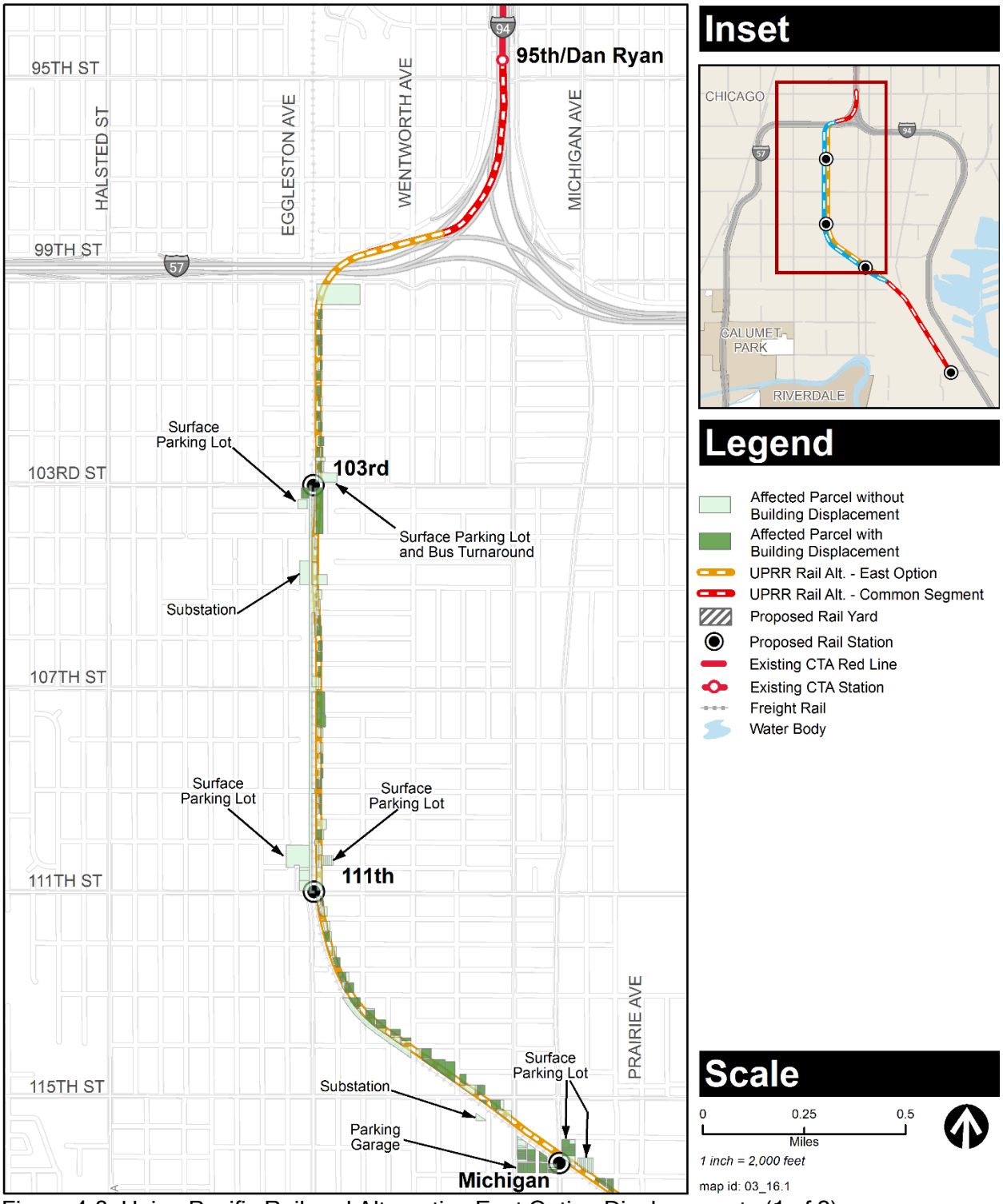
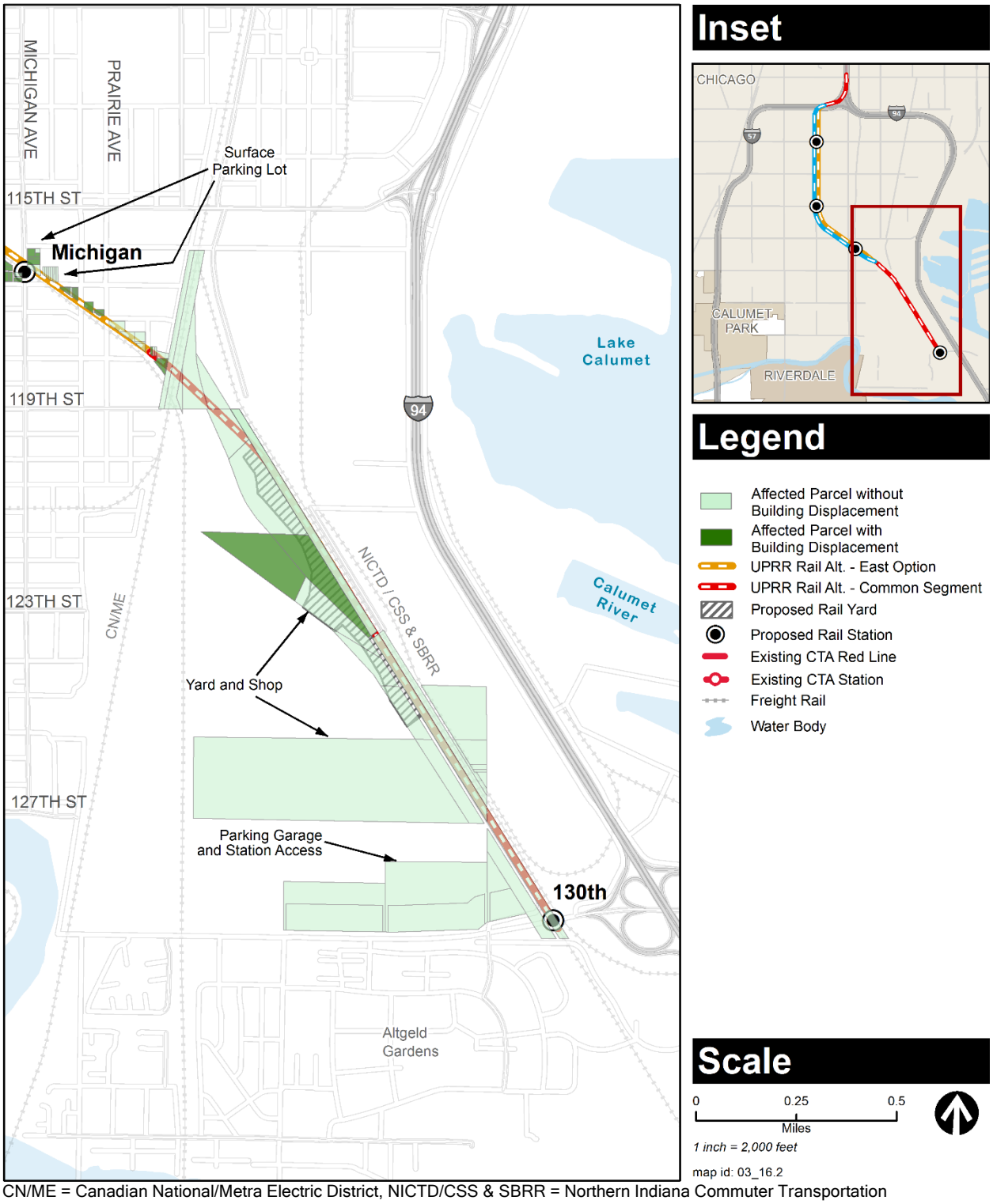


Figure 4-3: Union Pacific Railroad Alternative East Option Displacements (1 of 2)



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-4: Union Pacific Railroad Alternative East Option Displacements (2 of 2)

Although the East Option would displace more buildings than the West Option, most of the displacements would be spread evenly along the corridor between 99th Place and the Michigan

Avenue station. On most affected blocks, one or two houses at the end of each street adjacent to the UPRR tracks would be removed. Because the displacements would be spread evenly along the corridor, most neighborhoods would not experience a substantial concentration of displacements. The only area with a high concentration of displacements would be the block bounded by the UPRR right-of-way, State Street, 116th Street, and Michigan Avenue, where the Michigan Avenue station park & ride facility would be constructed; 30 properties would be displaced on that block. Of the 260 properties that the East Option would displace, 50 parcels are vacant. In addition, 33 of the 34 parcels owned by the City of Chicago that would be affected by the East Option are vacant. The vacant properties are dispersed throughout the corridor primarily between 99th Street and Prairie Avenue.

The East Option would affect portions of Wendell Smith Park and Block Park (4.7 acres and 1.3 acres, respectively). Of the 4.7 acres of Wendell Smith Park, approximately 0.7 acre would be overlapped by the elevated structure and its associated clearances. Of the 1.3 acres of Block Park, approximately 0.9 acre of park space would be overlapped by the elevated structure and its associated clearances. Additional information about impacts on these parks is presented in **Chapter 8**. A communications tower owned by the City of Chicago is located in Block Park and would be affected by the East Option.

CTA conducted a field verification of potentially displaced properties and availability of replacement housing, commercial buildings, and vacant parcels on March 5, 2015 and July 7–10, 2015. CTA identified numerous houses that were boarded-up and uninhabited throughout the community, primarily between 105th Street and 115th Street on the east side of the corridor and along Eggleston Avenue from 107th Street south on the west side of the corridor. At the time of the field verification, three of the residential displacements identified for the East Option were boarded up, and are not likely to adversely affect a resident.

Mitigation - The availability of replacement housing, commercial buildings, and vacant parcels would likely allow relocation of displaced businesses and residents within the project area. In addition, the new multilevel parking garage at the Michigan Avenue station would have ground-floor retail and community facility space, which would help offset displacements. The new stations would improve regional accessibility and help attract new development to the area, thereby reducing the long-term impacts of displacements. With mitigation through fair compensation and relocation assistance per the Uniform Act (42 USC § 4601, et seq.), impacts would not be adverse. CTA would coordinate with the Chicago Department of Planning and Development on local economic development and community plans during future design phases. CTA has undertaken early outreach to all potentially affected property owners by contacting each owner and lessee (based on available public records). CTA's Uniform Act public outreach specialists would provide specific outreach as a one-stop resource to potentially displaced residents and/or businesses to answer questions regarding relocation rights, requirements, processes, and anticipated timelines. CTA, in coordination with the City of Chicago and the local aldermen's offices, would provide informational resources, permitting support, and points of contact for displaced business owners to find suitable sites for relocation. CTA would coordinate with the City of Chicago regarding impacts on the communications tower and potential relocation options.

Construction Impacts

Because all construction activities would occur within the street right-of-way or on land permanently acquired for the permanent right-of-way, yard and shop, and park & ride facilities, there would be no temporary construction-related displacement or relocation impacts.

Impacts Remaining After Mitigation

With mitigation through fair compensation and relocation assistance per the Uniform Act (42 USC § 4601, et seq.), impacts would not be adverse after mitigation. No temporary, construction-related adverse displacement and relocation impacts would occur under the East Option.

4.2.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

Like the East Option, the West Option would be subject to the UPRR requirement that the CTA elevated structure be constructed at least 50 feet from the existing freight tracks. In the West Option, however, the CTA elevated structure would run along the west side of the UPRR right-of-way, where fewer buildings are present. As a result, the West Option would result in 46 displaced buildings, compared to 106 for the East Option, and more of the displaced buildings would be industrial and commercial rather than single-family residential, due to the predominance of industrial land uses along the west side of the UPRR right-of-way. The 46 buildings that would be removed are part of the 205 parcels that would be acquired for the West Option to accommodate the tracks, stations, 120th Street yard and shop, and ancillary facilities. The West Option would not displace any affordable housing units (National Housing Preservation Database 2015). **Table 4-4** summarizes the land use types for the potential property and building displacements.

Table 4-4: Union Pacific Railroad Alternative West Option Displacements

Land Use Type	Total Affected Parcels (With and Without Building Displacements)	Building Displacements[1]
Vacant	41	
Single-Family Residential	35	22
Multifamily Residential	4	4
Commercial	13	6
Mixed-Use (Retail/Office/Residential)	2	2
Institutional (Place of Worship)	2	1
Industrial	18	11
Utility (MWRD)	15	
Transportation (Union Pacific Railroad)	36	
Transportation (CN/ME)	3	
Transportation (Norfolk Southern Railway)	2	
Transportation (Conrail)	3	
Transportation (NICTD/CSS & SBRR)	2	
Transportation (Chicago and Western Indiana Railroad)	1	
Public (City of Chicago)	24	
Parkland	4	
Totals	**205**	**46**

MWRD = Metropolitan Water Reclamation District of Greater Chicago, CN/ME = Canadian National/Metra Electric District, Conrail = Consolidated Rail Corporation, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District Chicago South Shore & South Bend Railroad

[1] Building displacements are a subset of affected parcels and relate to a primary building displacement and/or an auxiliary structure (such as a garage) displacement. Building displacements are based on conceptual engineering that would be subject to revision during future design phases. Easements are not included in this table.

Figure 4-5 and **Figure 4-6** show the locations of the potential property and building displacements. **Appendix K** contains detailed information and maps of the potentially displaced properties. Displacements would occur for the following reasons:

- **99th Street to 103rd Street** - The CTA elevated structure would be located above much of Fernwood Parkway between 99th and 103rd Streets. Park impacts are discussed further as part of the Section 4(f) analysis in **Chapter 8**. One multifamily residential property and one commercial building would be removed to accommodate the 103rd Street station.

- **103rd Street to 111th Street** - Nine buildings, all industrial and commercial, would be removed to accommodate the permanent right-of-way from 103rd Street to 111th Street.

- **111th Street to 115th Street** - Eight buildings would be removed to accommodate the permanent right-of-way between 111th Street and 115th Street. Displacements would include a mix of residential, commercial, and industrial buildings.

- **115th Street to the CN/ME Tracks near 119th Street** - Twenty-six buildings would be displaced to accommodate the right-of-way from 115th Street to 117th Street. Most of the displacements would result from the Michigan Avenue station park & ride facility. Displacements would consist primarily of single-family residential and multifamily residential properties. One place of worship and one industrial building would also be displaced.

- **120th Street Yard and Shop** - The 120th Street yard and shop would require removal of one industrial building.

- **Easements** - At the north end of the project area, a total of 23 easements would be required to accommodate the West Option in the I-57 right-of-way and at the crossing of I-57 where the tracks would curve south. One easement would also be required from 115th Street to 117th Street.

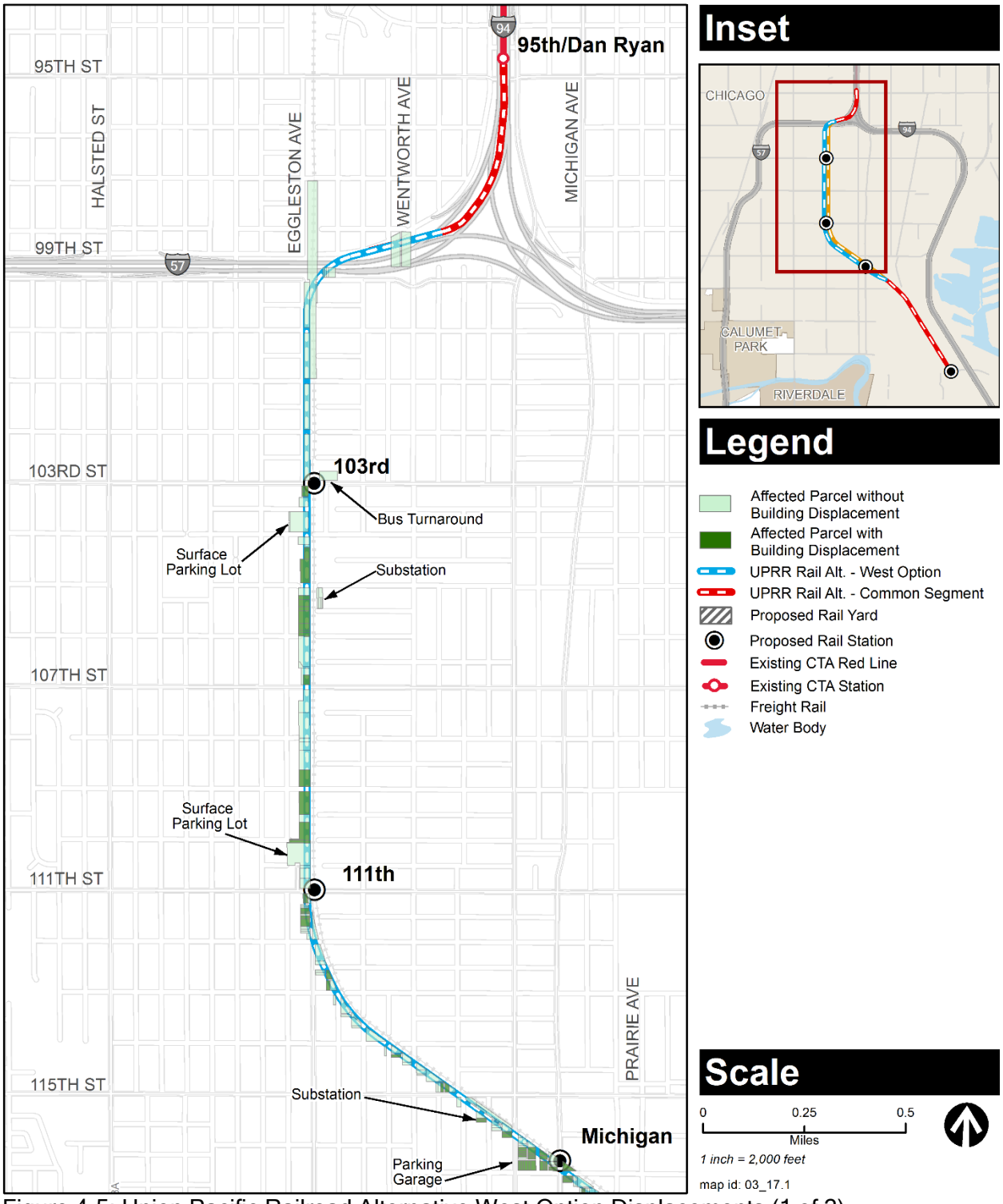
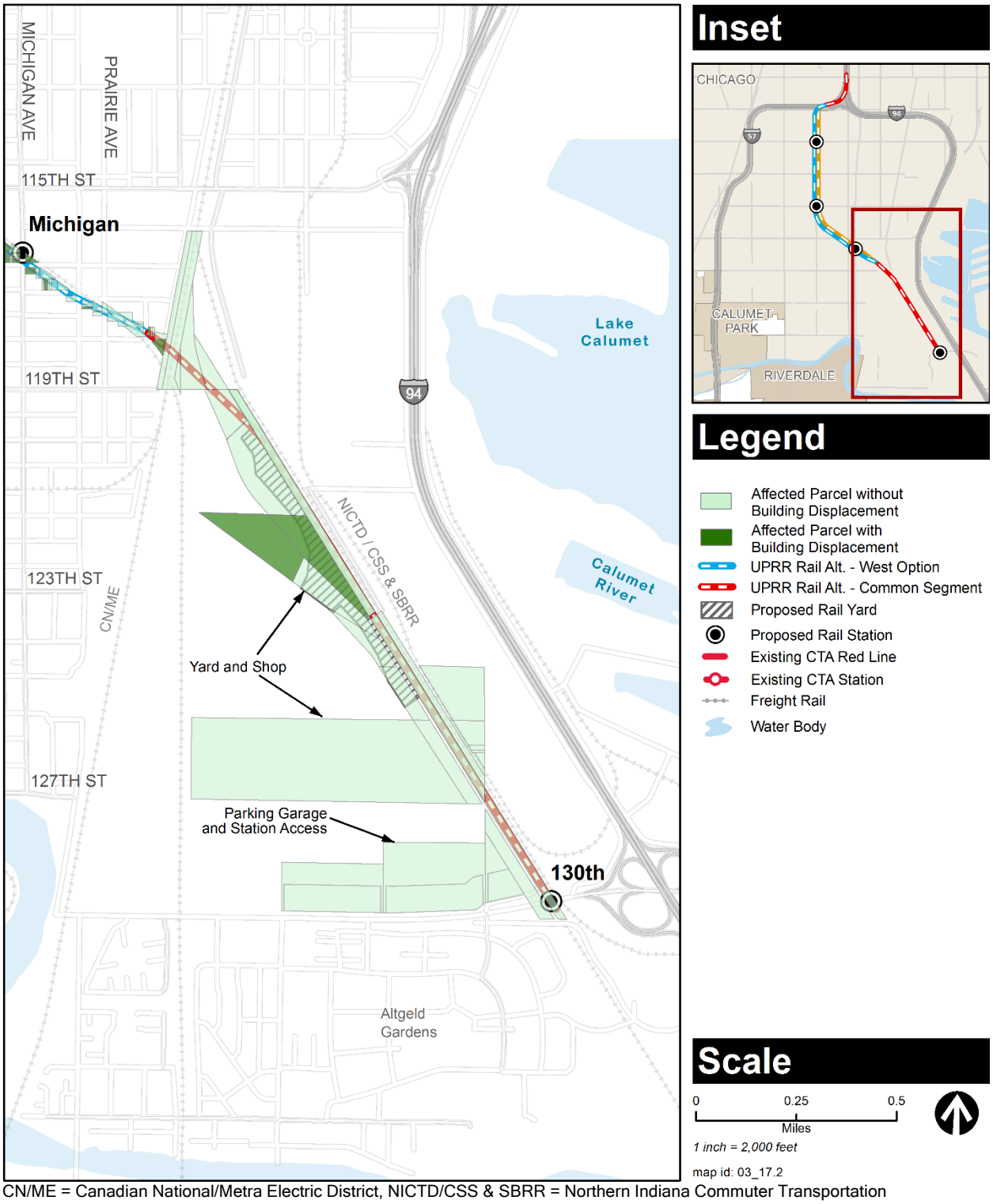


Figure 4-5: Union Pacific Railroad Alternative West Option Displacements (1 of 2)



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-6: Union Pacific Railroad Alternative West Option Displacements (2 of 2)

Displacements would be spread evenly along the corridor between 103rd Street and the Michigan Avenue station. Many of the displacements would be industrial land uses, which could be

relocated to nearby vacant parcels and buildings or within nearby industrial corridors. Most of the affected residential blocks would be between 111th Street and the Michigan Avenue station. On most of these blocks, one or two houses at the end of each street adjacent to the UPRR tracks would be removed. Because the displacements would be spread evenly along the corridor, most neighborhoods would not experience a substantial concentration of displacements. The only area with a high concentration of displacements would be the block bounded by the UPRR right-of-way, State Street, 116th Street, and Michigan Avenue, where the Michigan Avenue station park & ride facility would be constructed; 30 parcels would be displaced on this block. Of the 205 properties that the West Option would displace, 41 parcels are vacant. In addition, all 24 of the City of Chicago parcels that would be affected by the West Option are vacant. The vacant properties are dispersed throughout the corridor primarily between 99th Street and Prairie Avenue.

The West Option would affect Fernwood Parkway. Approximately 2.9 acres of Fernwood Parkway lies within the project corridor, and approximately 1.9 acres of the parkway would be overlapped by the elevated structure and its associated clearances. **Chapter 8** provides additional information about impacts on Fernwood Parkway.

CTA conducted a field verification of potentially displaced properties and availability of replacement housing, commercial buildings, and vacant parcels on March 5, 2015 and July 7–10, 2015. CTA identified numerous houses that were boarded-up and uninhabited throughout the community, the majority of which were between 105th Street and 115th Street on the east side of the corridor and along Eggleston Avenue from 107th Street south on the west side of the corridor. At the time of the field verification, one of the residential displacements identified for the West Option was boarded up, and is not likely to adversely affect a resident.

Mitigation - The availability of replacement housing, commercial buildings, and vacant parcels would likely allow relocation of displaced businesses and residents within the project area. In addition, the new multilevel parking garage at the Michigan Avenue station would have ground-floor retail and community facility space, which would help offset displacements. The new stations would improve regional accessibility and help attract new development to the area, thereby reducing the long-term impacts of displacements. With mitigation through fair compensation and relocation assistance per the Uniform Act (42 USC § 4601, et seq.), impacts would not be adverse. CTA would coordinate with the Chicago Department of Planning and Development on local economic development and community plans during future design phases. CTA would provide specific outreach as a one-stop resource to potentially displaced residents and/or businesses.

Construction Impacts

Because all construction activities would occur within the street right-of-way or on land permanently acquired for the permanent right-of-way, yard and shop, and park & ride facilities, there would be no temporary construction-related displacement or relocation impacts.

Impacts Remaining After Mitigation

With mitigation through fair compensation and relocation assistance per the Uniform Act (42 USC § 4601, et seq.), impacts would not be adverse after mitigation. No temporary, construction-related adverse displacement and relocation impacts would occur under the West Option.

4.3 Neighborhoods and Communities

This section describes the project impacts on the surrounding neighborhood and community resources. The analysis considered the surrounding community context and character, community mobility, and community facilities near the project corridor, such as schools, parks, and community centers. The *Neighborhood and Community Impacts Technical Memorandum* (**Appendix L**) and the *Parklands and Community Facilities Technical Memorandum* (**Appendix M**) contain additional details. **Table 4-5** summarizes the impact findings for community character and cohesion, mobility, and community resources.

Table 4-5: Neighborhoods and Communities - Impacts Summary

Alternative	Permanent Impacts			Construction Impacts
	Community Character and Cohesion	Mobility	Community Resources	
No Build	No impacts	No impacts	No impacts	No impacts
Union Pacific Railroad - East Option	▪ Washington Heights and Riverdale - Impacts would not be adverse after mitigation ▪ Roseland and West Pullman - Adverse impacts despite mitigation because of adverse visual impacts	Benefits	▪ Roseland - Impacts would not be adverse after mitigation ▪ Washington Heights, West Pullman, and Riverdale - Benefits	Impacts would not be adverse after mitigation
Union Pacific Railroad - West Option	▪ Riverdale - Impacts would not be adverse after mitigation ▪ Roseland, Washington Heights, and West Pullman - Adverse impacts despite mitigation because of adverse visual impacts	Benefits	▪ Roseland, Washington Heights, and Riverdale - Benefits ▪ West Pullman - Impacts would not be adverse after mitigation	Impacts would not be adverse after mitigation

4.3.1 Regulatory Framework/Methods

FHWA and IDOT both have Community Impact Assessment Manuals (FHWA 2008, IDOT 2007a), which CTA used to look at potential neighborhood and community impacts of the East and West Options. The analysis considers the following types of impacts:

- **Community Character and Cohesion** - Impacts due to commercial and residential displacements and changes in land use, visual/aesthetics, noise levels, and population/demographics. Community character is an attribute of a geographic area with identifiable characteristics that make it unique. Community cohesion is an attribute of a geographic area, where segmentation or division of the area would reduce its desirability to current and future residents. For this Draft EIS, an impact on community character and cohesion would be adverse if impacts related to displacements and changes in land use, visual/aesthetics, noise levels, and population/demographics would be adverse, as discussed throughout this chapter of the Draft EIS.

- **Mobility** - Overall community impacts of changes in transportation options, travel patterns, business activity, access to jobs, and access for emergency service providers. For this Draft EIS,

an impact on mobility would be adverse if transportation options, access to jobs, and access for emergency service providers would be reduced.

- **Community Resources** - Impacts on key facilities in the project area that play an important role in shaping and defining the community, such as landmarks, parks, community centers, and other places that serve as focal points or provide community services. For this Draft EIS, an impact on community resources would be adverse if key facilities in the project area would be directly affected or access to key facilities would be reduced.

The neighborhood and community impact analysis involved creating detailed demographic and community profiles based on existing community area boundaries within ½ mile of the project alignments. CTA conducted field investigations to identify physical, social, or perceived barriers within the established community. In addition, the analysis considered other potential visual, noise, and environmental impacts that could have ripple effects on the surrounding neighborhood. Potential mitigation measures are proposed to offset identified impacts, with an emphasis on community and transit-supportive solutions to address temporary construction impacts.

4.3.2 Existing Conditions

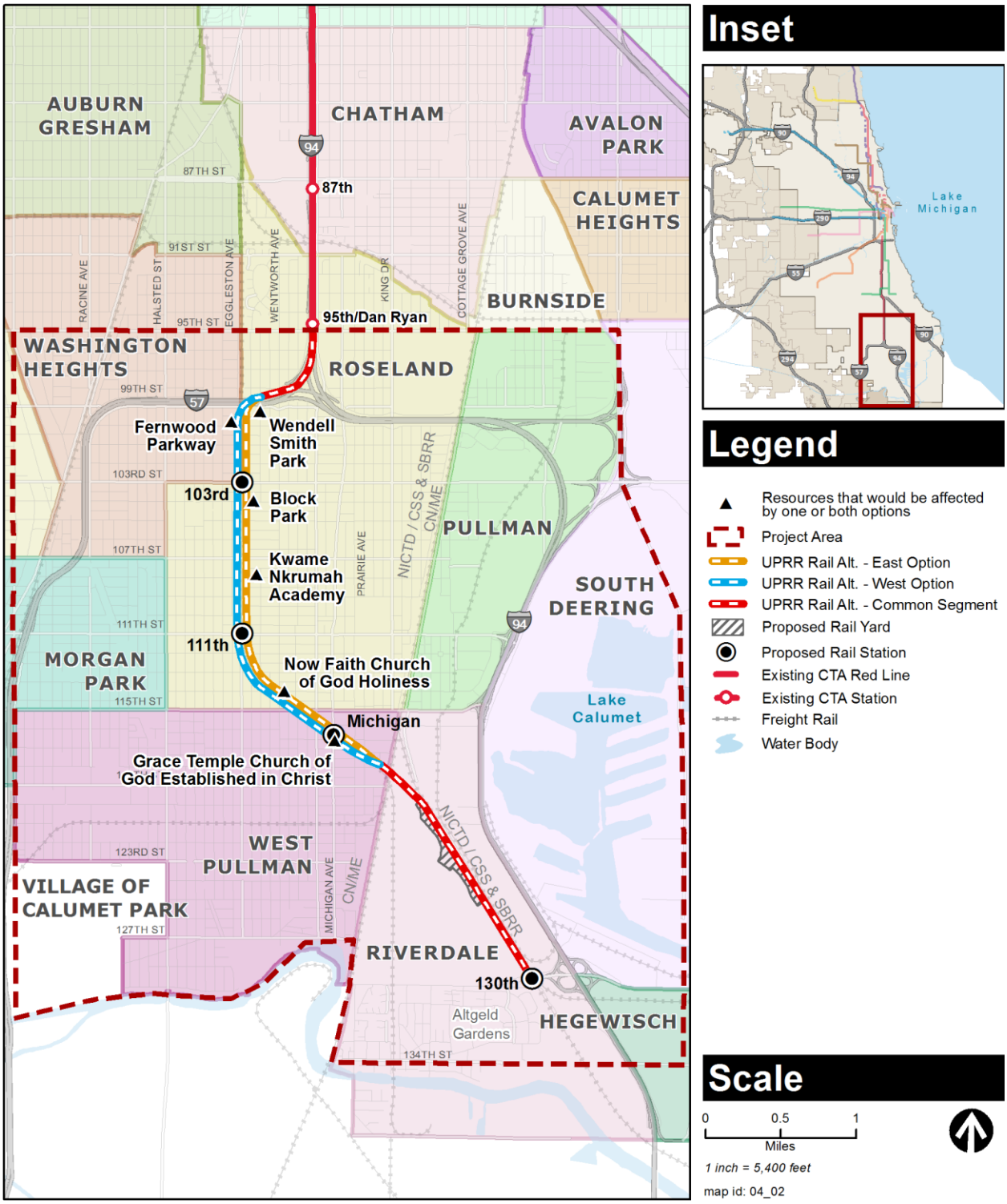
The affected environment for the neighborhood and community impacts analysis consists of the community areas through which the East or West Option alignment would pass. Each community area through which the East or West Option alignment would pass is described below. The *Neighborhood and Community Impacts Technical Memorandum* (**Appendix L**) contains additional information about each community area. **Figure 4-7** shows a typical street in the project area, and **Figure 4-8** shows the locations of the referenced community areas.

Figure 4-7: Photo of Residential Street near Union Pacific Railroad Corridor in Roseland

- Roseland - Consists primarily of single-family homes along one-way streets with block associations, similar to Washington Heights. Michigan Avenue serves as a major retail and commercial corridor, and several blocks also contain single-family and multifamily housing. Within Roseland, the greatest amount of retail activity occurs between 111th and 115th Streets, with the areas to the north consisting of automobile-oriented land uses.

- Washington Heights - Consists primarily of single-family homes along a grid of one-way streets with low- to medium-density commercial areas with off-street parking along major

arterial streets. Blocks are well maintained, and many have community-organized block associations that provide neighborhood watch programs and other initiatives.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-8: Community Areas in the Project Area and Community Resources Affected by Union Pacific Railroad Alternative East or West Options

- West Pullman - Includes portions of the Michigan Avenue commercial corridor, as well as several large industrial and utility properties. Along Michigan Avenue, many commercial buildings have residential units above. Several Spanish-speaking businesses and households are also in the area.

- Riverdale - Much of the Riverdale community area is occupied by MWRD's facility and freight railroad properties. The southern portion of Riverdale contains the Altgeld Gardens public housing project and the single-family Eden Green and Golden Gate neighborhoods. There are relatively few household-serving businesses in the area; however, Altgeld Gardens does have some of its own services, such as a school, social services, and medical facilities.

The demographic characteristics in the project area are described in detail in **Appendix L** and are summarized below (US Census Bureau 2010, 2013).

- The project area contains approximately 128,400 residents, 44,600 households, and 11,100 jobs; the numbers of all of these have been shrinking throughout recent decades. The disparity between the number of residents and jobs reflects high unemployment in the project area (19.0 percent), and a large number of residents commuting outside of the project area for work.

- Ethnicity in the project area is predominantly African American (93 percent), with the next largest percentage (4 percent) being Hispanic. All community areas in the project area have African American population percentages ranging from 83.6 percent to 97.3 percent, compared with a citywide average of 32.4 percent.

- The population is predominantly English-speaking, with some pockets of households that speak only Spanish.

- Median household income in the project area is approximately $41,000, compared to $46,900 for the City of Chicago as a whole. Some census tracks in the Riverdale community area have very low median household incomes, ranging from $2,500 to $18,000.

- Median home prices range from $75,200 in Riverdale to $113,500 in Morgan Park, which is below the City of Chicago median of $161,000.

Within ½ mile of the East and West Option alignments are 70 religious facilities, 21 public schools (including 1 charter school), 10 daycares, 7 private schools, 8 community centers, 4 healthcare centers, 2 city facilities, 2 senior centers, 1 landmark, and 1 library. In addition, the Altgeld Gardens public housing development is just southwest of the proposed 130th Street station location. The *Neighborhood and Community Impacts Technical Memorandum* (**Appendix L**) contains a full listing of the community resources, emergency services, and schools in the project area. The *Parklands and Community Facilities Technical Memorandum* (**Appendix M**) contains a full listing of the parks and other community facilities in the project area.

Wendell Smith Park is in Roseland and is approximately 4.7 acres (340 feet wide by 610 feet long). This park is an actively used facility with basketball courts, baseball fields, a play lot, recreation building, and 0.3 mile of walking trails. Regularly scheduled activities at Wendell Smith Park include basketball tournaments, baseball/softball games, and concerts. The park is also actively used by day camps and for activities organized by the Chicago Park District.

Block Park is in Roseland and is a passive green space. Harvard Avenue divides Block Park into two parcels. The east parcel is approximately 1.4 acres (130 feet wide by 460 feet long) and includes amenities such as benches, walking paths, and sidewalks. The west parcel is approximately 1.3 acres (90 feet wide by 600 feet long) and is open space with a sidewalk and no other park amenities. In addition, a communications tower and two utility structures are on the west parcel.

Fernwood Parkway is in Roseland and is a passive green space. The parkway is divided into two parcels by 101st Street. The north parcel, from 99th Street to 101st Street, is approximately 2.4 acres (78 feet wide by 1,325 feet long). The south parcel, from 101st Street to 103rd Street, is approximately 2.9 acres (78 feet wide by 1,277 feet long). Both the north and south parcels of Fernwood Parkway serve as open space and do not contain recreational facilities or amenities such as sidewalks or benches. Some trees are planted within the parkway and a chain-link fence separates the green space from the existing at-grade UPRR tracks.

4.3.3 Environmental Consequences

The following sections summarize the potential neighborhood and community impacts of each alternative.

4.3.3.1 No Build Alternative

Under the No Build Alternative the project would not be built, and there would be no changes to community character and cohesion. The No Build Alternative would lack the mobility and livability enhancements that the East and West Options would provide. It would also fail to address the community's desire for growth initiatives that could attract new economic development interests to the area. There would be no impacts on community resources. Construction would not occur under the No Build Alternative. The No Build Alternative would not have adverse community or neighborhood impacts, and no mitigation measures would be required.

4.3.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

Community Character and Cohesion

The East Option alignment would be within existing highway rights-of-way and adjacent to the UPRR and NICTD/CSS & SBRR freight rail corridors. The elevated structure would not substantially differ from the existing character of the freight railroad tracks, but would encroach into the residential neighborhood and would be more prominent than the freight railroad tracks due to its height. The structure would not introduce new separations between neighborhoods, because the UPRR right-of-way already has limited grade crossings and acts as a barrier for pedestrians. The East Option would require more displacements than the West Option (see **Section 4.2**), particularly in Roseland and West Pullman.

The new transit stations would become focal points for the surrounding communities, and may attract new commercial and residential activities that would result in an overall improvement in community character. The increased pedestrian activity around stations may help bridge the gap between communities currently separated by the freight tracks. The multistory park & ride facility at the Michigan Avenue station would include a ground-floor community facility and retail space, which would serve as a community enhancement.

The following permanent adverse impacts related to community character and cohesion would occur:

- Displacements and Relocation of Existing Uses
    - The placement of the track structure in Roseland would require acquisition of the two or three parcels closest to the eastern side of the UPRR right-of-way on every east-west street from 99th Place to 102nd Place and from 105th Place to Michigan Avenue. Most of these parcels contain single-family homes. Because the streets in this area, with the exception of major thoroughfares, end at the UPRR right-of-way, the displaced homes would be at the ends of blocks (adjacent to the UPRR tracks), and not in the center of the neighborhood. The CTA track structure would encroach on the edges of neighborhoods, but would leave the neighborhoods otherwise intact.
    - A total of 18 buildings would be removed to accommodate the Michigan Avenue station park & ride facility in West Pullman. Of the 18 buildings, 16 are residential, 1 is commercial, and 1 is industrial.
- Visual and Aesthetic Conditions
    - The elevated track structure would cause adverse visual impacts because of the change in the visual setting in the highway right-of-way along the north side of I-57 in Roseland, as shown in **Figure 4-14** in **Section 4.3.3.2**.
    - The track structure near the intersection of 117th Street and Prairie Avenue in West Pullman would displace two houses and extend into the neighborhood beyond the line of trees that currently shields view of the UPRR right-of-way. Four houses would face the structure, and the height would be out of scale with the existing character of the neighborhood. The structure's location above an intersection would make it impossible to minimize visual impacts from it with additional trees, as shown in **Figure 4-15** in **Section 4.4.3**.
- Noise
    - The noise from CTA trains combined with existing UPRR freight trains would cause adverse impacts at noise-sensitive buildings in Roseland, Washington Heights, and West Pullman. The UPRR train frequency is 27 trains per day and the headways (time between trains) for CTA trains would range from 3–6 minutes during peak periods to 15 minutes at night.

Mitigation - Mitigation measures to minimize adverse permanent impacts related to community character and cohesion would include the following:

- Displacements and Relocation of Existing Uses - CTA would provide compensation for displacements and relocation assistance in compliance with the Uniform Act (42 USC § 4601, et seq.), which would offset the neighborhood and community impacts of displacements because sufficient replacement housing, commercial buildings, and vacant parcels exist in the immediate area to accommodate affected residents and businesses.

- Visual and Aesthetic Conditions - Mitigation measures, as described in **Section 4.4.3**, would reduce the adverse visual impacts north of I-57 and near 117th Street and Prairie Avenue. Due to the proximity of the elevated track structure to residential areas, the impacts would remain adverse despite mitigation.

- Noise - CTA would build noise barriers approximately 4 feet in height along the sides of the track structures where needed to avoid adverse noise impacts (see **Section 4.5**).

Mobility

The East Option would substantially reduce travel times between the Washington Heights, Roseland, West Pullman, and Riverdale communities, and would enhance their connection with major employment and activity centers north of the project area. The East Option would result in substantial mobility benefits for Far South Side residents.

Community Resources

The East Option would displace the Now Faith Church of God Holiness (135 W. 114th Street), and would cross portions of Wendell Smith Park and Block Park, all in Roseland (see **Figure 4-8**).

The East Option alignment would run through the northwestern corner of the Wendell Smith Park. Of the 4.7 acres of the park, approximately 0.7 acre would be overlapped by the elevated structure and its associated clearances. The overlap area includes open space, trees, benches, and a portion of the park's walking trail. The outfield of an existing baseball field would be used. Piers would be located in the park, and the bottom of the elevated structure would be approximately 15 feet above ground level.

The East Option alignment would run through the west parcel of Block Park. Of the 1.3 acres of the west parcel of the park, approximately 0.9 acre would be overlapped by the elevated structure and its associated clearances. An auxiliary station entrance would also be located in the park, along its western edge. The affected parcel includes an isolated portion of the park's open space and a communications tower; no recreational features would be affected.

The East Option alignment would displace two parcels associated with the Kwame Nkrumah Academy at 314 W. 108th Street. The school building would not be affected, but a portion of the schoolyard would be displaced.

The new rail extension would facilitate access to community resources near the station locations, especially for transit-dependent residents, which would be beneficial overall. The RLE would provide direct transit access for residents of and visitors to Altgeld Gardens. The following permanent adverse impacts on community resources would occur:

- The elevated track structure would pass through the western portion of Wendell Smith Park in Roseland, requiring relocation of a portion of the park's walking trail.

- The elevated track structure and part of the 103rd Street station would be located in the western portion of Block Park in Roseland. The affected portion of the park contains a communications tower and no active recreational features.

- The Now Faith Church of God Holiness would be displaced.

Mitigation - Mitigation measures to minimize adverse permanent impacts on community resources would include the following:

- CTA could keep the area beneath the track structure in Wendell Smith Park and Block Park open for use, and improve park space elsewhere in the neighborhood.
- CTA would plant new trees to shield views of the structure from homes fronting Wendell Smith Park.
- In accordance with the Uniform Act (42 USC § 4601, et seq.), CTA would provide assistance for the relocation of the Now Faith Church of God Holiness to another building or parcel in the surrounding area.

Impacts on parks and proposed mitigation measures, as well as further details on coordination with the Chicago Park District to confirm park-related mitigation measures, are described in **Chapter 8** of this Draft EIS.

Construction Impacts

Community Character and Cohesion

Community disruptions would occur during construction of the East Option. Construction would be phased and would not occur at any one location for the entire construction period. Most of the construction would occur within the street right-of-way, on properties acquired as part of the permanent envelope for the project, and potentially on other nearby vacant parcels.

The following temporary construction-related adverse impacts on community character and cohesion would occur:

- Hoisting equipment might be visible above roofs, and storage of materials, equipment, and trucks would introduce temporary intermittent visual impacts.
- Temporary noise and dust impacts would occur during construction on an intermittent basis.

Mitigation - Mitigation measures to offset adverse temporary construction-related impacts on community character and cohesion would include the following:

- Construction best management practices (BMPs) would be used to limit visual, noise, and dust impacts. Examples of these BMPs include maintaining vegetation at the construction site to minimize visual impacts, limiting nighttime construction, and preparation of a Dust Control Plan to address in detail how dust would be controlled at the construction site.
- Hauling routes would be designed to minimize the number of trucks and amount of equipment passing through sensitive areas of the community, and would favor highways over local roads to the extent feasible.
- CTA would notify the community in advance of disruptive activities, such as building demolition, utility relocation, and necessary detours, and would perform work in a manner consistent with local ordinances.
- CTA would limit nighttime construction near residences to the extent practicable.

- CTA would phase construction activities to minimize impacts on CTA operations at the 95th Street Terminal and 98th Street Yard and Shop, as well as on vehicular traffic on affected expressways and roadways, minimizing disruptions to community members' day-to-day lives.

- CTA would work with the community, businesses, aldermen's offices, and the Chicago Department of Planning and Development to develop and implement a Construction Outreach and Coordination Plan, as described in **Section 4.1.3.2**.

Mobility

During construction of the UPRR Alternative, temporary closures of streets crossing the alignment might be required. Detours would be provided to maintain emergency access and access to adjacent properties, and bus service would detour around closures.

The following temporary construction-related adverse impacts on mobility would occur:

- Truck traffic would increase in the project area. Temporary street closures and detours would be needed. Lane closures, temporary parking restrictions, and temporary conversion of two-way streets to one-way streets might also be implemented.

- Access to businesses near construction sites could be temporarily limited on an intermittent basis due to construction-related detours and closures.

Mitigation - Mitigation measures to offset adverse temporary construction-related mobility impacts would include the following:

- CTA would provide adequate detours around construction sites and would minimize road and lane closures to the extent possible.

- CTA would provide a temporary advertising program to increase the visibility of adversely affected businesses during construction, for example, by providing signs that say "We Are Open" and explaining changes in access for business patrons, or by placing notifications on CTA trains and buses encouraging customers to continue to support the businesses affected by construction.

Community Resources

Construction may temporarily limit access to community resources and parks. The following adverse impacts on community resources would occur:

- Community resources adjacent to the alignment would be subject to the same impacts identified above, under "Community Character and Cohesion" and "Mobility."

- Construction activities would be required in Wendell Smith Park and Block Park in Roseland. The northwest portion of Wendell Smith Park and the west portion of Block Park would be inaccessible during construction activities.

- Access to community resources near the construction areas may be temporarily disrupted by street closures and detours.

Mitigation - Mitigation measures to offset adverse temporary construction-related impacts on community resources would include the following:

- CTA would schedule major construction activities to minimize conflicts with community events to the extent possible.
- CTA would maintain access to community resources during construction, via detours when necessary.
- CTA would coordinate with the community to avoid adverse impacts on the function of Wendell Smith Park. Nearby alternate parks, such as Robert Abbott Park and Fernwood Park, would remain available for use during construction in Wendell Smith Park.

Impacts Remaining After Mitigation

The East Option would have a permanent adverse impact on community character and cohesion that could not be mitigated, due to the visual encroachment of the elevated structure into the neighborhood north of I-57 in Roseland and at 117th Street and Prairie Avenue in West Pullman. Other permanent impacts related to neighborhoods and communities would not be adverse after implementation of mitigation measures.

Construction-related impacts on neighborhoods and communities would not be adverse after implementation of the proposed mitigation measures.

4.3.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

Community Character and Cohesion

Like the East Option alignment, the West Option alignment is within existing highway rights-of-way and adjacent to the UPRR and NICTD/CSS & SBRR freight rail corridors. The elevated structure would not substantially differ from the existing character of the freight railroad tracks, but would encroach into the residential neighborhood and would be more prominent than the freight railroad tracks due to its height. The structure would not introduce new separations between neighborhoods because the UPRR right-of-way already has limited grade crossings and acts as a barrier for pedestrians. The West Option would require fewer displacements than the East Option (see **Section 4.2**), particularly in Roseland and West Pullman.

The new transit stations would become focal points for the surrounding communities, and may attract new commercial and residential activities that would result in an overall improvement in community character. The increased pedestrian activity around stations may help bridge the gap between communities currently separated by the freight tracks. The multistory park & ride facility at the Michigan Avenue station would include a ground-floor community facility and retail space, which would serve as a community enhancement.

The following permanent adverse impacts related to community character and cohesion would occur:

- Displacements and Relocation of Existing Uses
    - The placement of the track structure would require acquisition of parcels along the west side of the UPRR right-of-way between 103rd Street and the Michigan Avenue station in Roseland and West Pullman. The parcels, some of which are vacant or sparsely occupied, primarily contain a mix of industrial and residential uses. Because the streets in this area, with the exception of major thoroughfares, end at the UPRR right-of-way, the displaced parcels would be at the ends of blocks (adjacent to the UPRR tracks), and not in the center of the neighborhood. The CTA track structure would encroach on the edges of neighborhoods, but would leave the neighborhoods otherwise intact.
    - A total of 17 buildings would be removed to accommodate the Michigan Avenue station park & ride facility in West Pullman. Of the 17 buildings, 16 are residential and 1 is commercial.
- Visual and Aesthetic Conditions
    - The elevated track structure would cause adverse visual impacts because of the change in the visual setting in the highway right-of-way north of I-57 in Roseland, as shown in **Figure 4-14** in **Section 4.3.3.2**.
    - Between 99th and 103rd Streets, the elevated structure would run through Fernwood Parkway in Washington Heights. The introduction of the new elevated structure and 103rd Street station would visually change the setting of the parkway and the houses facing it along the west side of Eggleston Avenue. Although the recreational impact on the parkway could be offset, the change in visual community character could not be mitigated. **Figure 4-9** shows the view along Eggleston Avenue and Fernwood Parkway facing 103rd Street, including the existing view (top) and a photo simulation of the West Option (bottom) at the same location.
    - The construction of the Michigan Avenue station park & ride facility in West Pullman would require substantial removal of buildings to accommodate the new five-story parking structure. Despite mitigation measures, there would be adverse visual impacts in this area because the scale, density, and character of the local community would be changed.
- Noise
    - The noise from CTA trains combined with existing UPRR freight trains would cause adverse impacts at noise-sensitive buildings in Roseland, Washington Heights, and West Pullman.

Mitigation - Mitigation measures to minimize adverse permanent impacts related to community character and cohesion for the West Option would be similar to those described for the East Option. Visual impacts north of I-57 in Roseland, between 99th and 103rd Street in Washington Heights, near the 103rd Street station in Roseland and Washington Heights, and near the

Michigan Avenue station park & ride in West Pullman would remain adverse despite mitigation. Unlike the East Option, the West Option would have no visual impacts from the track structure near the intersection of 117th Street and Prairie Avenue in West Pullman.

Figure 4-9: Photo of Existing Conditions and Photo Simulation of the Union Pacific Railroad Alternative West Option along Eggleston Avenue and Fernwood Parkway Facing 103rd Street

Mobility

The West Option would substantially reduce travel times between the Washington Heights, Roseland, West Pullman, and Riverdale communities, and would enhance their connection with major employment and activity centers north of the project area. The West Option would result in substantial mobility benefits for Far South Side residents.

Community Resources

The West Option would displace Fernwood Parkway in Washington Heights and the Grace Temple Church of God Established in Christ (11601 S. Michigan Avenue) in West Pullman (see **Figure 4-8**).

The West Option alignment would run through two of the four parcels that make up Fernwood Parkway; the West Option alignment would affect the parcels between 101st and 103rd Streets. Of the 5.3 acres of these two affected parcels of the parkway, approximately 1.9 acres would be overlapped by the elevated structure and its associated clearances. Much of the parkway between 101st and 103rd Streets would be permanently overlapped and shaded by the structure. Elevated track structure supports would be placed permanently in the park space.

The new rail extension would facilitate access to community resources near the station locations, especially for transit-dependent residents, which would be beneficial overall. The RLE would provide direct transit access for residents of and visitors to Altgeld Gardens.

The following permanent adverse impacts on community resources would occur:

- Near Wendell Smith Park, the elevated structure would be taller as part of the West Option than it would as part of the East Option because the CTA tracks would need to cross above the UPRR right-of-way, allowing clearance for freight trains; however, the alignment would not directly affect the park.
- Between 99th and 103rd Streets, the elevated track structure would run along Fernwood Parkway in Washington Heights. Impacts are described under the "Community Character and Cohesion" heading above.
- The Grace Temple Church of God Established in Christ would be displaced; however, as of July 2015 the building is vacant.

Mitigation - Mitigation measures to offset adverse temporary construction-related impacts on community resources would include the following:

- CTA would plant new trees to shield views of the structure from homes fronting the park.
- CTA would keep the area beneath the track structure in Fernwood Parkway open for use, and improve park space elsewhere in the neighborhood.
- In accordance with the Uniform Act (42 USC § 4601, et seq.), CTA would provide relocation assistance for the Grace Temple Church of God Established in Christ to another building or parcel in the surrounding area.

Impacts on parks and proposed mitigation measures, as well as further details on coordination with the Chicago Park District to confirm park-related mitigation measures, are described in **Chapter 8** of this Draft EIS.

Construction Impacts

The West Option would have construction impacts similar to those of the East Option, as described in **Section 4.3.3.2**, except that Block Park would not be affected under the West Option. Construction activities would be needed in Wendell Smith Park in Roseland as well as Fernwood Parkway in Washington Heights. The same mitigation measures identified for the East Option in **Section 4.3.3.2** above would apply.

Impacts Remaining After Mitigation

Despite mitigation, the West Option would have a permanent adverse impact on community character and cohesion due to the visual encroachment of the elevated structure north of I-57 in Roseland, between 99th and 103rd Streets in Washington Heights, at the 103rd Street station area in Roseland and Washington Heights, and at the Michigan Avenue station park & ride facility in West Pullman. Other permanent impacts related to neighborhoods and communities would not be adverse after implementation of mitigation measures.

Construction-related impacts on neighborhoods and communities would not be adverse after implementation of the mitigation measures.

4.4 Visual and Aesthetic Conditions

This section summarizes the existing visual and aesthetic conditions in the project area and describes the visual and aesthetic impacts of the East and West Options. See also the *Visual and Aesthetic Conditions Technical Memorandum* (**Appendix N**). **Table 4-6** summarizes the visual and aesthetic impact findings.

Table 4-6: Visual and Aesthetic Conditions - Impacts Summary

Alternative	Permanent Impacts	Construction Impacts
No Build	No impacts	No impacts
Union Pacific Railroad - East Option	Adverse impacts despite mitigation north of I-57 and at 117th Street and Prairie Avenue	No adverse impacts
Union Pacific Railroad - West Option	Adverse impacts despite mitigation north of I-57, between 99th Street and 103rd Street, near the 103rd Street station, and at the Michigan Avenue station park & ride facility	No adverse impacts

4.4.1 Regulatory Framework/Methods

CTA performed the visual and aesthetic conditions analysis to be consistent with State of Illinois Public Act 093-0545, which requires projects to take the visual context of the project area into consideration. The context includes existing and proposed land uses and zoning and the potential for degradation of the existing visual character or quality of the surrounding community areas. The analysis also considered the potential for the project to create new shade or shadow effects. CTA considered the guidelines and ordinances that govern visual integrity and quality in the City of Chicago including the Zoning Ordinance, Land Use Ordinance, and the Landmarks Ordinance.

For this analysis, CTA assessed visual and aesthetic impacts by first analyzing existing visual resources in the project area, including any sensitive views, and assessing existing visual quality of the surrounding environment. Sensitive views were determined from research and field observations as well as public comments received as part of CTA's outreach efforts (see **Chapter 10**) CTA then considered changes to the visual environment that would result from the East and West Options. The analysis included an assessment of any changes to the viewsheds or other sensitive views that would affect the essential character or context of the visual environment and any other visual quality impacts. Where any adverse visual impacts were determined to be likely in the context of the visual environment, mitigation methods were proposed.

For this Draft EIS, an impact would be adverse if it resulted in one of the following:

- A change that is inconsistent with the community's aesthetic character
- Incompatibility of a project element with the character of the area
- Incompatibility of a project element with community aesthetic goals
- A substantial degradation of the existing visual character or quality of a site and its surroundings
- Effects on a historic site through extensive remodeling or removal of buildings or their surrounding area (discussed further in **Section 4.7**)
- Creation of new shade and shadow effects

CTA categorized visual and aesthetic changes to the environment as low, moderate, or high based on the following characteristics:

- Low visual changes generally occur when the transit facility is already part of the view and there would be minor or few changes to the transit facility that would create noticeable changes in the view. Low visual changes can be beneficial; low visual changes are not considered adverse.
- Moderate visual changes occur when the existing view would be noticeably different but not substantially different. Removal of vegetation or a single property displacement would be examples of a moderate visual change. Depending on the individual case, moderate visual changes may or may not be adverse, and may be beneficial.
- High visual changes would occur when there is a substantial change to the existing view or when visually sensitive resources would have a change in view. In some cases high visual changes may improve an area. Like other visual changes, high visual changes can be beneficial or adverse.

In addition to categorizing the visual change of a view, CTA also considered the response to a view depending on the type of viewer group that would interact with the view. A viewer group's sensitivity to a change in a view could affect the level of impact on a viewshed. Major viewer groups along the project corridor include residents, passengers, business owners, recreational groups, and visitors.

- Residents are people who are very familiar with their surroundings and interact with the visual environment on a daily basis. Residents would have high viewer sensitivity because of daily interaction with the visual environment.
- Passengers interact with the visual environment on a daily basis because they travel to and from the transit facility. Passengers have less viewer sensitivity than other viewer groups because they only pass through the visual environment and do not live in it.

- Business owners are people who are very familiar with their surroundings and have a vested interest in the visual environment. Business owners would have a higher sensitivity than other groups, such as visitors or passenger groups, based on their familiarity and vested interest in the environment.

- Recreational groups are people who may walk, run, or cycle near the transit facility. Recreational groups have different expectations of the visual environment and have a higher sensitivity to scenic views or neighborhood character than other viewer groups.

- Visitors are individuals who have limited interaction with the area and are not familiar with the visual environment. Visitors have some sensitivity to the surrounding environment.

The *Visual and Aesthetic Conditions Technical Memorandum* (**Appendix N**) includes specific information on the visual assessment process. **Section 4.7** includes a discussion of potential visual effects on historic resources.

4.4.2 Existing Conditions

The visual environment that would be affected by the RLE Project includes areas that would have a view of the new facilities and areas visible from the new facilities. The overall project area has residential (primarily single-family), commercial (urban mixed-use), industrial, transportation, utility, and vacant land uses.

The UPRR Alternative alignment would run south along I-94 from the 95th Street Terminal, then curve west along the north side of I-57. This portion of the corridor has a relatively cohesive landscape and the East and West Options would be on the same alignment in this area. **Figure 4-10** and **Figure 4-11** show the existing conditions along the highway corridors.

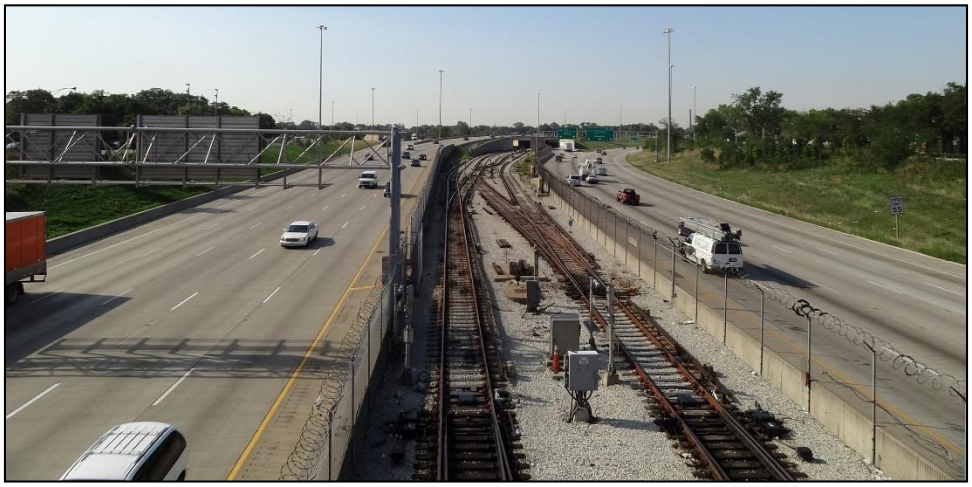


Figure 4-10: Photo Facing South from 95th Street Terminal

Figure 4-11: Photo Facing East, North of I-57 near 98th Street and Lowe Avenue

South of I-57, the UPRR Alternative corridor would run along an existing railroad corridor that is surrounded by a mix of residential and light commercial districts. The residential development consists of one- to two-story structures of similar style. Light commercial buildings are typically at intersections that meet the existing UPRR tracks at grade. A substantial portion of the development along the corridor is vacant and contains minimum architectural embellishments. The Roseland Pumping Station at 104th Street and Harvard Avenue is one of the few non-residential structures in the area with architectural character. South of 119th Street, the UPRR Alternative alignment would run along the MWRD property and end just north of Altgeld Gardens. Aside from the residences at Altgeld Gardens, this area has a light industrial character. The partially vacant neighborhood is relatively isolated between 130th Street, I-94, and Little Calumet River. **Figure 4-12** and **Figure 4-13** show typical conditions within the UPRR Alternative corridor.

Figure 4-12: Photo Facing Southwest from 113th Street and Princeton Avenue

Figure 4-13: Photo Facing South along Michigan Avenue from 115th Street

4.4.3 Environmental Consequences

The following sections summarize the potential visual and aesthetic impacts of each alternative.

4.4.3.1 No Build Alternative

There would be no visual or aesthetic impacts associated with the No Build Alternative; no mitigation measures would be required.

4.4.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

West of Prairie Avenue, the East Option alignment would be in existing highway right-of-way and adjacent to the freight railroad right-of-way. Property acquisition would occur as part of the East Option, and would typically be concentrated near station locations.

Shadows created by the elevated structure would change throughout the day and season. The shadows would vary depending on the height, orientation, and density of surrounding structures, vegetation, and development. A substantial portion of vegetation would be removed on the east side of the project corridor, which would introduce new shadows and light patterns on developments to the east. The majority of vegetation west of the UPRR tracks would remain and would help minimize visible light and shadow effects on residences to the west. Additional lighting would be introduced to the project area, associated with park & ride facilities, stations, substations, yard and shop facilities, and trains (which include interior/safety lighting and exterior headlights). For the East Option, light and glare associated with the alignment and trains would not have an adverse impact, because the proposed features would generally be located in the existing highway corridor or near the existing UPRR corridor—areas that currently produce transportation-related light and glare.

High and adverse visual impacts would occur north of I-57 because of the change in the visual setting due to the elevated track structure in the highway right-of-way. The elevated track structure would block the horizon for the homes or pedestrians closest to 98th Place and would also create a new shadow at street level due to the movement of the sun. The elevated track structure would change the scale, density, and character of the residential neighborhood north of

I-57. **Figure 4-14** shows existing conditions and a photo simulation of the track structure in the I-57 right-of-way.

Figure 4-14: Photo of Existing Conditions and Photo Simulation of the Elevated Track Structure in the I-57 Right-of-Way, Facing East from 98th Place and Princeton Avenue

High and adverse visual impacts would occur at 117th Street and Prairie Avenue because of the elevated track structure. **Figure 4-15** shows existing conditions and a photo simulation of the East Option viaduct facing southeast from 117th Street, east of Prairie Avenue. The residential character and scale would be substantially altered by the removal of vegetation and neighborhood fabric and the addition of elevated structure east of the embankment.

Figure 4-15: Photo of Existing Conditions and Photo Simulation of the Union Pacific Railroad Alternative East Option Viaduct Facing Southeast from 117th Street, East of Prairie Avenue

Mitigation - Mitigation measures would reduce the impacts north of I-57 and at 117th Street and Prairie Avenue, but due to the proximity of the elevated structure to residential areas, the impacts would remain high and adverse despite mitigation. Mitigation measures would include landscaping, using urban design techniques to reduce massing, and creating pedestrian-friendly surroundings. Techniques that may be used include planting larger trees near structures to break the sight lines, with smaller scale landscaping near the streets to mimic landscaping on the opposite side of the streets.

Construction

Construction-related visual impacts would be similar for both the East and West Options. The duration of construction for either option would vary from several months to a few years depending on the alignment location and which facilities are there. Construction-related visual impacts would not be adverse and would include construction fencing, demolition of existing

buildings, temporary walls, temporary street closures and related signage, temporary lighting or entrances, and/or shoring of concrete structures or existing viaducts.

Mitigation - Although construction-related visual impacts related to the East Option would not be adverse, CTA would maintain as much existing vegetation as practical and minimize temporary construction impacts on neighborhoods by limiting the light trespassing from night lighting. BMPs and debris-free construction areas would mitigate temporary visual impacts from the construction sites.

Impacts Remaining After Mitigation

The East Option would have permanent high and adverse visual and aesthetic impacts north of I-57 and at 117th and Prairie Street despite implementation of mitigation measures.

4.4.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

General light and shadow conditions for the West Option would be similar to those discussed for the East Option. High and adverse visual impacts would occur north of I-57 because of the change in the visual setting due to the elevated track structure in the highway right-of-way. The track structure would change the scale, density, and character of the residential neighborhood north of I-57.

In addition to shadows and light patterns created by the elevated structure, the removal of vegetation along the west side of the existing railroad corridor between 99th Street and 103rd Street (along Fernwood Parkway) would alter the visual quality for developments to the west. Visual impacts between 99th Street and 103rd Street, including the 103rd Street station, would be high and adverse. Several buildings and some vegetation along the west side of the existing UPRR corridor would be removed to accommodate the new station and surface parking lot. The elevated platforms and track structure would have a high impact on the viewshed of residences adjacent to the project alignment and would create new shadows. **Figure 4-9** shows a photo simulation of the West Option along Fernwood Parkway near the 103rd Street station.

Near the Michigan Avenue station, the West Option would have high and adverse impacts similar to those of the East Option. The addition of the five-story park & ride facility and the removal of buildings and vegetation would have an adverse impact on the character and building density of the local community. **Figure 4-16** shows existing conditions and a photo simulation of how the West Option Michigan Avenue station area could look.

Figure 4-16: Photo of Existing Conditions and Photo Simulation of the Union Pacific Railroad Alternative West Option Michigan Avenue Station and Parking Structure Facing Northwest along Michigan Avenue

Mitigation - Mitigation measures would reduce the impacts in the area north of I-57 and from approximately 99th Street to 103rd Street, including 103rd Street station. Mitigation measures would include providing landscaping and replanting vegetation where possible. In addition, the 103rd Street station would be designed to be consistent with the character and scale of the surrounding neighborhood. Due to the scale of the elevated structure, proposed station and its proximity to adjacent residences, impacts after mitigation would remain high and adverse.

Mitigation measures would reduce the impacts near the Michigan Avenue station park & ride facility, but due to the structure's proximity to residential areas, the impacts would remain adverse despite mitigation. Mitigation measures would include landscaping, designing the park & ride facility to match the character of the surrounding neighborhood, using urban design techniques to reduce massing, and creating pedestrian-friendly surroundings. The use of larger setbacks to accommodate wider sidewalks or pedestrian areas, architectural styles, building treatments, and facades are examples of how the design of the structure would be incorporated

into the neighborhood to minimize the visual impacts. Exterior lighting would be shielded and carefully placed when adjacent to sensitive areas such as residential communities.

Construction Impacts

The duration of construction and types of visual impacts for the West Option would be similar to those of the East Option. Construction-related impacts would not be adverse. The types of visual impacts and the proposed impact-minimizing mitigation measures for the West Option would be similar to those described for the East Option.

Impacts Remaining After Mitigation

The West Option would have high and adverse permanent visual and aesthetic impacts north of I-57, from 99th Street to 103rd Street, including the 103rd Street station, and near the Michigan Avenue station park & ride facility despite implementation of mitigation measures.

4.5 Noise and Vibration

This section summarizes the predicted noise and vibration impacts of the East and West Options.

Noise is "unwanted sound," generally measured in terms of loudness. The loudness, or magnitude, of noise determines its intensity and is measured in decibels (dB). The overall noise level from environmental sources is described in A-weighted decibels (dBA). The A-weighted decibel scale was developed to better approximate the sensitivity of human hearing. Because the decibel is based on a logarithmic scale, a 10-dB increase in noise level is generally perceived as a doubling of loudness, while a 3-dB increase in noise is just barely perceptible to the human ear (FHWA 2011).

Ground-borne vibration can be caused by the vibration of a transit structure, creating vibration waves that propagate through the soil and rock to the foundations of nearby buildings. The vibration of floors and walls may cause perceptible vibration, rattling of items such as windows or dishes on shelves, a rumble noise, or damage to buildings in extreme cases. Vibration is described in terms of velocity (L_v) and is measured in decibels (VdB), which is the root mean square vibration velocity relative to 1 microinch per second (FTA 2006).

The *Noise and Vibration Technical Memorandum* (**Appendix O**) contains additional information. **Table 4-7** summarizes the noise and vibration impact findings.

Table 4-7: Noise and Vibration - Impacts Summary

Alternative	Permanent Impacts		Construction Impacts	
	Noise	Vibration	Noise	Vibration
No Build	No impacts	No impacts	No impacts	No impacts
Union Pacific Railroad - East Option	574 moderate and 83 severe impacts on noise-sensitive receivers No impacts after mitigation	No impacts	No impacts	No impacts
Union Pacific Railroad - West Option	738 moderate and 49 severe impacts on noise-sensitive receivers No impacts after mitigation	No impacts	No impacts	No impacts

4.5.1 Regulatory Framework/Methods

CTA analyzed noise and vibration impacts from this project in accordance with the FTA (2006) *Transit Noise and Vibration Impact Assessment* guidance manual. The FTA guidance manual sets forth the basic concepts, methods, and procedures for evaluating the extent and severity of the noise and vibration impacts from transit projects.

The guidance manual describes three levels of analysis that may be applied depending on the complexity of the project. The first level is a screening procedure to determine whether noise-sensitive receivers would be present based on the land uses in the vicinity of the project. The outcomes of the screening procedure determine whether more detailed noise and vibration analysis is required. There are known sensitive receivers for the RLE Project, so further analysis was required. There are two levels of quantitative analysis for predicting impacts: a general assessment and a detailed analysis. The general assessment identifies and estimates the severity of noise and vibration impacts that could occur with implementation of the project. The general assessment provides information needed to differentiate between the East and West Options. The detailed analysis quantifies impacts through an in-depth analysis of a single design configuration.

CTA completed a general assessment for the UPRR corridor to provide basic information for comparing the severity of impacts from implementation of the East and West Options. The impacts disclosed in this Draft EIS are maximum, worst-case impacts. More detailed analysis in the Final EIS may identify areas where impacts may be further reduced through design.

The thresholds of significance for this project are based on FTA's operational and construction noise and vibration criteria, as described in the guidance manual. CTA conducted an assessment to identify the areas that could be subject to a moderate or severe impact along the proposed alternative alignments. This assessment established an impact contour as the basis for analysis, rather than individual analysis of each noise-sensitive receiver, because of the high density of residential areas abutting the East and West Option alignments. The impact contour defines the outer limit where a moderate or severe impact would occur based on the distance from the noise-

generating source (East and West Options). CTA used the contours to estimate the potential for noise and vibration impacts along each of the option alignments.

CTA further refined the general assessment to identify individual noise-sensitive receivers within the moderate and severe impact contours. As part of a field verification of noise-sensitive receiver locations, CTA counted noise-sensitive receivers within the moderate and severe impact contours unless identified as potentially displaced properties. The identified affected noise-sensitive receivers were counted individually but were mapped as noise-sensitive receiver clusters because of the small size of the individual parcels. The clusters of receivers were determined to be similar distances from the proposed tracks and in areas where the CTA operating conditions, such as train speed, were determined to be similar.

Operational Noise

Operational noise is the noise that would occur with the ongoing operation of an implemented alternative. To determine whether the noise levels from a project might affect an area, CTA compared the existing noise levels near where the Red Line trains would run to the projected future noise levels generated by the project. FTA uses three different land use categories for identifying noise-sensitive receivers (see **Table 4-8**). FTA does not consider most commercial and industrial receivers to be sensitive to transit-related noise.

Table 4-8: FTA Land Use Categories and Noise Metrics

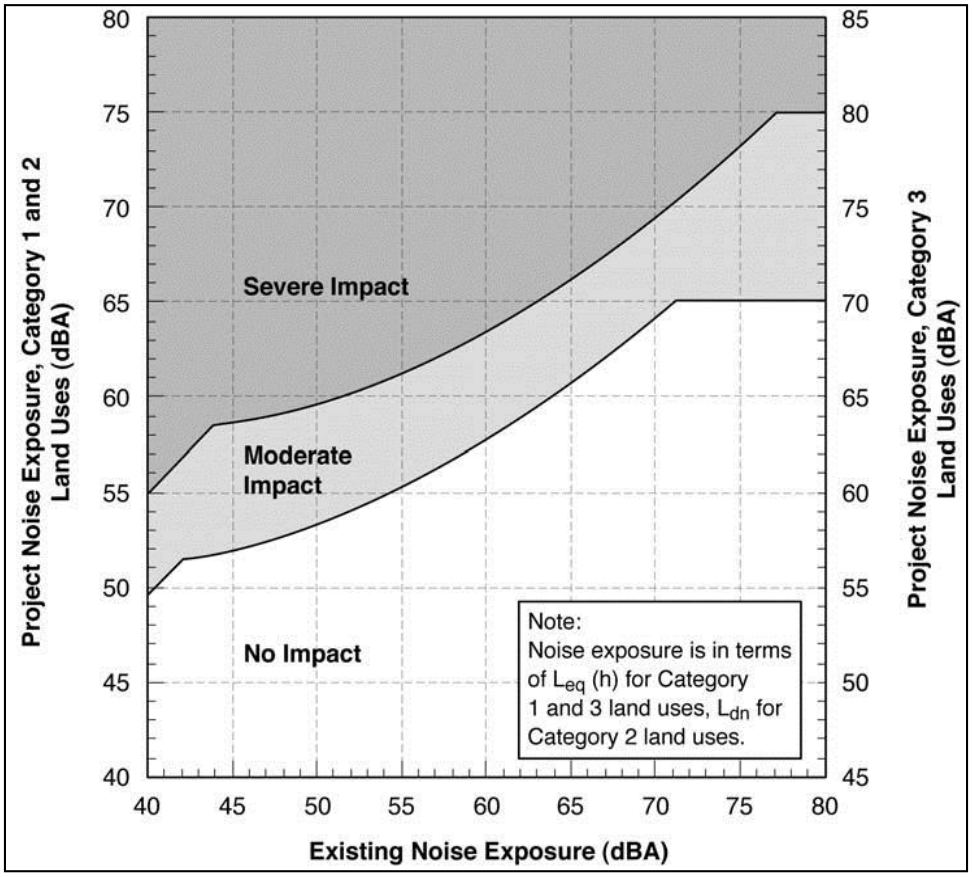
Land Use Category[1]	Noise Level[2]	Description
1	$L_{eq}(h)$	Tracts of land set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and historic landmarks.
2	L_{dn}	Buildings used for sleeping, including residences, hospitals, hotels, and other areas where nighttime sensitivity to noise is of utmost importance.
3	$L_{eq}(h)$	Institutional land uses with primarily daytime and evening uses including schools, libraries, churches, museums, cemeteries, historical sites and parks, and certain recreational facilities used for study or meditation.

FTA = Federal Transit Administration
Source: FTA 2006
[1] Land Use Categories are based on sensitivity to noise intrusions.
[2] The threshold noise limits include an hourly equivalent noise level (or $L_{eq}(h)$) for Category 1 and 3 noise-sensitive receivers and the day-night noise level (or L_{dn}) for Category 2 noise-sensitive receivers. The FTA noise limits, which are based on the existing background levels, are determined using empirical formulas shown graphically in **Figure 4-17**.

FTA has two categories for its noise impact criteria: moderate impact and severe impact. The moderate impact threshold defines areas where the change in noise would be noticeable but might not be sufficient to cause a strong, adverse community reaction. The severe impact threshold defines the noise limits above which a significant percentage of the population would be highly annoyed by the change in noise.

As shown in **Figure 4-17**, the FTA noise impact criteria are defined by two curves that allow increasing project noise levels as existing noise increases up to a point, beyond which an impact would be determined based on project noise alone. Category 1 noise-sensitive receivers (such as an amphitheater or historic landmark) are represented along the left axis and are described by the

hourly equivalent noise level (hourly L_{eq}).[4] Category 2 noise-sensitive receivers (such as residences, hotels, and hospitals) are also represented along the left axis, but are described by the 24-hour day-night level (L_{dn}).[5] Category 3 noise-sensitive receivers (such as schools and churches) are represented along the right axis and are described by the hourly L_{eq} noise metric.



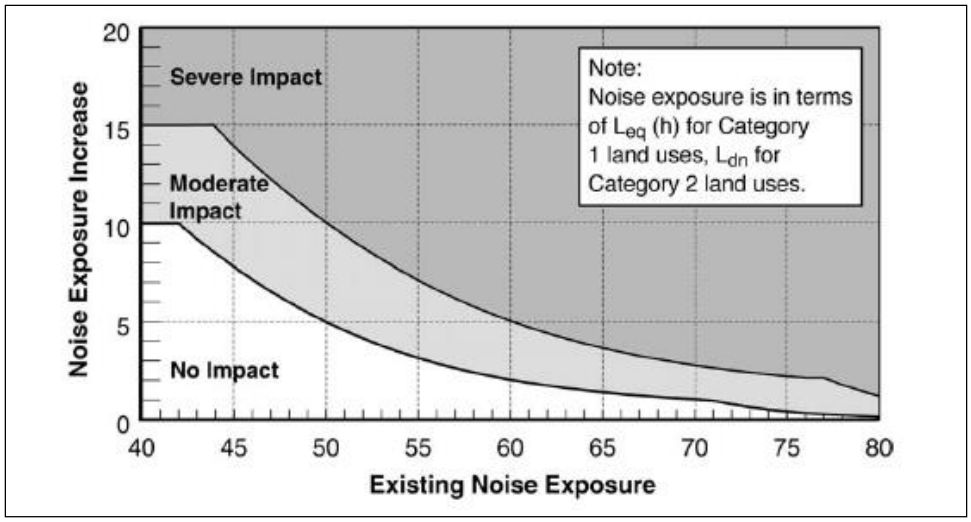
Source: FTA 2006
L_{eq}(h) = hourly equivalent noise level, L_{dn} = day-night noise level

Figure 4-17: Noise Impact Criteria for Transit Projects

Although the curves in **Figure 4-17** are defined in terms of the project noise exposure and the existing noise exposure, it is the project's increase in noise compared to existing noise levels that is the basis for the criteria. To illustrate this point, **Figure 4-18** shows the noise impact criteria for Category 1 and 2 land uses in terms of the allowable increase in the existing noise exposure. The horizontal axis is the existing noise exposure and the vertical axis is the increase in noise level due to the project. The curves in **Figure 4-18** show that the criterion for impact allows a noise exposure increase of 10 dBA if the existing noise exposure is 42 dBA or less, but only a 1-dBA increase when the existing noise level is 70 dBA. As the existing level of noise increases, the total amount that the community noise exposure is allowed to increase is reduced.

[4] L_{eq}, the hourly equivalent noise level, describes a receiver's cumulative noise exposure from all events over a 1-hour period.

[5] L_{dn}, the day-night sound level, is a measure of community noise over a 24-hour period. In the calculation of L_{dn}, noise that occurs during the nighttime hours (10:00 PM to 7:00 AM) is given a weighting that causes one train during the nighttime hours to be equivalent to 10 trains during the daytime hours.



Source: FTA 2006
L_{eq}(h) = hourly equivalent noise level, L_{dn} = day-night noise level
Figure 4-18: Allowable Increase in Noise Levels

Operational Vibration

CTA used FTA criteria to assess annoyance due to vibration and ground-borne noise from transit operations. **Table 4-9** shows the FTA vibration criteria for evaluating ground-borne vibration and noise impacts from train pass-bys at nearby vibration-sensitive receivers. These vibration criteria (expressed in VdB) are related to ground-borne vibration levels that are expected to result in human annoyance. FTA's experience with community response to ground-borne vibration indicates that when there are only a few train events per day, it would take higher vibration levels to evoke the same community response that would be expected from more frequent events. This community response to ground-borne vibration is accounted for in the FTA criteria by distinguishing between projects with frequent (more than 70 train events per day), occasional (30 to 70 train events per day), and infrequent events (fewer than 30 train events per day). The vibration levels shown in **Table 4-9** are defined in terms of human annoyance for different land use categories: high sensitivity (Category 1), residential (Category 2), and institutional (Category 3). In general, the threshold of human perceptibility of vibration is 65 VdB.

The vibration levels shown in **Table 4-9** are well below the damage criteria levels of 95 to 100 VdB. It is extremely rare for vibration from transit operations to cause any sort of building damage, even minor cosmetic damage.

Table 4-9: FTA Ground-Borne Vibration and Noise Impact Criteria for Annoyance

Land Use Category Description	Ground-Borne Vibration Levels (VdB)[1]			Ground-Borne Noise Levels (dBA)[2]		
	Frequent Events[3]	Occasional Events[4]	Infrequent Events[5]	Frequent Events[3]	Occasional Event[4]	Infrequent Event[5]
Category 1: Buildings where low vibration is essential for interior operations	65	65	65	NA[6]	NA[6]	NA[6]
Category 2: Residences and buildings where people normally sleep	72	75	80	35	38	43
Category 3: Institutional buildings with primarily daytime use	75	78	83	40	43	48

Source: FTA 2006
[1] Root mean square vibration velocity levels are reported in decibels (or VdB) referenced to 1 microinch per second.
[2] Ground-borne noise levels are reported in A-weighted decibels (dBA) referenced to 20 micropascals.
[3] "Frequent Events" is defined as more than 70 vibration events per day.
[4] "Occasional Events" is defined as between 30 and 70 vibration events per day.
[5] "Infrequent Events" is defined as less than 30 vibration events per day.
[6] NA means "not applicable." Vibration-sensitive equipment is not sensitive to ground-borne noise.
FTA = Federal Transit Administration

While vibration criteria are generally used to assess annoyance from transit sources at the exterior faces of vibration-sensitive receivers, ground-borne noise, or the rumbling sound due to vibrating room surfaces, is typically assessed indoors. In general, the relationship between vibration and ground-borne noise depends on the dominant frequency of the vibration and the acoustical absorption characteristics of the receiving room. Due to the limited data available regarding soil and ground propagation characteristics, average or typical soil conditions (hard compacted soil) were assumed everywhere along the project corridor. According to the FTA guidance, the dominant vibration frequency from train pass-bys along typical ground and soil conditions generally occurs in the 30–60 Hertz range. The ground-borne noise levels were adjusted accordingly.

Construction Noise

During the preliminary environmental permitting phase of a project, when construction details are limited, FTA suggests evaluating proposed construction scenarios against the 1-hour L_{eq} thresholds shown in **Table 4-10**. These criteria are compared to noise levels from the two loudest pieces of equipment that, under worst-case conditions, would operate continuously for 1 hour.

Table 4-10: Recommended FTA Construction Noise Limits

Land Use Category	Construction Period[2]	
	Daytime (dBA)[1]	Nighttime (dBA)[1]
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA 2006
[1] The Federal Transit Administration (FTA) construction noise limits are reported for the peak 1-hour period in A-weighted decibels (or dBA).
[2] Construction noise limits are established for both daytime (7 AM-10 PM) and nighttime (10 PM-7 AM) activities. The maximum noise limits represent noise levels from the two loudest pieces of equipment operating at full power over a period of 1 hour.

Construction Vibration

For evaluating potential annoyance or interference with vibration-sensitive activities due to construction vibration, CTA used the FTA criteria in **Table 4-11**. In most cases, however, the primary concern regarding construction vibration relates to potential damage to buildings. **Table 4-11** contains the FTA guidance vibration damage criteria for various structural categories of buildings. The vibration damage criteria listed for Category IV structures include historic buildings.

Table 4-11: Construction Vibration Damage Criteria

Building Category	Peak Particle Velocity (inches/second)	Approximate VdB[1]
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2006
[1] Root mean square velocity in decibels (VdB) relative to 1 microinch/second

Construction vibration is generally assessed in cases where there is a substantial potential for impacts from construction activity. Such activities include blasting, pile-driving, demolition, and drilling or excavation near vibration-sensitive structures.

4.5.2 Existing Conditions

Sensitive Receivers

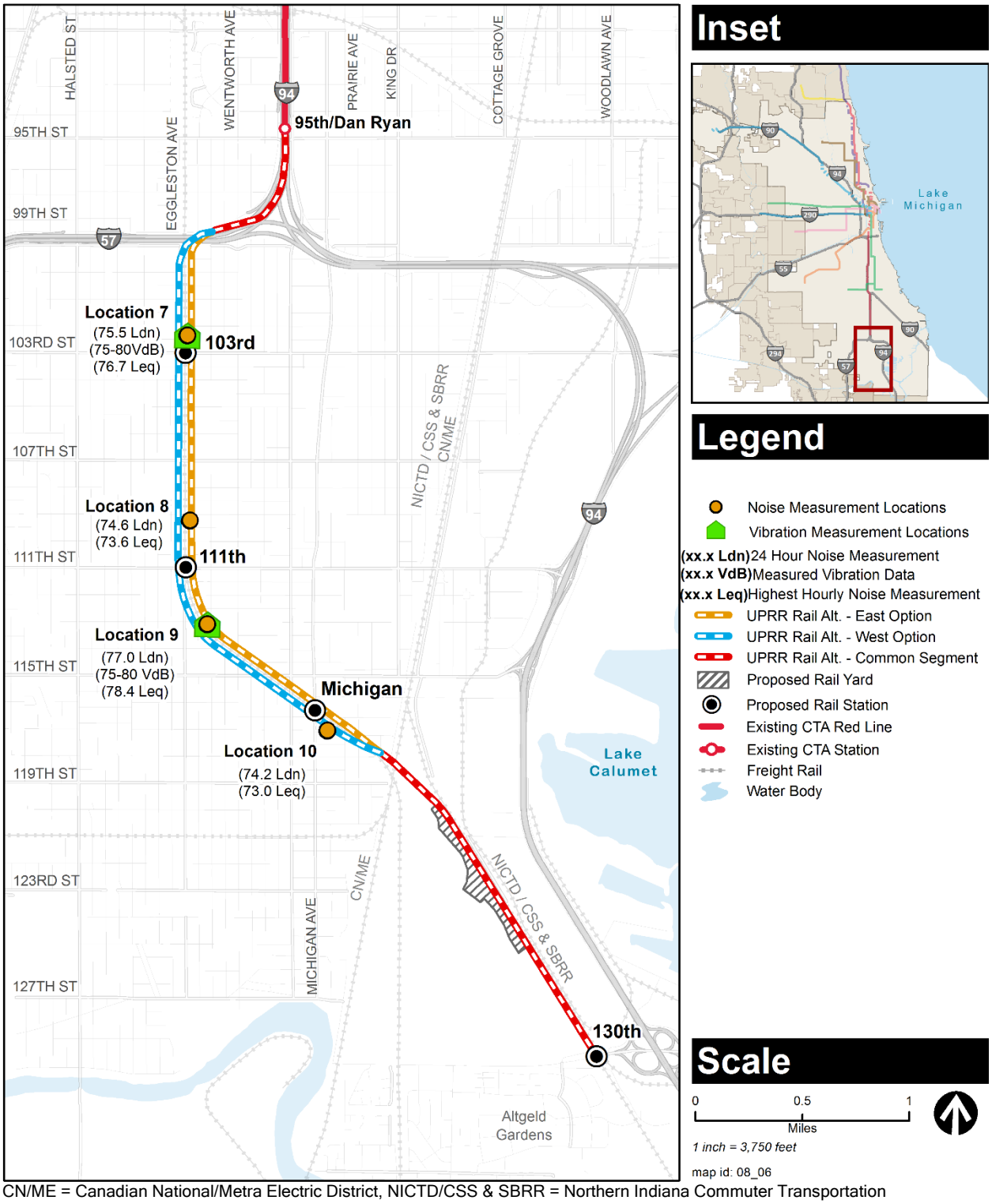
CTA conducted a field verification of noise-sensitive receiver locations on March 5, 2015. The land use in the vicinity of the corridor is predominantly residential (Category 2). Three parks, six schools, and four churches (Category 3) are near the corridor. During the field verification, numerous uninhabited residences were identified scattered throughout the area. Although they are not occupied and are not likely to be occupied, these properties are included in the counts of noise-sensitive receivers because they are not contiguous and are adjacent to occupied homes. The land use in the area is expected to continue to be residential, and it is possible that these properties may be resold for residential development. As such, these homes have been considered in the counts because it is anticipated that the residential land use of the area will not change. The majority of these houses were between 105th Street and 115th Street on the east side of the corridor and along Eggleston Avenue from 107th Street to 108th Street on the west side of the corridor. Although these areas would be affected and there are noise-sensitive receivers in the area, the overall impacts would likely be few because the properties are not in use. No sensitive

receivers were identified south of the CN/ME corridor, which crosses the UPRR tracks near 119th Street.

Noise Measurements

CTA obtained noise measurements during October 19–26, 2012 at four representative noise-sensitive receiver locations along the UPRR Alternative alignment. The noise measurements consisted of 24-hour noise measurements at residential locations to determine the highest hourly L_{eq} and day/night average sound level (L_{dn}) occurring along the alignment. The noise measurement locations represented sensitive receivers that might be affected by noise from the project. Noise measurements along the UPRR tracks ranged from 74 to 77 dBA.

Figure 4-19 shows the measured highest L_{eq} and L_{dn} obtained at each of the four locations. The dominant noise source along the UPRR Alternative alignment is existing freight rail operation.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-19: Vibration and Noise Measurement Locations and Measured Noise and Vibration Data

Vibration Measurements

CTA also obtained vibration measurements at two of the noise measurement locations to determine the existing vibration levels along the UPRR Alternative alignment. The vibration measurement locations represented sensitive receivers that might be affected by vibration from the project.

Figure 4-19 shows the measured vibration level obtained at both locations. The vibration levels measured along the UPRR rail corridor were due to freight rail operations. At a distance of approximately 100 feet from the freight train pass-bys, the measured vibration levels ranged from 75 to 80 VdB.

4.5.3 Environmental Consequences

The following sections summarize the potential noise and vibration impacts projected for each alternative.

4.5.3.1 No Build Alternative

The No Build Alternative assumes no change in the existing conditions except for renovation of CTA's 95th Street Terminal (construction is expected to be completed in 2018). All impacts related to the construction and operation of the 95th Street Terminal are documented in the approved *95th Street Terminal Improvement Project Environmental Assessment* (CTA 2013). FTA issued a Finding of No Significant Impact for the 95th Street Terminal Improvement Project in April 2013, and an Amended Finding of No Significant Impact in July 2013. An Environmental Assessment Re-Evaluation performed by FTA in July 2016 confirmed that the Amended Finding of No Significant Impact dated July 2013 remains valid and that noise impacts from the 95th Street Terminal Improvement Project would not be significant. There would be no change to the existing noise and vibration levels within the project area under the No Build Alternative. As a result, the No Build Alternative would result in no impact, and would require no mitigation.

4.5.3.2 Union Pacific Railroad Alternative - East Option

The noise analysis is based on the following UPRR Alternative components as described in **Chapter 2**: a closed-deck, steel and concrete aerial track structure with welded rail. The frequency of the proposed service is anticipated to be the same as with the current Red Line service (April 2016) at 95th Street Terminal, which ranges from 3–6 minutes during peak periods to 13–15 minutes at night, with an average daytime headway of 6.1 minutes. The UPRR train frequency is 27 trains per day. Based on the proposed RLE operations and the existing noise measurements, CTA established impact contours for moderate and severe impacts based on FTA criteria. Although the noise analysis was performed based on the 2012 Red Line operations plan, average daytime headways have not changed between 2012 and April 2016 and are consistent with the daytime average headways used in the noise analysis. **Table 4-12** lists distances from the proposed alignment (distances are the same for both the East and West Options) to the moderate and severe impact contours as well as the associated noise level criterion. CTA applied the contours throughout the entire corridor. **Figure 4-20** and **Figure 4-21** show the moderate and severe noise impact contours and the clusters of affected noise-sensitive receivers associated with the East Option. The impact contours close in near the station areas because there would be less noise from the trains as they decrease speed when approaching the stations.

Table 4-12: Federal Transit Administration Moderate and Severe Impact Distances - Union Pacific Railroad Alternative (at 55 miles per hour)

Location Number	Receiver Description/ (Area of Impact)	Measured Noise Level	FTA Moderate Impact		FTA Severe Impact	
		(L_{dn}) (Highest Hour L_{eq})	Criterion	Distance	Criterion	Distance
7	Residence at 354 W. 102nd Place (I-57 to 103rd Street)	75.5 dBA 76.7 dBA	65.0 dBA	280 feet	73.6 dBA	75 feet
8	Residence at 352 W. 109th Street (103rd Street to 111th Street)	74.6 dBA 73.6 dBA	65.0 dBA	280 feet	72.9 dBA	85 feet
9	Residence at 307 W. 113th Street (111th Street to Michigan Avenue)	77.0 dBA 78.4 dBA	65.0 dBA	280 feet	74.8 dBA	65 feet
10	Residence at 11718 S. Prairie Avenue (Michigan Avenue to Metra Rail)	74.2 dBA 73.0 dBA	65.0 dBA	280 feet	72.6 dBA	90 feet

L_{dn} = day-night average sound level, L_{eq} = hourly equivalent sound level, FTA = Federal Transit Administration, dBA = A-weighted decibel

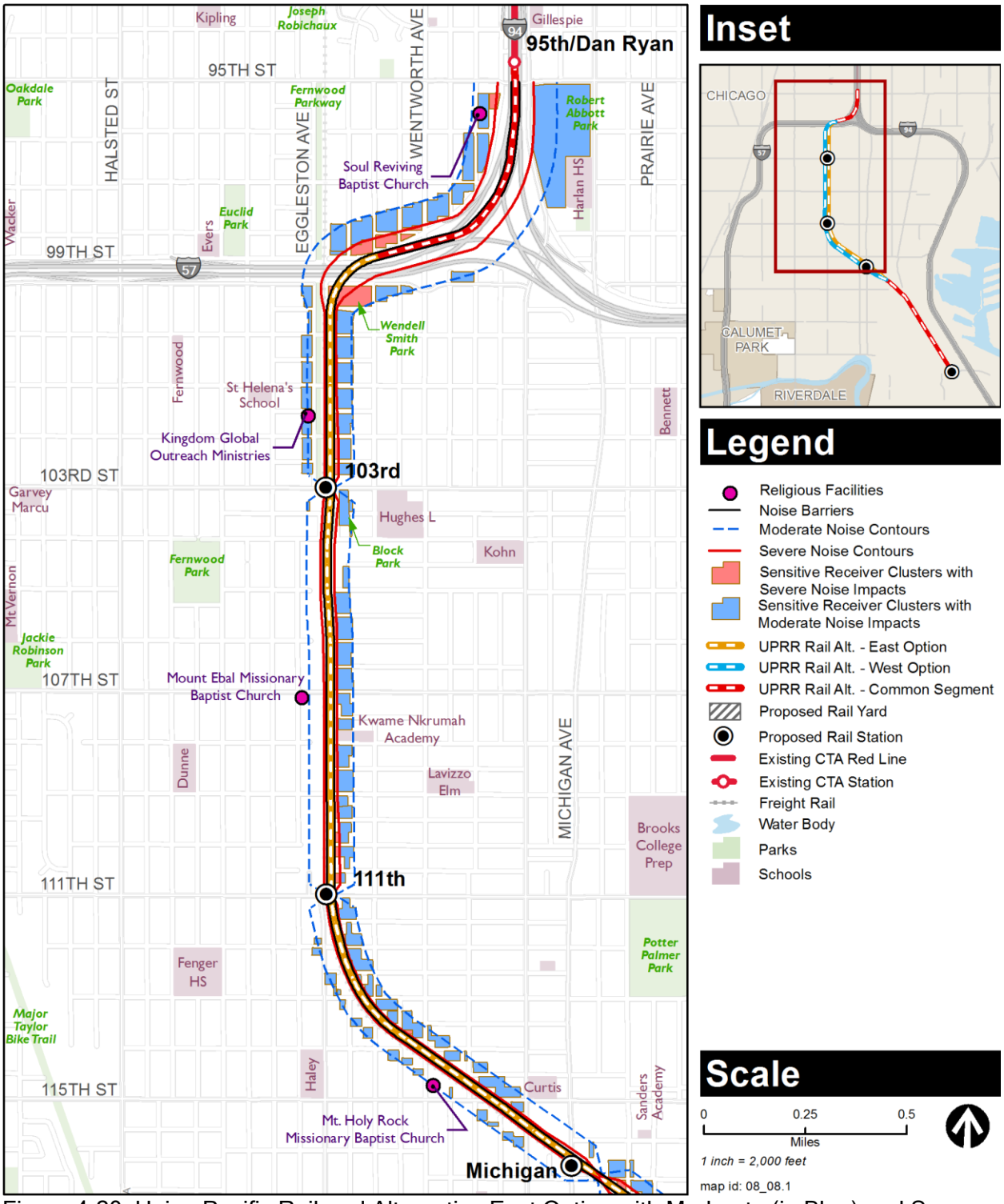
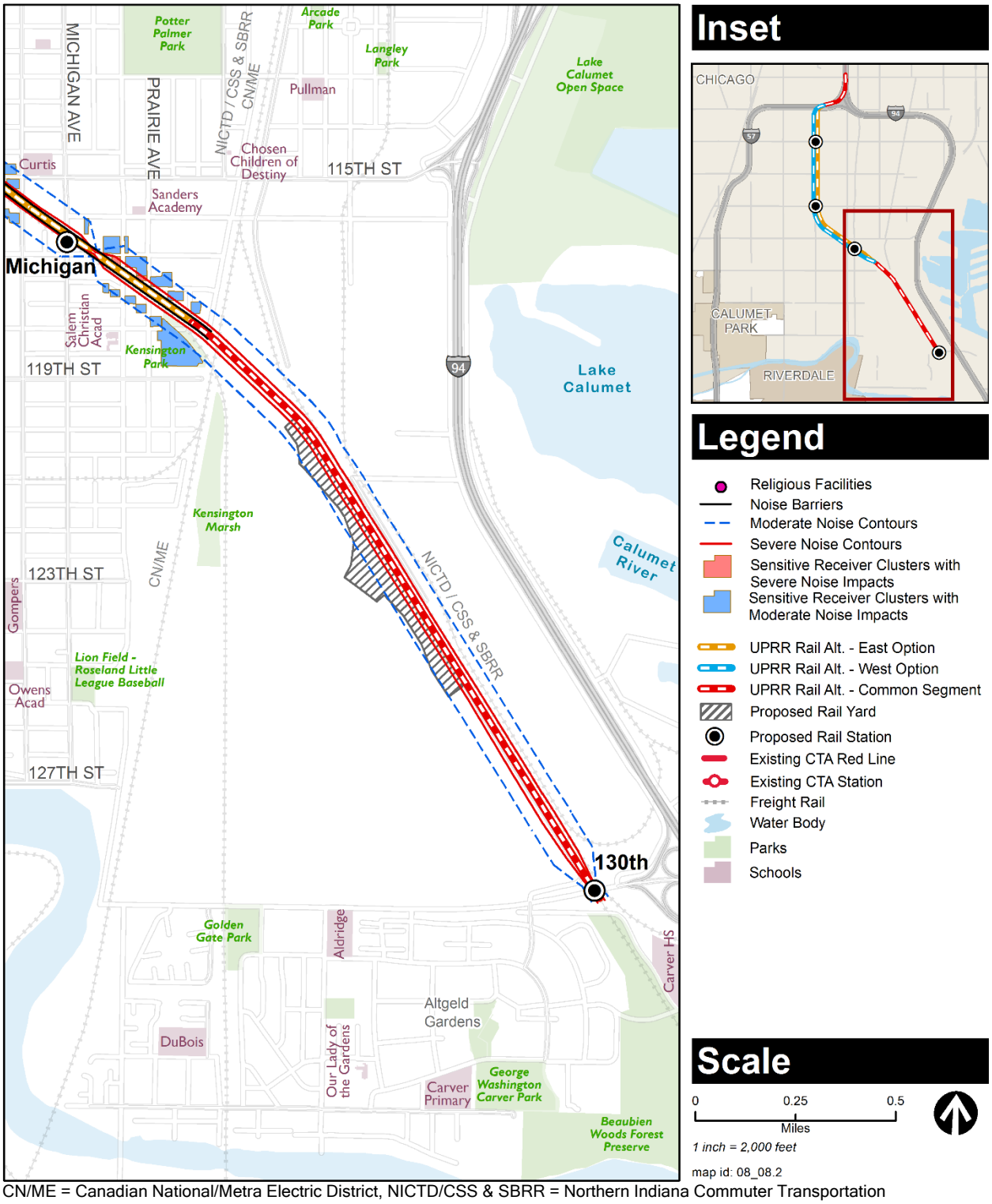


Figure 4-20: Union Pacific Railroad Alternative East Option with Moderate (in Blue) and Severe (in Red) Impact Noise Contours (1 of 2)



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-21: Union Pacific Railroad Alternative East Option with Moderate (in Blue) and Severe (in Red) Impact Noise Contours (2 of 2)

Permanent Noise Impacts

Residential noise-sensitive receivers fall within the moderate and severe impact contours for the East Option. There are 574 noise-sensitive receivers within the moderate impact contour: 221 on the west side of the corridor and 353 on the east side of the corridor. A total of 83 noise-sensitive receivers lie within the severe impact contours: 25 on the west side of the corridor and 58 on the east side of the corridor. Noise-sensitive receivers identified as displacements were not counted as being affected.

Noise-sensitive receivers are present within the moderate impact contour throughout the majority of the corridor from 99th Street to the CN/ME tracks near 119th Street. On the west side of the corridor the noise-sensitive receivers within the moderate impact contour are concentrated in the area northwest of the I-57/I-94 interchange. Two churches, the Soul Reviving Baptist Church (9537 S. Perry Avenue) and Kingdom Global Outreach Ministries (10132 S. Eggleston Avenue), could be subject to a moderate impact before mitigation. The remaining noise-sensitive receivers within the moderate impact contour are sparsely located between 112th Street and Prairie Avenue.

The majority of the noise-sensitive receivers within the severe impact contour are along both sides of the corridor between 99th Street and 103rd Street, and mostly along the east side between 105th Street and 111th Street. The *Noise and Vibration Technical Memorandum* (**Appendix O**) contains detailed figures showing the noise impact contours. The project could result in a severe impact on Wendell Smith Park and a moderate impact on Block Park and Kensington Park before mitigation. A portion of Wendell Smith Park would be affected by the project and the remaining portion of the park may have a severe impact before mitigation.

The property between State Street and Michigan Avenue south of 115th Street is vacant and there are no noise-sensitive receivers in this area of the corridor. The structures south of the UPRR tracks between State Street and Michigan Avenue are identified as displacements and therefore are not counted as receptors. No impacts are anticipated in the area south of the CN/ME corridor (which runs near 119th Street), because there are no sensitive receivers there. Altgeld Gardens, which is southwest of the 130th Street station location, would not be affected because it falls outside the impact area. **Table 4-13** details the number of affected noise-sensitive receivers between station areas.

Table 4-13: Sensitive Receivers within Moderate and Severe Noise Impact Contours - Union Pacific Railroad Alternative East Option

Area of Impact	West of Track Structure	East of Track Structure	Total
95th Street to 103rd Street	167 Moderate 25 Severe	108 Moderate 22 Severe	275 Moderate 47 Severe
103rd Street to 111th Street	1 Moderate 0 Severe	107 Moderate 25 Severe	108 Moderate 25 Severe
111th Street to Michigan Avenue at 116th Street	37 Moderate 0 Severe	98 Moderate 4 Severe	135 Moderate 4 Severe
Michigan Avenue to CN/ME Tracks near 119th Street	16 Moderate 0 Severe	40 Moderate 7 Severe	56 Moderate 7 Severe
Total	**221 Moderate 25 Severe**	**353 Moderate 58 Severe**	**574 Moderate 83 Severe**

Noise-affected receivers along the project corridor would require mitigation. The project could result in a moderate noise impact on three churches, three parks, and residential areas along both sides of the rail corridor. The East Option could result in a severe noise impact on one park and small, scattered residential areas along the east side of the corridor between 101st Place and 103rd Street, between 108th Street and 111th Street, just north of 11th Street and 114th Street, and just south of 116th Street. Although the schoolyard at Kwame Nkrumah Academy is within the moderate impact contour, the school building is outside the moderate impact contour; the school building would not have severe or moderate noise impacts. No other schools are within the severe or moderate noise contours.

Mitigation - To reduce noise impacts below FTA noise impact criteria, CTA would construct a noise barrier approximately 4 feet in height (measured from the top surface of the concrete deck) to reduce noise transmission at and below the height of the tracks. The 4-foot-high noise barrier would provide a 10-dBA reduction in noise along both sides of the elevated track structure from the 95th Street Terminal to the CN/ME tracks near 119th Street. All moderate or severe noise impacts would be resolved with mitigation. No moderate or severe impacts would remain after mitigation, including at Wendell Smith Park.

Permanent Vibration Impacts

The elevated track structure with continuously welded rail would result in vibration levels that would be below the FTA impact criterion of 72 VdB at the residential noise-sensitive receivers along the project corridor. The project would therefore result in no impacts from vibration and no mitigation measures would be required.

Construction Impacts

The East Option would include the construction of an elevated track structure, stations, and parking facilities at the stations. Construction noise levels are not expected to exceed the FTA-recommended construction noise limits shown in **Table 4-10**.

The construction contractor would employ noise-reducing construction BMPs. The contractor would keep all construction equipment exhaust mufflers in a state of good repair. As part of the construction specifications, the contractor would be responsible for adhering to the noise control requirements of the project. To the maximum extent possible, vehicles not in use would not remain idling on the construction site. CTA would limit nighttime construction near residences to the extent practicable. There would be no residential noise-sensitive receivers within 150 feet of the construction activity along the I-57 right-of-way. CTA would inform community members about construction schedules, and would coordinate in advance with aldermen and local officials.

High-vibration activities during construction include demolition of buildings, construction of aerial structures, pavement breaking, and ground compaction. Vibration limits are the levels at which there is a risk for damage, not the level at which damage would occur. The impact threshold distances were calculated and it was determined from the analysis that most of the equipment can be operated without risk of damage at distances of 15 feet or greater from non-engineered timber and masonry buildings or at distances of 8 feet or greater from reinforced concrete buildings. Pile-driving would be avoided in the vicinity of the historic Roseland Pumping Station.

Impacts Remaining After Mitigation

With a 10-dBA reduction provided by an approximately 4-foot-high noise barrier, all severe and moderate noise impacts would be resolved with mitigation. Beyond the use of noise-reducing construction BMPs, construction noise mitigation measures would not be required. There would be no vibration impacts; no mitigation measures for vibration are proposed.

4.5.3.3 Union Pacific Railroad Alternative - West Option

The noise analysis is based on the following UPRR Alternative components as described in **Chapter 2**: a closed-deck, steel and concrete aerial track structure with welded rail. The moderate and severe noise impact contour distances for the West Option are the same as for the East Option (see **Table 4-12**). **Figure 4-22** and **Figure 4-23** show the moderate and severe noise impact contours and clusters of affected noise-sensitive receivers associated with the West Option. The impact contours close in as they near the station areas because there would be less train noise as the trains decrease speeds when approaching stations.

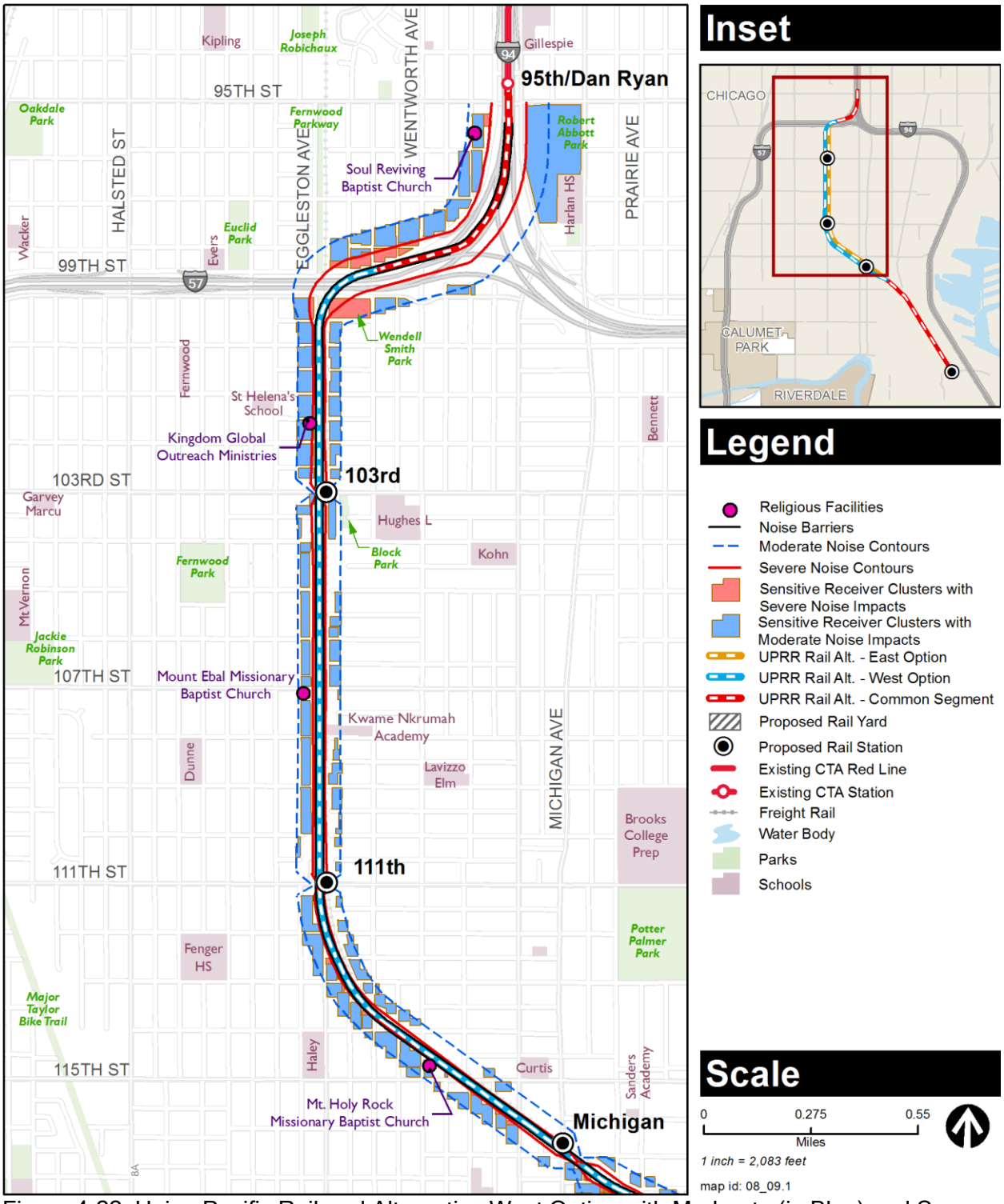
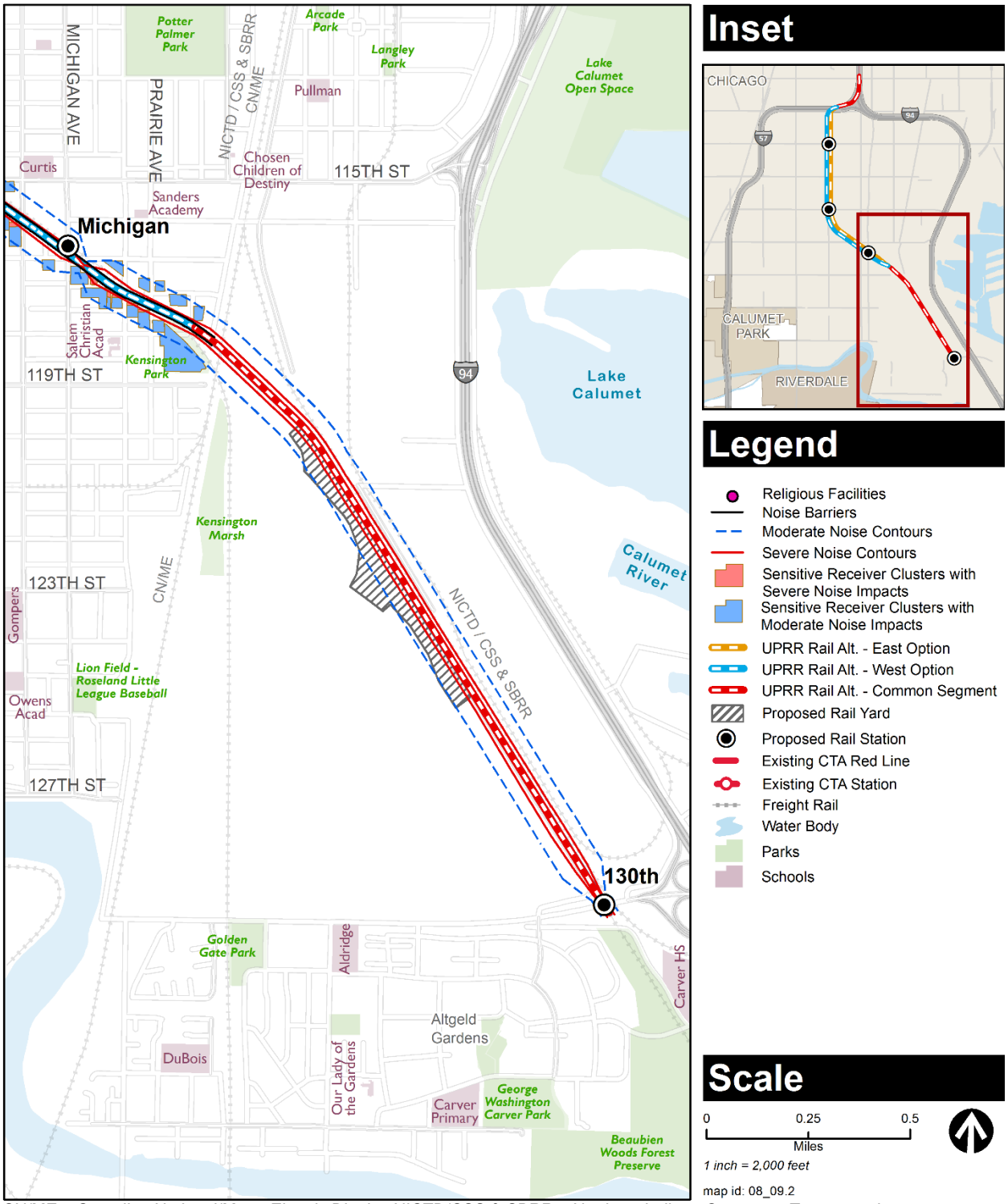


Figure 4-22: Union Pacific Railroad Alternative West Option with Moderate (in Blue) and Severe (in Red) Impact Noise Contours (1 of 2)



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-23: Union Pacific Railroad Alternative West Option with Moderate (in Blue) and Severe (in Red) Impact Noise Contours (2 of 2)

Permanent Noise Impacts

Residential noise-sensitive receivers on the west side of the corridor would fall within the moderate and severe impact contours of this alternative. There are 738 noise-sensitive receivers within the moderate impact contour: 520 on the west side of the corridor and 218 on the east side of the corridor. A total of 48 noise-sensitive receivers lie within the severe impact contours; all are on the west side of the corridor. Receivers identified as displacements were not counted as being affected.

Impacts on noise-sensitive receivers within the moderate impact contour would occur throughout the majority of the corridor between 99th Street and the CN/ME tracks near 119th Street but with greater concentration along the west side of the corridor. There would be no noise-sensitive residential receivers within the severe impact contour on the east side of the corridor. On the west side of the corridor the noise-sensitive receivers within the severe and moderate impact contours are concentrated in the area northwest of the I-57/I-94 interchange and south of I-57 to 103rd Street. A row of noise-sensitive receivers is within the moderate impact contour between 103rd Street and 112st Street along the east side of Eggleston Avenue. Three churches could be subject to moderate impacts: the Soul Reviving Baptist Church (9837 Perry Avenue), the Kingdom Global Outreach Ministries (10132 S. Eggleston Avenue), and the Mt. Ebal Baptist Church (425 W. 107th Street). Clusters of noise-sensitive receivers fall within the moderate impact contour along both sides of the corridor between 112th Street and the CN/ME tracks near 119th Street. In addition, a few noise-sensitive receivers fall within the severe impact contour along the west side of the corridor between 112th Street and the CN/ME tracks near 119th Street.

The project could result in a severe impact on Wendell Smith Park and a moderate impact on Block Park and Kensington Park before mitigation. Because Fernwood Parkway is identified as a displacement it is not counted as being affected.

The property between State Street and Michigan Avenue south of 115th Street is vacant and there are no noise-sensitive receivers in this area along the corridor. The structures south of the UPRR tracks between State Street and Michigan Avenue are identified as displacements and therefore are not counted as receptors. No impacts are anticipated in the area south of the CN/ME corridor (which crosses the UPRR tracks near 119th Street), because there are no sensitive receivers there. Altgeld Gardens, which is southwest of the 130th Street station location, would not be affected because it falls outside the impact area. **Table 4-14** details the number of affected noise-sensitive receivers between station areas.

Table 4-14: Sensitive Receivers within Moderate and Severe Noise Impact Contours - Union Pacific Railroad Alternative West Option

Area of Impact	West of Track Structure	East of Track Structure=	Total
95th Street to 103rd Street	209 Moderate 32 Severe	81 Moderate 1 Severe	290 Moderate 33 Severe
103rd Street to 111th Street	125 Moderate 0 Severe	62 Moderate 0 Severe	187 Moderate 0 Severe
111th Street to Michigan Avenue at 116th Street	145 Moderate 9 Severe	47 Moderate 0 Severe	192 Moderate 9 Severe
Michigan Avenue to CN/ME Tracks near 119th Street	41 Moderate 7 Severe	28 Moderate 0 Severe	69 Moderate 7 Severe
Total	**520 Moderate 48 Severe**	**218 Moderate 1 Severe**	**738 Moderate 49 Severe**

Noise impacts at affected receivers along the project corridor would require mitigation. The project could result in a moderate noise impact on four churches, one park, and residential areas along both sides of the rail corridor. The West Option could result in a severe noise impact on two parks and small, scattered residential areas along the west side along W. 98th Place, between 112th Place and 114th Street, between 115th Street and 116th Street, and between 117th Street and 118th Street. Although the schoolyard at Kwame Nkrumah Academy is within the moderate impact contour, the school building is outside the moderate impact contour; the school building would not have severe or moderate noise impacts. No other schools are within the severe or moderate noise contours.

Mitigation - As described for the East Option, to reduce noise levels below FTA noise impact criteria, CTA would construct a noise barrier approximately 4 feet in height to reduce noise transmission at and below track level. The 4-foot-high noise barrier would provide a 10-dBA reduction in noise along both sides of the elevated track structure from the 95th Street Terminal to the CN/ME tracks near 119th Street. All moderate or severe noise impacts would be resolved with mitigation. No moderate or severe impacts would remain after mitigation, including at Wendell Smith Park.

Permanent Vibration Impacts

The elevated track structure with continuously welded rail would result in vibration levels that would be below the FTA impact criterion of 72 VdB at the residential noise-sensitive receivers along the project corridor. The project would therefore result in no impacts from vibration and no mitigation measures would be required.

Construction Impacts

As it would be for the East Option, the West Option would include construction of an elevated track structure, stations, and parking facilities at the stations. Construction noise impacts would be the same as for the East Option. Construction noise levels are not expected to exceed the FTA-recommended construction noise limits shown in **Table 4-10**.

The construction contractor would employ noise-reducing construction BMPs as described for the East Option. As noted above for the East Option, it was determined from analysis that most of the equipment can be operated without risk of damage from vibration at distances of 15 feet or greater from non-engineered timber and masonry buildings or at distances of 8 feet or greater from reinforced concrete buildings. Pile-driving would be avoided in the vicinity of the historic Roseland Pumping Station.

Impacts Remaining After Mitigation

With a 10-dBA reduction provided by an approximately 4-foot-high noise barrier, all severe and moderate noise impacts would be resolved with mitigation. Beyond the use of noise-reducing construction BMPs, construction noise mitigation measures would not be required. There would be no vibration impacts; no mitigation measures for vibration are proposed.

4.6 Safety and Security

This section summarizes the safety and security impacts of the East and West Options. The *Safety and Security Technical Memorandum* (**Appendix P**) includes additional details.

Safety refers to freedom from harm resulting from unintentional acts or circumstances (49 CFR § 659.5). Unintentional acts or circumstances include all incidents within the CTA right-of-way (including areas along tracks, in yards, and at stations). Examples of incidents include collisions, derailments, fires, property damage, injuries, and fatalities. *Security* refers to freedom from harm resulting from intentional acts or circumstances (49 CFR § 659.5). Intentional harm includes crimes and must be reported if the intentional act meets thresholds for notification as specified in FTA's State Safety Oversight Rule (49 CFR § 674).

Table 4-15 summarizes safety and security impacts for the East and West Options.

Table 4-15: Safety and Security - Impacts Summary

Alternative	Permanent Impacts		Construction Impacts
	Safety	Security	
No Build	No impacts	No impacts	No impacts
Union Pacific Railroad - East Option	Impacts would not be adverse after mitigation	No adverse impacts	No adverse impacts
Union Pacific Railroad - West Option	Impacts would not be adverse after mitigation	No adverse impacts	No adverse impacts

4.6.1 Regulatory Framework/Methods

Federal safety and security requirements for rail systems are primarily provided in 49 CFR § 659, and through Occupational Safety and Health Administration (OSHA) standards and regulations for providing a safe and healthy workplace (namely the Occupational Safety and Health Act of 1970). Safety and security planning is included in the CTA's *System Safety Program Plan* and *Security Emergency Preparedness Plan*, both of which are required of CTA to comply with provisions under 49 CFR § 659. The CTA's *Infrastructure Design Criteria Manual* also addresses safety and security (CTA 2013b). The standards address system safety, security, fire protection, human factors, reliability, maintainability, configuration management, and quality control. Passenger safety is the highest priority in system safety objectives, along with the safety of CTA employees. Construction, installation, inspection, and testing procedures are also objectives covered by the standards.

For this Draft EIS, an adverse safety and security impact is defined as one that would cause one or more of the following:

- Creation of the potential for increased major safety or security incidents reportable to FTA
- Failure to meet the applicable design standards where such failure results in a safety or security impact
- Marked increase in safety or security risks on or off the CTA system
- Marked increase in pedestrian and/or public safety incidents in the immediate vicinity of proposed CTA stations

- Marked increase in crime incidents near proposed CTA stations
- Notable increases in calls for police service and/or emergency response time

4.6.2 Existing Conditions

The affected environment for this analysis includes areas that could be affected by impacts on the CTA system (e.g., tracks, vehicles, stations, rail yards) and impacts within ½ mile of stations. The ½-mile distance is used as an approximation of the distance most patrons will walk to a station and is therefore used when evaluating general pedestrian safety and security in the surrounding neighborhood.

Groups covered in the affected environment include transit passengers, operators, employees, contractors, and the general public. Members of these groups all come in contact with the system in some way, and could be susceptible to safety and security impacts. The main pedestrian safety risk in the project area is from motor vehicle crashes.

4.6.3 Environmental Consequences

The following sections summarize the potential safety and security impacts of each alternative.

4.6.3.1 No Build Alternative

There would be no permanent or construction-related safety and security impacts for the No Build Alternative.

4.6.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

The proposed stations would generate a large amount of pedestrian traffic, causing an increase in the number of pedestrians crossing streets to access the stations. At most stations, the controlled intersections (signals or all-way stops) nearest to proposed station locations are approximately one block away. It is likely that pedestrians would want to cross the streets immediately adjacent to station entrances, particularly to access the nearest available bus stops (assumed to be adjacent to stations). A large number of pedestrians would be expected to cross the major streets without positive traffic control (marked crosswalks or signalized intersections with pedestrian countdowns), which would be an adverse impact on pedestrian safety.

During the NEPA scoping process, the public expressed concern regarding the potential for increased crime surrounding proposed stations because of the higher volume of people accessing the stations. Based on data from transit stations in Chicago and across the United States, the new stations would be unlikely to have much, if any, impact on neighborhood crime (Plano 1993, Denver Regional Transportation District 2006, Liggett et al. 2003, San Diego Association of Governments 2007, Block and Davis 1996); however, research indicates that some risk would remain, particularly in low-income neighborhoods (Ihlanfeldt 2003).

Mitigation - CTA would prepare a Threat and Vulnerability Assessment, which would identify security threats in the transit system and make recommendations to reduce those threats. If warranted by an engineering traffic study, CTA may install traffic signals to mitigate pedestrian safety impacts. To further mitigate impacts and improve pedestrian safety, CTA would consider installation of security surveillance cameras, alarm notifications (e.g., flashing blue lights),

sidewalk lighting in the immediate vicinity of station entrances, pedestrian crossing treatments, such as refuge medians with appropriate signage, and police patrols. To mitigate adverse safety impacts at the roadway-railroad grade crossings, CTA would install safety cameras and would consider installing additional passive or active safety devices to enhance the safety devices already in place at existing grade crossings. Additional audible warning devices or non-mountable curbs are examples of other safety measures for at-grade railroad crossings. CTA would install fencing to deter pedestrians from crossing the freight railroad tracks in places other than the designated locations. At the park & ride facilities, CTA would install surveillance cameras and controlled entry and exit access. The impacts would not be adverse after mitigation measures are implemented.

Construction Impacts

For any major capital project, CTA has a construction contract that requires the contractor to protect CTA's project site and all adjacent properties, and to take all necessary precautions for the safety of all persons on or near the project site. This requirement includes provisions to render all portions of the work secure in every respect and to decrease the possibility of, or liability for, accidents. The construction contractor would be required to have an approved Health and Safety Plan and a Safety and Security Plan in place before the start of any construction work. The Safety and Security Plan would describe protection to be provided by the contractor for its employees, CTA passengers and employees, and the general public. The project contractor would follow OSHA requirements and would comply with CTA's *Safety and Security Management Plan* (CTA 2011).

The elevated CTA rail line would be constructed adjacent to the existing, at-grade freight railroad line. Completing construction adjacent to an active freight rail line could create construction safety risks but impacts would not be adverse. The Safety and Security Plan would include the use of UPRR flaggers throughout the construction period, who would ensure that freight trains and on-track equipment pass safely through the work site without delays. The *Construction Impacts Technical Memorandum* (**Appendix I**) provides additional details regarding these potential impacts.

During the NEPA scoping process, CTA received comments regarding the ability of first responders to access construction sites and to have access through construction sites. The East Option would require lane closures on the expressways and temporary street closures during construction activities. Emergency services would have access to construction sites at all times and would access construction sites in the same way as contractors, by using various side streets and recommended detours. Emergency services wishing to cross tracks would have to use recommended detours, just as with any roadway construction project. The impacts would not be adverse.

During final design of the project and as a requirement for the project, CTA would prepare traffic management and maintenance of traffic plans that identify traffic detours and emergency access routes. CTA would coordinate traffic management with the FHWA, IDOT, Cook County Department of Transportation and Highways, the Office of Emergency Management and Communications, and CDOT. Contractors would follow the MUTCD design standards for temporary traffic control and would obtain all required local permits. Contractors would also create a public safety plan with local law enforcement officers for the construction site.

Impacts Remaining After Mitigation

Installation of new traffic signals and/or other pedestrian crossing treatments would reduce adverse impacts to a level that would be less than adverse. There would be no adverse permanent or construction-related impacts on safety and security for the East Option after mitigation measures are implemented.

4.6.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts Remaining After Mitigation

The impacts for the West Option would be similar to those of the East Option. The park & ride facility locations would, however, differ from those of the East Option. The park & ride facilities for the West Option would be located on the same side of the railroad tracks as the proposed stations. These locations would result in fewer pedestrians crossing the railroad tracks than with the East Option. The presence of new stations adjacent to the roadway-railroad grade crossing would be an adverse impact at 103rd and 111th Streets. Like the East Option, the West Option would generate additional motor vehicle traffic and pedestrian traffic accessing the stations. The increase in traffic volume would result in increased likelihood of crashes at the roadway-railroad grade crossings. The increased likelihood of crashes would result in an adverse impact on the safety of the roadway-railroad grade crossings.

Mitigation - Mitigation measures would be same for the West Option as for the East Option. The impacts would not be adverse after mitigation measures are implemented.

Construction Impacts

The construction-related impacts would be the same for the West Option as for the East Option. As described for the East Option, the construction contractor would be required to have an approved Health and Safety Plan and a Safety and Security Plan in place before the start of any construction work.

Impacts Remaining After Mitigation

Installation of new traffic signals and/or other pedestrian crossing treatments would reduce adverse impacts to a level that would be less than adverse. There would be no adverse permanent or construction-related impacts on safety and security for the West Option after mitigation measures are implemented.

4.7 Historic and Cultural Resources

This section summarizes the draft findings under Section 106 of the National Historic Preservation Act (NHPA) and in coordination with the State Historic Preservation Office (SHPO) of the Illinois Historic Preservation Agency and consulting parties to the Section 106 process.

The structure of this section is slightly different than other sections in the Draft EIS, to fully document the process and consultation required under Section 106. In addition, the term "effects" is used in this section rather than "impacts" because of the unique requirements and terminology related to historic resources. The *Historic and Cultural Resources Technical Memorandum* (**Appendix Q**) includes additional details. **Table 4-16** summarizes the effect findings for historic and cultural resources.

Table 4-16: Historic and Cultural Resources - Effects Summary

Alternative	Effects
No Build	No effects
Union Pacific Railroad - East Option	No Adverse Effect finding for one resource
Union Pacific Railroad - West Option	No effects

4.7.1 Regulatory Framework/Methods

Cultural and historic resources are protected by various federal regulations; Section 106 of the NHPA requires federal agencies to consider effects on historic resources from their actions and to balance preservation needs with the need for the actions. As provided in 36 CFR § 800, the Section 106 process "seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation" (36 CFR § 800.1(a)). The goal of the consultation is to identify historic properties potentially affected by the undertaking, assess project effects, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties.

For the Section 106 assessment of historic and archaeological resources, FTA and CTA conducted a four-step process following requirements of 36 CFR § 800:

1. **Define the Area of Potential Effects** - FTA and CTA first determined an area of potential effects (APE) for cultural/historic resources. The APE is defined as the geographic area within which the project may cause alterations in the character or use of historic properties (36 CFR § 800.16(d)). Development of the APE involved site visits and a review of aerial photography images and conceptual engineering drawings for the alternative.

2. **Identify Historic and Archaeological Resources** - After an extensive records check, representative samples within the APE footprint were field-surveyed to identify any archaeological resources and historic resources that meet National Register of Historic Places (NRHP) criteria. Representative samples were used to determine effects on similar properties on a block-by-block basis. The properties included in the representative sample were determined using GIS databases provided by the City of Chicago, the Historic and Architectural Resources Geographic Information System, online mapping resources, SHPO records, and field visits. Additional details about the definition of the representative sample, and resources in it, are included in the *Historic and Cultural Resources Technical Memorandum* (**Appendix Q**). NRHP criteria are defined in 36 CFR § 60.4 and apply to districts, sites, buildings, structures, or objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association with one or more of the following four criteria:

    - Criterion A - Events that have made a significant contribution to the broad patterns of American history on a federal, state, and/or local level

    - Criterion B - Lives of persons significant in the history of the city, state, and/or the United States

- Criterion C - Distinctive characteristics of a type, period, or method of construction, or the work of a master, or high artistic values, or a significant and distinguishable entity whose components may lack individual distinction

- Criterion D - Information important in prehistory or history

FTA and CTA identified properties listed on the NRHP, local landmarks, and Chicago Historic Resources Survey (CHRS) "Red" and "Orange"-rated[6] buildings (properties with locally designated historic importance). FTA and CTA conducted background research to assist this process, using the Historic and Architectural Resources Geographic Information System and city records, fire insurance and other historic maps, the CHRS, previous architectural studies in the area, and other relevant scholarly publications. No properties or districts currently listed on the NRHP are present in the APE.

3. **Assess Effects on Historic and Archaeological Resources** - FTA and CTA assessed effects for each evaluated resource that was listed in the NRHP or determined eligible for listing. The effects analysis referenced other technical memoranda prepared for the project (for topics such as displacements, noise, and visual impacts) and focused on how the alternative might alter the characteristics that qualify properties for inclusion in the NRHP.

4. **Resolve any Adverse Effects** - FTA and CTA will develop any necessary mitigation measures through consultation with the SHPO and other consulting parties to address adverse effect determinations.

A number of parties have a consultative role in a project considered an undertaking under Section 106. **Section 4.7.2** provides a summary of the consultation process conducted to date, as well as a list of invited and consulting parties.

4.7.2 Section 106 Consultation Process

In August 2012, FTA sent invitation letters to 11 Native American tribes to inform them of the process and request assistance in identifying areas with potential cultural and/or religious significance. Also in August 2012, CTA sent invitation letters to 19 state and local level preservation interest groups to inform them of the project and invite them to participate in the upcoming consultation process. FTA and CTA sent invitation letters to the following recipients:

[6] The CHRS is an inventory of architecturally and historically significant buildings in the City of Chicago that uses a color-coded ranking system used to identify historic and architectural significance relative to age, degree of external physical integrity, and level of possible significance. The two highest color codes are "Red" and "Orange." These types of local historic resources are subject to the City of Chicago's Demolition-Delay Ordinance. "Red" or "Orange"-rated properties were identified as possessing some architectural feature or historical association that made them potentially significant in the context of the surrounding community.

Native American Tribes
- Ho-Chunk Nation
- Miami Tribe of Oklahoma
- Peoria Tribe of Indians of Oklahoma
- Sac and Fox Nation of Oklahoma
- Pokagon Band of Potawatomi Indians
- Prairie Band of the Potawatomi Nation
- Citizen Potawatomi Nation
- Forest County Potawatomi Nation
- Potawatomi Nation
- Sac and Fox Nation of Mississippi in Iowa
- Sac and Fox Nation of Missouri

State and Local Preservation Groups
- SHPO
- Advisory Council on Historic Preservation
- Illinois State Museum
- Illinois State Archaeological Survey
- City of Chicago Department of Planning and Development's Historic Preservation Division
- Preservation Chicago
- Landmarks Illinois
- Chicago Historical Society
- Ridge Historical Society
- Beverly Area Planning Association
- East Beverly Association
- Rosemoor Community Association
- Cottage Grove Cottage Grove Heights Community Coalition
- Historic Pullman Foundation
- South Suburban Genealogical and Historical Society
- Chicago Neighborhood Initiatives
- Neighborhood Housing Services of Chicago
- Mercy Housing Lakefront
- Friends of the Parks

At present, 11 groups are participating in the process. The consulting parties include the SHPO, the City of Chicago Department of Planning and Development's Historic Preservation Division, Preservation Chicago, Landmarks Illinois, the Ridge Historical Society, the Rosemoor Community Association, Friends of the Parks, Chicago Neighborhood Initiatives, Neighborhood Housing Services of Chicago, DCP, and the Chicago Park District.

On October 24, 2012, FTA and CTA held a webinar on RLE historic properties to introduce the project and initiate the consultation process. During the eligibility phase of consultation, properties and districts that were identified as eligible for listing on the NRHP were discussed. Properties over 50 years old in the APE were evaluated to determine whether they are NRHP-eligible under one of the four National Park Service Criteria for Evaluation mentioned above.

FTA and CTA provided draft materials on the identification of NRHP-eligible properties to consulting parties on January 4, 2013, in compliance with Section 106 of the NHPA. A 30-day comment period followed, with an in-person meeting on January 30, 2013 to facilitate discussion among consulting parties. The meeting was followed by an informal tour of the corridor that afternoon. As part of this phase of coordination, CTA received written comments from six consulting parties. Comments received from consulting parties in regards to eligibility focused on requesting additional surveys of resources, potential districts that should be considered recommended as eligible, reconsideration of surveyed properties and their eligibility, and the importance of looking at resources in the historical/social context.

As part of the eligibility phase, CTA surveyed 541 potentially eligible resources within the APEs for all alternatives being studied at the time (the BRT, UPRR, and Halsted Alternatives). As a result of

the field investigations and comments received from consulting parties on potentially eligible resources, for the BRT, UPRR, and Halsted Alternatives, 15 total resources were identified as eligible for inclusion on the NRHP, including 13 individual buildings and 2 historic districts. Specifically for the UPRR Alternative, CTA surveyed 280 potentially eligible resources within the UPRR Alternative APE. As a result of the field investigations and comments received from consulting parties on potentially eligible resources, 7 total resources were identified for the UPRR Alternative as eligible for inclusion on the NRHP, including 6 individual buildings and 1 historic district.

FTA and CTA mailed a Draft Effects Report to consulting parties on April 18, 2014, requesting any written comments by May 23, 2014. On May 8, 2014, FTA and CTA met with consulting parties to discuss potential project effects on NRHP-eligible historic properties. CTA received written comments from four consulting parties. Comments received from consulting parties regarding assessments of effects included eligibility reconsiderations, effects reconsiderations, and requests for renderings for properties in the APE. Comments also related to effects associated with the Halsted Alternative and UPRR 130th Street West Station Option, both of which have been eliminated from further consideration (see **Section 2.4** for additional details).

From 2012–2014, CTA evaluated and took consulting party comments on four alternatives as part of the Section 106 consultation process: the No Build Alternative, the BRT Alternative (along Michigan Avenue), the UPRR Alternative, and the Halsted Alternative. CTA evaluated three options of the UPRR Alternative in the Section 106 consultation process: the Right-of-Way Option, the East Option, and the West Option. CTA also evaluated two options of the UPRR Alternative 130th Street station as part of the Section 106 consultation process: a South Station Option and a West Station Option. CTA developed separate APEs for each alternative and the Section 106 analysis and consultation was performed during 2012–2014 on all those alternatives and options.

In August 2014, based on the technical analysis and public input, CTA announced the NEPA Preferred Alternative—the UPRR Alternative. While CTA had originally considered a UPRR Right-of-Way Option, this option was subsequently removed, as it is no longer feasible. In addition, CTA is now considering only the South Station Option of the 130th Street Station. Further details on the alternatives evaluated and eliminated through the Draft EIS process are presented in **Section 2.4**. Additional conceptual engineering was conducted on the UPRR Alternative to refine the East and West Option alignments.

CTA provided responses to all consulting party comments received in May 2014 on November 24, 2014. Responses noted that the alternatives had been further narrowed and that the UPRR Alternative (East and West Options) were proposed to move forward as the NEPA Preferred Alternative. The consulting parties requested renderings at the Roseland Pumping Station and the 130th Street station near Altgeld Gardens. CTA has developed these renderings; they are included as **Figure 4-25** and **Figure 4-26**.

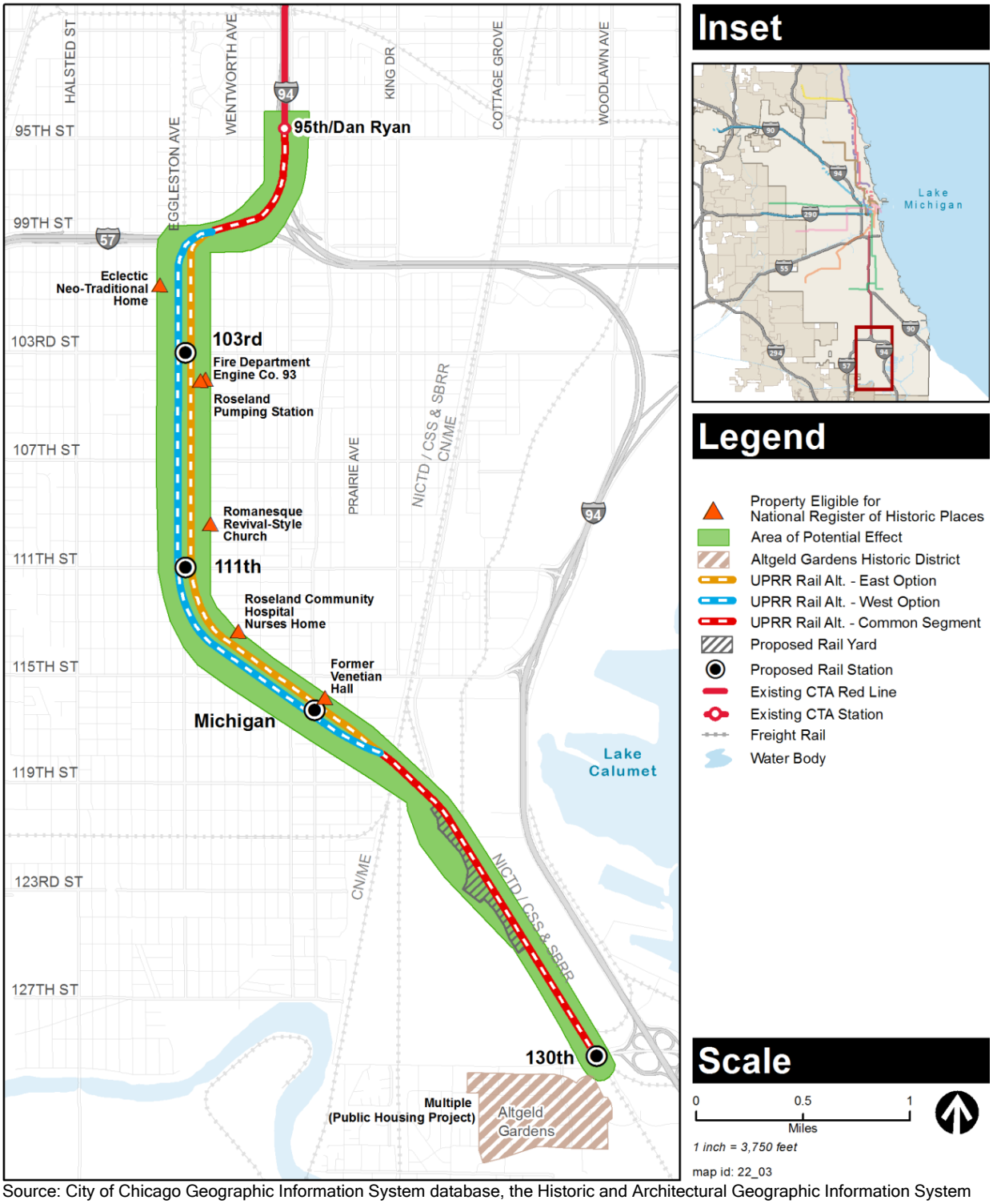
As noted above, CTA developed separate APEs for each alternative considered through the Section 106 consultation process. Based on the further narrowing of alternatives and additional conceptual engineering, FTA and CTA revised the APE accordingly as shown in **Figure 4-24**. The revised APE encompasses no new effects from the UPRR Alternative compared to what was presented during consultation. In correspondence to the SHPO dated September 21, 2016, and as

described in **Section 4.7.4**, FTA described the revised project APE and made the determination that the UPRR Alternative (East and West Options) would result in no adverse effects. The September 21, 2016 correspondence to the SHPO is included in **Appendix Q**. The SHPO's concurrence with FTA's determinations is pending. Coordination with the SHPO will continue through the remainder of the project.

Appendix Q contains a full summary of the meetings, comments received, and responses to comments. The *Eligibility and Effects Summary Report* included as part of **Appendix Q** contains a concise summary of the NEPA Preferred Alternative APE as well as the eligibility and effects determinations made through the development of the project to date. In regards to the NEPA Preferred Alternative, information in the *Eligibility and Effects Summary Report* supersedes the eligibility and effects information provided in the text of the *Historic and Cultural Resources Technical Memorandum* (**Appendix Q**).

4.7.3 Existing Conditions

Figure 4-24 is a map of the revised APE and NRHP-eligible resources for the UPRR Alternative. Generally, the APE contains parcels within one block of the centerlines of the East and West Option alignments, as well as the areas immediately surrounding the park & ride and the yard and shop sites. Within the limits of the APE for the UPRR Alternative, CTA surveyed 280 individual resources. As a result of the field investigations and comments received from consulting parties on potentially eligible resources, 7 total resources were identified for the UPRR Alternative as eligible for inclusion on the NRHP, including 6 individual buildings and 1 historic district. **Table 4-17** summarizes historic resources within the APE. The *Eligibility and Effects Summary Report* (**Appendix Q**) contains a full description of the eligible resources within the APE as well as a discussion of historic and cultural resources that are locally designated.



Source: City of Chicago Geographic Information System database, the Historic and Architectural Geographic Information System database, online mapping resources, State Historic Preservation Office records, and field visits
CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-24: NRHP-Eligible Resources in the Area of Potential Effects

Table 4-17: NRHP-Eligible Resources in the Area of Potential Effects

ID	Address	Description	NRHP Eligibility Criteria	Community Area
1	444 W. 100th Place	Eclectic Neo-Traditional Home (built 1930)	Criterion C	Washington Heights
2	324 W. 104th Street	Fire Department Engine Company 93 (built 1917)	Criterion C	Roseland
3	351 W. 104th Street	Roseland Pumping Station (built 1911)	Criterion C	Roseland
4	10920 S. Princeton Avenue	Romanesque Revival-Style Church (built 1916)	Criteria A and C	Roseland
5	11321 S. Wentworth Avenue	Roseland Community Hospital Nurses Home (built 1930s)	Criterion A	Roseland
6	133-139 E. Kensington Avenue	Former Venetian Hall (built 1925)	Criterion A	Riverdale
7	Multiple (Public Housing Project)	Altgeld Gardens Historic District (built 1945)	Criterion A	Riverdale

NRHP = National Register of Historic Places

Beyond the NRHP-eligible resources, four properties within the APE are identified as notable "Orange" in the CHRS, three of which have also been identified as NRHP-eligible:

- Fire Department Engine Company 93 at 324 W. 104th Street (NRHP-eligible, ID #3)
- Roseland Pumping Station at 351 W. 104th Street (NRHP-eligible, ID #4)
- Romanesque Revival-style church at 10920 S. Princeton Avenue (NRHP-eligible, ID #5)
- St. Salomea Church at 11800–11808 S. Indiana Avenue

These CHRS "Orange"-rated resources are protected by the City's 2003 Demolition-Delay Ordinance. As none of the CHRS "Orange"-rated resources are proposed for demolition under either the East or West Option, this ordinance is not discussed further.

Eight public parks were also surveyed for potential NRHP eligibility, but none were found to be eligible. The *Historic and Cultural Resources Technical Memorandum* (**Appendix Q**) contains additional discussion on public parks surveyed.

A records search was conducted by cultural resource specialists and no known archaeological sites exist within the APE (see also **Appendix Q**). Although the landscape through which the transit lines would pass is developed, additional archaeological sites may remain undiscovered within protected locations such as parks and gardens. Once the project design has been further refined and before the Final EIS is published, archaeological investigations will occur within areas of ground disturbance for the selected option to determine whether potential resources are present. These investigations will follow the guidelines issued by the State of Illinois.

4.7.4 Environmental Consequences

Section 106 regulations state that if there are historic properties in the APE that may be affected by a federal undertaking, the agency official will assess adverse effects, if any, in accordance with the Criteria of Adverse Effect described in 36 CFR § 800.5. As stated in the regulation, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR § 800.5(a)(1)). Effects can be direct, indirect, or cumulative (36 CFR § 800.5(a)(1)). The following sections summarize the potential effects on historic districts and properties that are eligible for NRHP listing. Effects are not separated into temporary construction and permanent categories because adverse effects on historic resources would be permanent regardless of whether they occur during or after construction of the project.

4.7.4.1 No Build Alternative

No adverse effects on historic and cultural resources would result from implementation of the No Build Alternative; therefore, no mitigation measures would be required.

4.7.4.2 Union Pacific Railroad Alternative - East Option

The East Option would cause displacements and visual, noise, and other environmental effects within the APE, but none of these effects would alter the characteristics that qualify any of the identified historic resources for inclusion on the NRHP. No mitigation measures would be required. Because none of the NRHP-eligible resources in the APE would be directly affected (they would not be displaced or altered), each resource was evaluated for potential visual effects from the aerial structure, stations, and parking facilities. **Table 4-18** summarizes the effects findings for each historic resource in the APE for both the East and West Options.

Table 4-18: NRHP-Eligible Resources in the Area of Potential Effects - Union Pacific Railroad Alternative East and West Options

ID	Description	Union Pacific Railroad Alternative East Option Effects Finding	Union Pacific Railroad Alternative West Option Effects Finding
1	Eclectic Neo-Traditional Home	No Historic Properties Affected	No Historic Properties Affected
2	Fire Department Engine Company 93	No Historic Properties Affected	No Historic Properties Affected
3	Roseland Pumping Station	No Adverse Effect	No Historic Properties Affected
4	Romanesque Revival-Style Church	No Historic Properties Affected	No Historic Properties Affected
5	Roseland Community Hospital Nurses Home	No Historic Properties Affected	No Historic Properties Affected
6	Former Venetian Hall	No Historic Properties Affected	No Historic Properties Affected
7	Altgeld Gardens Historic District	No Historic Properties Affected	No Historic Properties Affected

NRHP = National Register of Historic Places

Notes:

A "No Adverse Effect" determination is found when the project's effects would not meet the criteria of adverse effect, the undertaking is modified, or conditions are imposed to avoid adverse effects, as described in **Appendix Q**.

A "No Historic Properties Affected" determination is found when the project would have no impact on a particular historic resource. This language is equivalent to the determination of "No Effect" as used in **Appendix Q**, but has been changed to be consistent with the official Section 106 determination documentation coordination with the SHPO.

Figure 4-25 is a photo simulation of the East Option track structure that would be adjacent to the Roseland Pumping Station. The track structure would be approximately 9 feet west of the Roseland Pumping Station at its nearest point. The final horizontal clearance would be determined in the design phase after property and topographic survey. The pumping station would not be displaced or directly affected by the UPRR Alternative; therefore, the East Option is anticipated to have no adverse effect. The resource was recommended eligible under Criterion C for its architecture as an excellent example of a well-preserved community pumping station designed in the Prairie Style that still functions in its original use. The building retains much of its original design, materials, and workmanship, including its projecting two-story flat-roofed entrance pavilion with geometric limestone details and coping. The proposed project would not affect these characteristics and would preserve the property's entrance approach. The changes in setting and feeling brought on by the proposed project would not detract from the architectural aspects of the building that qualify the resource as eligible for NRHP listing. Pile-driving activities would be avoided in the vicinity of the pumping station.

Figure 4-25: Photo of Existing Conditions and Photo Simulation of the Union Pacific Railroad Alternative East Option Elevated Track Structure adjacent to the Roseland Pumping Station, Facing South on Harvard Avenue

The 130th Street station would be approximately 800 feet from Altgeld Gardens Historic District at its closest point and the parking garage at the 130th Street station would be located at a distance away from Altgeld Gardens where the size of the structure would not create a visual impact; therefore, the 130th Street station and parking garage would not affect the Altgeld Gardens Historic District. **Figure 4-26** shows a view of the 130th Street station and parking structure from Altgeld Gardens.

Figure 4-26: Photo of Existing Conditions and Photo Simulation of the 130th Street Station and Parking Garage, Facing Northeast on E. 130th Place

4.7.4.3 Union Pacific Railroad Alternative - West Option

Like the East Option, the West Option would cause displacements and visual, noise, and other environmental effects within the APE, but none of these effects would alter the characteristics that qualify any of the identified historic resources for inclusion on the NRHP. No mitigation measures would be required.

4.8 Hazardous Materials

This section summarizes the potential for encountering hazardous materials during operation and construction of the UPRR Alternative. Hazardous materials may include petroleum products, pesticides, organic compounds, heavy metals, asbestos-containing materials, lead-based paint, or other compounds that could harm human health or the environment (42 CFR § 9601). The nature and extent of contamination can vary widely. Early detection, evaluation, and determination of

appropriate remediation of hazardous materials are essential to avoid or minimize the potential for hazardous material impacts from the project. The *Hazardous Materials Technical Memorandum* (**Appendix R**) contains additional details. **Table 4-19** summarizes the impact findings related to hazardous materials.

Table 4-19: Hazardous Materials - Impacts Summary

Alternative	Permanent Impacts	Construction Impact
No Build	No impacts	No impacts
Union Pacific Railroad - East Option	Benefits	No adverse impacts
Union Pacific Railroad - West Option	Benefits	No adverse impacts

4.8.1 Regulatory Framework/Methods

Although NEPA requires an evaluation of potential impacts related to hazardous materials, it does not define impact analysis thresholds for determining potential adverse impacts. For the purposes of this impact analysis, a hazardous material impact would be considered adverse if it would result in the following:

- Harm to human health or the environment through the routine transport, use, or disposal of hazardous materials
- Harm to human health or the environment through the accidental release of hazardous materials into the environment

Federal and state laws have been established for the protection of human health and the environment. At the federal level, the regulations include the following: the Resource Conservation and Recovery Act (RCRA) (40 CFR § 239–282); the Comprehensive Environmental Response, Compensation, and Liability Act (42 CFR § 9601); the Superfund Amendments and Reauthorization Act (42 CFR § 9601); the Clean Air Act (42 CFR § 7401); the Toxic Substances Control Act (15 USC § 2601); and the federal Occupational Safety and Health Act (29 USC § 651). At the state level, regulations and programs include the Illinois Environmental Protection Act and the Illinois Occupational Safety and Health Program, with oversight by the Office of the State Fire Marshal. Locally, the City of Chicago Police Department, City of Chicago Fire Department, and Department of Public Health regulate and oversee issues related to hazardous material.

A review of federal, state, and local regulatory databases was conducted by Environmental Data Resources, Inc. (EDR) to identify sites that currently or have historically handled, stored, transported, released, or disposed of hazardous or regulated materials, as these types of sites are potential sources of hazardous material contamination. In addition, historical Sanborn® fire insurance maps, topographic and aerial photographs, and other sources were reviewed for the analysis (EDR 2012a, Historical Information Gatherers, Inc. 2012a, 2012b, and 2012c).

Specific sites within ¼ mile of the project alignment, where hazardous materials are known or suspected to exist, were evaluated for the potential for hazardous materials to be present. Each site was assigned a level of concern based on the following criteria:

- **High Concern** - Sites with known/probable soil, groundwater, or soil gas contamination that have not been remediated, or where remediation was incomplete or undocumented. Other considerations include the type and mobility of any contamination, distance to the project, and groundwater impacts.

- **Moderate Concern** - Sites with known/potential soil, groundwater, or soil gas contamination and where remediation is in progress or was completed with restrictions in place, or contaminants do not appear to pose a concern for the project. Sites may also be considered a Moderate Concern based on the type and intensity of former land use (e.g., chemical manufacturers, machine shops, gas stations, laundromats), even though they did not otherwise have an environmental database listing.

- **Low Concern** - Sites where hazardous materials or petroleum products may have been or are stored, but where there is no known contamination associated with the property based on all available information. They may include hazardous material generator sites, sites with permitted air toxic emissions, or sites with spills or leaks that were subsequently remediated and are no longer a concern.

Polychlorinated biphenyls, lead-based paint, and asbestos-containing material are likely to occur in transformers and buildings constructed before 1978–1979. The evaluation of potential impacts associated with the other sources of hazardous materials was limited to determining whether transformers and buildings potentially constructed before 1978–1979 were present.

4.8.2 Existing Conditions

EDR conducted a search of federal, state, and local environmental regulatory databases on August 10, 2012 to identify potential sites of concern within ¼ mile of the project limits (EDR 2012b). Using the impact analysis criteria described above, CTA reviewed the sites identified by EDR and classified them as High, Moderate, or Low Concerns based on their potential to act as a source of contamination to the project. All sites not identified as High or Moderate Concern sites were classified as Low Concern sites. In addition, the list of orphan sites (sites reported as potentially being in the project area, but which could not be mapped due to inadequate or incomplete address information) was reviewed and when possible, classified. CTA used the historic research review and additional information requested from the Illinois Environmental Protection Agency (IEPA) on specific sites to determine the classification for each site.

The review identified 17 High Concern sites within ¼ mile of the East and West Option alignments (see **Table 4-20** and **Figure 4-27**). These sites have the highest potential to affect the RLE Project. The review also identified 18 Moderate Concern sites and 7 Low Concern sites near the alignment. Because it is unlikely that the Moderate and Low Concern sites would affect the RLE Project, they are not discussed here. **Appendix R** contains additional details about all identified sites.

Table 4-20: Identified High Concern Sites

EDR Site ID[1]	Map ID	EDR Database Site Name	Site Address	Approximate Separation Distance[2]	Databases[3]
8	8	Shell Oil Co.	4 E. 95th Street	250 feet (E and W)	LUST (No. 871758 Non-LUST deter.), UST (3 in use)
10	10	Abbott Park Fieldhouse	49 E. 95th Street	200 feet (E and W)	LUST (No. 932467 open; No. 932446 open), UST (removed), SPILLS[5]
51	51	Illinois Bell Telephone	413 W.105th Street	Adjacent (E); Within (W)	LUST (No. 880112 NFR), UST (3 removed)
70	70	William Ransom Transportation/ Bus Garage	352 W. 110th Street	Within (E); 110 feet (W)	LUST (No. 990399 open), UST (removed), SPILLS, RCRA-CESQG, ERNS
81	81a	Pentecostal Temple Church Of God	415 to 419 W. 111th Street	85 feet (E); 75 feet (W)	LUST (No. 912233 open; No. 913417 open), SPILLS, RCRA-SQG
103	103	Cox, Donna	2 W. 115th Street	175 feet (E); NA (W)	LUST (No. 980685 open; No. 201110008 open), UST (2 exempt), SPILLS
104	104	Triangle Transmission	35 W.115th Street	Within (E); 130 feet (W)	LUST (No. 992324 open), UST (2 exempt), SPILLS, RCRA-SQG
105	105	City of Chicago/ Abandoned Service Station	11500 S. Perry Avenue	160 feet (E); Within (W)	LUST (No. 20002342 non-LUST determination), UST (4 exempt)
122	122	Stuart Industrial Coatings, Inc.	11740 S. Front Street	Within (E and W)	LUST (No. 900054 open)
135	135	Lake Calumet Smelting	11901 S. Champlain Avenue	500 feet (E and W)	CERCLIS (referred to removal - NFRAP)
143	143	Bulkoa Inc./ Schneider Tank Lines, Clean Harbors Env. Services/ Bulkoa, Inc.	11861 S. Cottage Grove Avenue	290 feet (E and W)	LUST (No. 971905 NFR), UST (4 removed, 3 exempt), RCRA-CESQG
147	147a	Quala Services, LLC	803 E.120th Street	325 feet (E and W)	RCRA-LQG (violations), SPILLS
151, 162	151/ 162	Keywell, LLC	11900 Cottage Grove Avenue	Within (E and W)	LUST (No. 902351 NFR; No. 942202 non-LUST determination), UST (2 removed), SPILLS, RCRA-CESQG
200	200	MWRD Metropolitan Water Reclamation Di/Calumet Water Reclamation Plant	400 E.130th Street	Within (E and W)	UST (3 in use), RCRA-CESQG
Orphan[4]	O1	US Scrap	123rd Street and Cottage Grove Avenue	1,000 feet (E and W)	UST (3 in use), RCRA-CESQG

EDR Site ID[1]	Map ID	EDR Database Site Name	Site Address	Approximate Separation Distance[2]	Databases[3]
Orphan[4]	O3	Metro Sanitary District #3	125th Street and Doty Avenue	350 feet (E and W)	CERCLIS-NFRAP (archived)
Orphan[4]	O4	Penn Central Corp	810 E.124th Street	Within (E and W)	SSU (transferred to IEPA's Office of Site Evaluation)
		Lake Calumet Quad			CERCLIS-NFRAP (archived)

[1] Environmental Data Resources, Inc. (EDR) Site ID is the site ID number provided in the EDR database report included with the *Hazardous Materials Technical Memorandum*. More than one site has the same EDR Site ID; therefore, each High Concern site was given a unique "Map ID," used in **Figure 4-27**.

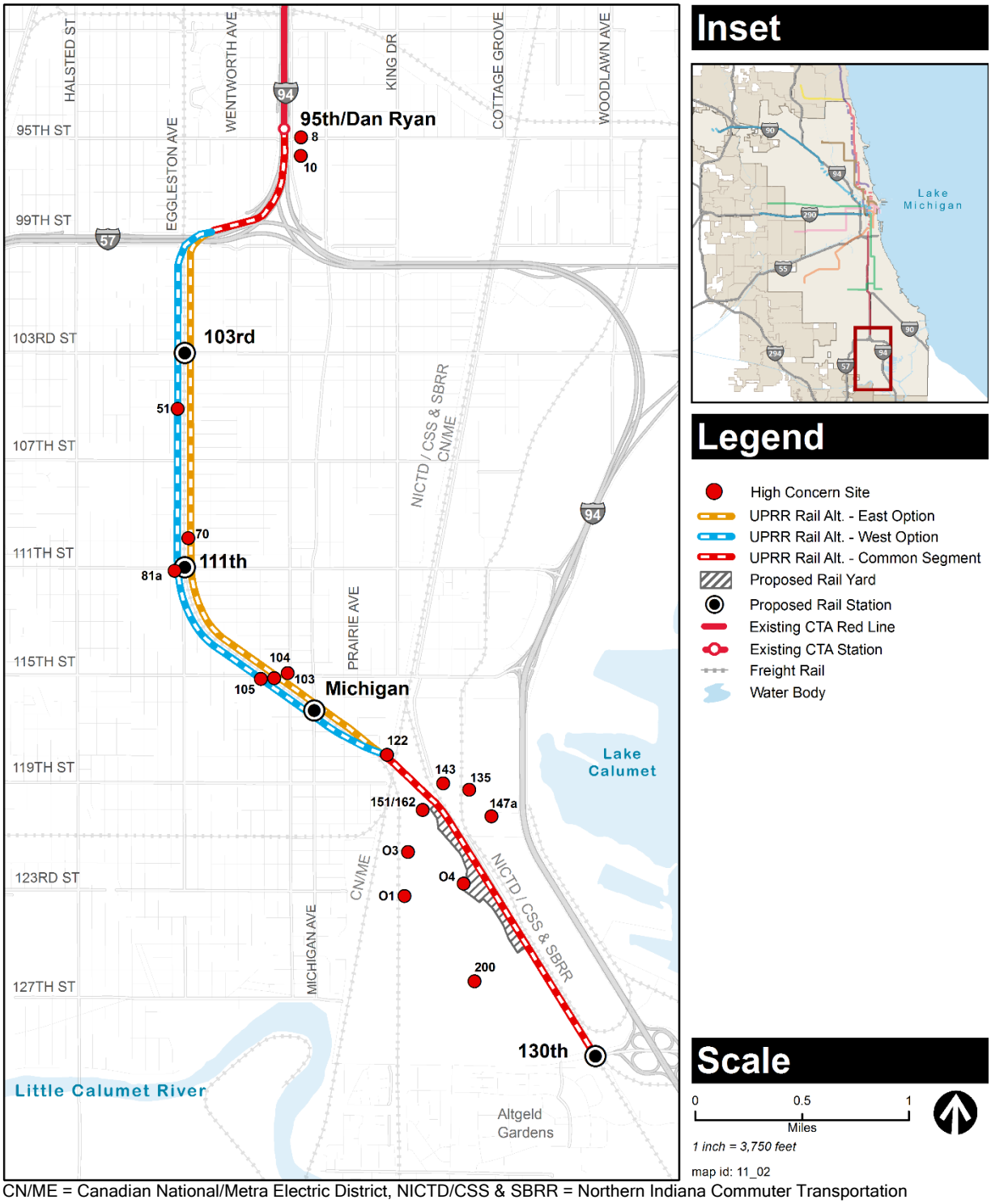
[2] Separation distance is measured from the edge of the permanent envelope for an alternative. "Within" means the site would be inside the permanent envelope. E=East Option, W=West Option, NA = High Concern classification is not applicable to that option.

[3] The databases listed are those that contributed information relevant to the site's designation as a High Concern site. See the *Hazardous Materials Technical Memorandum* (**Appendix R** of this Draft EIS) for more information.

[4] Orphan sites are reported as potentially being in the project area but could not be mapped due to inadequate or incomplete address information.

CERCLIS = Comprehensive Environmental Response, Compensation and Liability Information System, CESQG = conditionally exempt small quantity generators, ERNS = Emergency Response Notification System, IEPA = Illinois Environmental Protection Agency, LQG = large quantity generator, LUST = leaking underground storage tank, NFR = No Further Remediation, NFRAP = No Further Remedial Action Planned, NPL = National Priority List, PRP = potentially responsible party, RCRA = Resource Conservation and Recovery Act, SPILLS = Spill Incident List, SQG = small quantity generator, SRP = Site Remediation Program, SSU = State Sites Unit, UST = underground storage tank

The majority of these sites were classified as High Concern due to both their proximity (typically inside or within 500 feet of an alternative's permanent envelope) and being listed in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), or being listed as RCRA Corrective Action Sites, CERCLIS-No Further Remedial Action Planned Sites (CERCLIS-NFRAP), Illinois State Sites Unit Listing (SSU) sites, and/or as open Leaking Underground Storage Tank (LUST) sites or Site Remediation Program (SRP) sites. Open LUST or SRP sites have not been issued a No Further Remediation (NFR) letter from the IEPA, which indicates that a release has been identified but remediation is likely not complete.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-27: Identified Sites of Concern

4.8.3 Environmental Consequences

The following sections summarize the potential impacts of each alternative from hazardous materials.

4.8.3.1 No Build Alternative

No adverse construction or permanent impacts related to hazardous materials would occur as part of the No Build Alternative. Potential benefits of remediation associated with the UPRR Alternative would not occur with the No Build Alternative.

4.8.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

CTA identified six High Concern sites (Map IDs 70, 104, 122, 151/162, 200, and O4) within the permanent envelope of the East Option, three of which (Map IDs 151/162, 200, and O4) are within the proposed 120th Street yard and shop site. In addition, CTA identified nine High Concern sites (Map IDs 8, 10, 81a, 103, 135, 143, 147a, O1, and O3) within approximately 1,000 feet of the edge of the permanent envelope for the East Option. Although these nine High Concern sites are not within the permanent envelope, based on their designation and proximity to the permanent envelope they are identified as High Concern.

Implementation of the East or West Option would result in benefits through the cleanup and/or removal of contaminated material (soil, groundwater, and/or asbestos and lead-based paint particles) during construction. Without implementation of a project alternative, this cleanup and removal would occur either at a later date or not at all.

The project's daily operations or maintenance activities that require earthmoving in contaminated areas would have the potential to result in permanent hazardous material impacts from accidental spills or hazardous material releases. Spills are most likely to occur during activities such as equipment and grounds maintenance. Materials typically used for these activities include fuel, oil, paints, solvents, cleaning agents, herbicides, and pesticides. Examples of maintenance that could require earthmoving include at-grade track repair, underground utility work, and foundation repairs, although these activities are not expected to occur within the first 10–20 years.

The East and West Options also have the potential for additional hazardous material impacts associated with the NICTD/CSS & SBRR. Due to the proximity of the NICTD/CSS & SBRR to the UPRR Alternative alignments, hazardous material spills or releases that occur along these railroads would have the potential to migrate and affect the UPRR Alternative project area. These materials potentially exist along the railroad currently, but the UPRR Alternative would bring transit vehicles closer to them. Spills along the NICTD/CSS & SBRR could occur from the use of chemicals for ground maintenance along the tracks. In addition, because these are freight lines, releases could occur from creosote used to preserve wood railroad ties; polynuclear aromatic compound deposition from diesel exhaust; asbestos dust from brakes; and previous releases of coal ash from engines. Freight lines might also transport hazardous material cargo, which could be released if there were a spill or accident. Releases from adjacent freight lines could affect transit passengers or operations. If adjacent freight lines have a release of hazardous materials, transit operations may need to be stopped to avoid traveling through the release area. First responders would follow the procedures and protocols for hazardous materials incidents established by the Hazardous Materials Unit of the City of Chicago Fire Department.

Impacts associated with the adjacent freight lines would be reduced by the freight lines' adherence to federal hazardous material transport regulations (49 CFR § 171–180) that among other things, specify requirements for the safe transportation of hazardous materials by rail and require rail carriers to conduct a security and safety risk analysis, to develop a security and safety risk plan that includes measures to mitigate risk to population centers, and to select the safest route.

The East Option would not have permanent adverse impacts related to hazardous materials.

Mitigation - Although there would be no permanent adverse impacts related to hazardous materials as part of the East Option, CTA would adhere to all applicable federal, state, and local regulations, as well as existing system-wide hazardous material usage, storage, and disposal plans and procedures, further minimizing the potential for hazardous material impacts.

Construction Impacts

Construction of the East or West Option would include subsurface excavation, which would result in the generation of a large quantity of soil that could contain contaminated materials requiring off-site disposal. The source of the contaminated materials could be sites identified in the database, through the historic records review, or from the presence of urban fill. Hazardous materials typically used during construction, such as paints, solvents, fuels, and hydraulic fluids, could also be released accidentally during construction. In addition, there is the potential for encountering contaminated groundwater during construction.

Construction may require the demolition of existing structures that were likely constructed before 1978–1979. These structures may contain asbestos-containing material and lead-based paint that could result in a release of asbestos fibers and lead dust during construction.

The East Option would include construction within the UPRR corridor, which is potentially already affected because of its historic long-term use as a railroad corridor. Maintenance and operation of railroad corridors typically include the use of fuel, oil, paints, herbicides, pesticides, creosote, polynuclear aromatic hydrocarbons, and coal. High and Moderate Concern sites are the greatest potential sources of hazardous material impacts. There would be adverse construction-related impacts associated with the East Option but the impacts would be mitigated by implementing the BMPs and standard practices discussed below.

Mitigation - CTA would follow federal, state, and local laws and regulations regarding hazardous materials before and during construction. The following BMPs, at a minimum, would be implemented before and during construction to avoid and minimize the potential for impacts before and during construction:

- Phase I Environmental Site Assessments (ESAs) would be conducted of any property to be purchased as part of the selected option to identify recognized environmental conditions and assess and limit environmental liability. Phase I ESAs would be completed to evaluate the presence of contamination and to develop appropriate measures to deal with hazardous materials during construction. Based on the Phase I ESA findings, a Phase II ESA (or focused site assessment) could also be required before purchasing a property.

- Focused site assessments would be required for areas where earthmoving activities would occur and on properties purchased for the project. The assessments would include characterization and evaluation of the potential for encountering hazardous materials and contaminated soils.

- Asbestos, lead-based paint, and hazardous material surveys of buildings or structures would be required before reconstruction or demolition, to identify any asbestos, lead-based paint particles, and hazardous materials, such as polychlorinated biphenyl or mercury-containing equipment. Any asbestos, lead-based paint, and hazardous materials identified would be abated and disposed of in accordance with federal, state, and local regulations. Removal, abatement, and disposal of these materials will be completed by specialists that are trained and certified to conduct such activities.

The following specific and required plans would be developed before construction to further minimize or avoid the potential for hazardous material impacts:

- A Contaminated Material Management Plan that provides the procedures for identifying, characterizing, managing, storing, and disposing of contaminated soil and groundwater encountered during construction activities would be required. The plan would comply with all applicable federal and state cleanup standards and would cover the entire project area, as it is assumed that all material has at least some level of contamination associated with it.

- Spill Control and Prevention Plans to address the use, storage, and disposal of materials such as asphalt, fuel, paint, solvents, and cleaning agents would be required. The Spill Control and Prevention Plans would provide BMPs to limit the potential for accidental releases of potentially hazardous materials.

- Construction Stormwater Pollution Control Plans, which describe methods to prevent or minimize stormwater runoff from encountering contaminated soil or other hazardous materials, would be required.

- Health and Safety Plans for construction activities would be developed by the contractors and approved by CTA before starting any work. The Health and Safety Plans would identify potential contaminants of concern, required personal protective equipment and procedures, and emergency response procedures.

Construction-related impacts would not be adverse after the implementation of the BMPs and standard practices.

Impacts Remaining After Mitigation

After these BMPs and standard practices are implemented, the East Option would not have permanent or construction-related adverse impacts due to hazardous materials. Implementation of the East Option could also result in benefits through the cleanup and/or removal of contaminated material during construction.

4.8.3.3 Union Pacific Railroad Alternative - West Option

Permanent Impacts

Permanent impacts related to the West Option would be similar to those of the East Option with the exception that the West Option would operate adjacent to and west of the UPRR freight railroad. CTA identified six High Concern sites (Map IDs 51, 105, 122, 151/162, 200, and O4) within the permanent envelope of the West Option, three of which (Map IDs 151/162, 200, and O4) are within the proposed 120th Street yard and shop site. In addition, CTA identified nine High Concern sites (Map IDs 8, 10, 81a, 103, 135, 143, 147a, O1, and O3) within approximately 1,000 feet of the edge of the permanent envelope for the West Option. Although these nine High Concern sites are not within the permanent envelope, based on their designation and proximity to the permanent envelope they are identified as High Concern.

Due to the proximity of the UPRR and NICTD/CSS & SBRR to the UPRR Alternative alignments, hazardous material spills or releases that occur along these railroads would have the potential to migrate and affect the UPRR Alternative alignment, as described above for the East Option. These materials potentially exist along the railroad currently, but the UPRR Alternative would bring transit vehicles closer to them.

There would be no permanent adverse impacts associated with the West Option related to hazardous materials.

Construction Impacts

Construction-related impacts associated with the West Option would be the same as those described for the East Option. Construction-related impacts would not be adverse after the implementation of the BMPs and standard practices.

Impacts Remaining After Mitigation

After the BMPs and standard practices discussed in **Section 4.8.3.2** are implemented, the West Option would not have permanent or construction-related adverse impacts due to hazardous materials. Implementation of the West Option could also result in benefits through the cleanup and/or removal of contaminated material during construction.

4.9 Wetlands

This section describes the impacts of the East and West Options on potential wetlands. The *Water Resources Technical Memorandum* (**Appendix S**) includes additional details, along with the wetland delineation report. **Table 4-21** summarizes the impacts on potential wetlands.

Table 4-21: Wetlands - Impacts Summary

Alternative	Permanent Impacts	Construction Impacts
No Build	No impacts	No impacts
Union Pacific Railroad - East Option	Impacts would be mitigated through compensatory mitigation, if required.	Impacts would be mitigated through compensatory mitigation, if required.
Union Pacific Railroad - West Option	Impacts would be mitigated through compensatory mitigation, if required.	Impacts would be mitigated through compensatory mitigation, if required.

4.9.1 Regulatory Framework/Methods

Executive Order 11990 directs federal agencies to minimize the destruction, loss, or degradation of wetlands. It also assures the protection, preservation, and enhancement of the nation's wetlands to the fullest extent practicable during the planning, construction, funding, and operation of transportation facilities and projects.

The Illinois Interagency Wetlands Policy Act of 1989 (the Act [20 ILCS § 830 et seq.]) is intended to ensure that there is no overall net loss of Illinois' existing wetland acres or their functional values resulting from State-supported activities. The Act charges State agencies with a further duty to "preserve, enhance, and create wetlands where necessary to increase the quality and quantity of the State's wetland resource base." The Act uses the same definition for wetlands as in the 1987 U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* used by federal agencies in implementation of the federal Clean Water Act. All three parameters (hydric [wet] soils, hydrophytic [growing in water] vegetation, and wetland hydrology) are required for a location to be considered a wetland; however, areas that have been restored or created as the result of mitigation or planned construction projects, and that function as wetlands, are also defined as wetlands under the Act even when all three wetland parameters are not yet present.

For this Draft EIS, an impact would be adverse if it would cause the destruction, loss, or degradation of wetlands, including any net loss of their functional values; or cause any discharges of dredged or fill material into wetlands.

CTA reviewed existing data sources to evaluate potential impacts on wetlands. Wetland data was obtained from the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI). The NWI data is very general and is intended to give the user reconnaissance-level information. Several areas identified by NWI as wetlands in the project area were not deemed wetlands after the field review. To help locate wetland sites that may have been missed by the NWI, CTA used the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey website, where available, to locate areas of potentially hydric soils. CTA also reviewed the Illinois Ecological Compliance Assessment Tool (EcoCAT) to identify resources mapped by Illinois Department of Natural Resources (IDNR).

CTA conducted a general field reconnaissance on August 8, 2012 to identify the potential presence and condition of wetlands within the project area. This reconnaissance-level wetland assessment confirmed the presence of potential wetland areas, and the potential extent was estimated from aerial photographs.

CTA contacted USACE in October 2012 for additional information about the wetlands in the vicinity of Lake Calumet. Many areas around Lake Calumet are highly disturbed and wetland delineation is difficult. USACE acknowledged that in many areas the soils are disturbed or imported and may not exhibit typical wetland characteristics. In these situations, USACE often relies on vegetation and hydrology as wetland indicators.

CTA conducted a field reconnaissance of the entire project area and identified potential wetlands in only the areas near the 130th Street station and the 120th Street yard and shop. CTA then completed a wetland delineation of the areas identified as containing potential wetlands and applied the general procedures detailed in the 1987 USACE *Wetland Delineation Manual* and the 2010 *Regional Supplement-Midwest Region*. Data collected included information on soils,

hydrology, and vegetation. Surveys were conducted in August 2015, during the growing season, and vegetative species were identified.

During the wetland delineation, these areas were inspected, and data was collected on plant species and hydrology to identify wetland boundaries. In most cases in these areas, the existing gravel and fill precluded investigation of the soil profile; therefore, wetland delineations were based primarily on the presence of wetland vegetation and hydrology. The wetland delineation identified areas that meet the USACE criteria for wetlands.

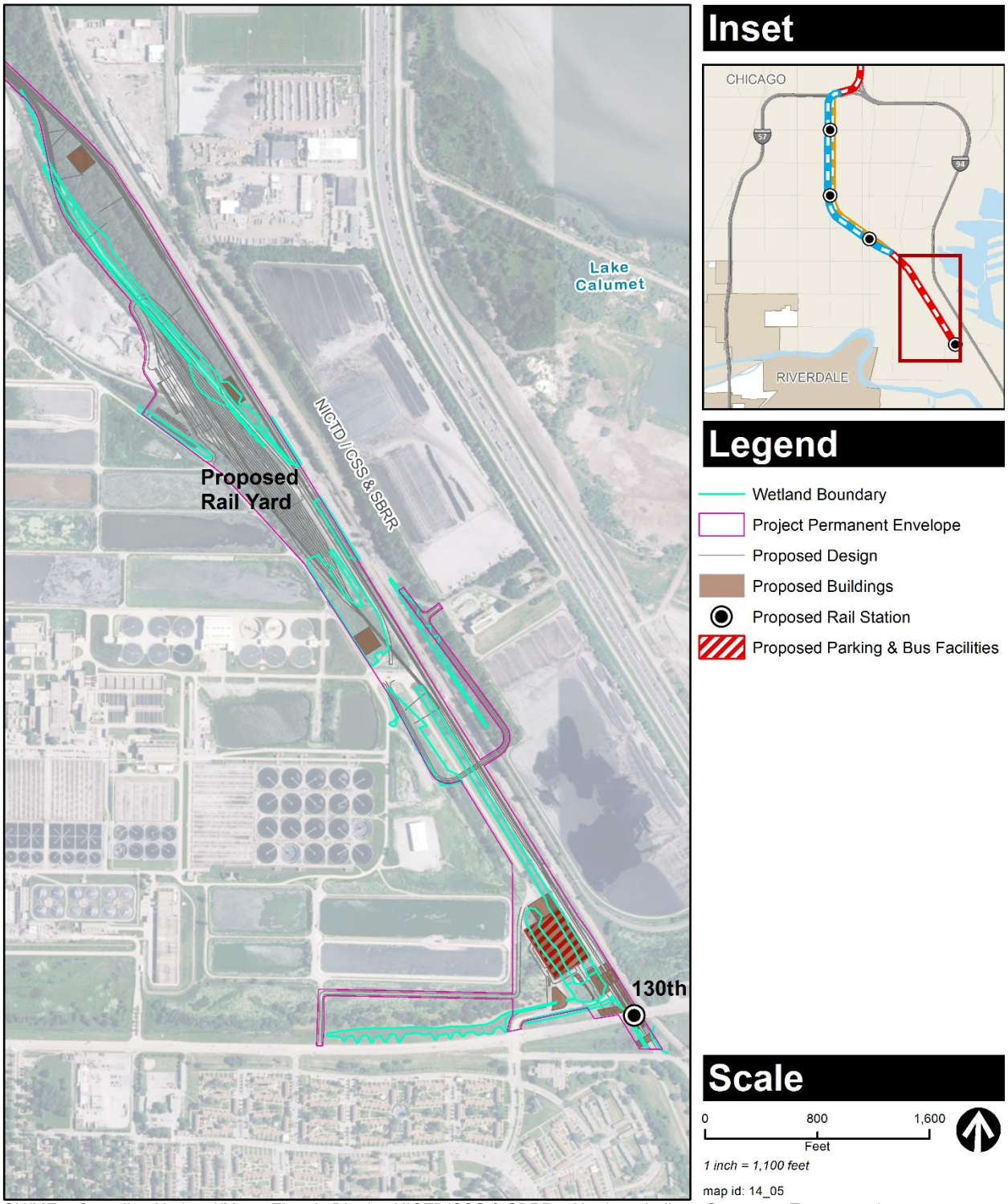
A native vegetative quality rating was calculated for each wetland using the Floristic Quality Assessment (FQA) method (Swink and Wilhelm 1994). The FQA method calculates an index of the native vegetative quality for an area with higher values assigned to areas that support a greater preponderance of native plant species. Areas that are vegetated predominantly with nonnative or invasive species get a lower FQA value even though they may still meet the definition of a wetland.

The NEPA analysis would support the permit application and review in compliance with wetlands regulations as appropriate. Wetland delineations are generally only valid for 5 years because environmental conditions may change. If more than 5 years have lapsed at the time of permit application submittal, the wetland delineation would be reconfirmed concurrent with final design. In addition, wetland regulations at the federal, state, and local levels may change and some wetlands that may be considered isolated or part of a drainage system may or may not be regulated at the time of final design. Permit requirements would include the provision of compensatory mitigation if regulated wetlands would be affected. CTA will coordinate with the local USACE district. The analysis presented here and in the *Water Resources Technical Memorandum* (**Appendix S**) identifies potential wetland impacts; actual impacts would likely be smaller because additional measures to avoid impacts would be applied in final design. Design elements such as steeper side slopes on areas that need to be filled can often be applied during final design to reduce potential wetland impacts. Because the magnitude of these reductions cannot be predicted at this stage of design, the entire wetland area within the project footprint is assumed to be potentially affected.

Compensatory mitigation is required under the 2008 Clean Water Act Section 404 Final Compensatory Mitigation Rule for wetland impacts and is intended to replace lost aquatic resource functions and area with the goal of "no net loss" of wetlands (U.S. Environmental Protection Agency [USEPA] 2008). Compensatory mitigation should take place on public or private land at or adjacent to the impact site or at another location generally within the same watershed where it is most likely to replace lost functions.

4.9.2 Existing Conditions

Based on the results of the wetland delineation, CTA identified 15 wetland areas totaling 15.34 acres of potentially affected wetlands at the site of the 130th Street station and the 120th Street yard and shop, shown in **Figure 4-28** (see also **Appendix S**, *Water Resources Technical Memorandum*, for more detailed mapping of potential wetland impacts).



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 4-28: Wetland Delineation Map

The soils and topography near the site of the proposed 130th Street station and 120th Street yard and shop appear to be highly disturbed and likely include material imported from other locations. Railroad ties and potential slag were identified throughout the area. The compacted soils prevented the investigation of soil profiles or the identification of hydric soil characteristics; therefore, the wetland delineation was based primarily on the presence of wetland vegetation and hydrology in this disturbed area.

The area surveyed has flat topography; there were no obvious drainages and there were depressions with some standing water. The flat topography, combined with the highly compacted soils, likely holds water at the surface for the required two weeks in the spring growing season, leading to the preponderance of wetland vegetation observed. Wetland hydrology indicators observed included standing water or soil saturation in the root zone (in August 2015), sediment deposits, sparsely vegetated concave surfaces, water marks, algal mat or crust, water-stained leaves, and drainage patterns.

All wetland areas identified throughout this area are of low floristic quality and wetland function. Most of the wetlands are dominated by common reed (*Phragmities australis*), often in dense monotypic stands. There are no High Quality Aquatic Resources in the project area or mapped on adjacent properties. Fill and other manmade features define most of the wetland boundaries. On June 2, 2016, FTA and CTA requested a jurisdictional determination from USACE to determine whether the wetlands are jurisdictional under the Clean Water Act or are isolated wetlands of Cook County. Coordination with USACE is ongoing. Wetland boundaries will be reconfirmed at the time of the permit application, concurrent with final design.

4.9.3 Environmental Consequences

The following sections summarize the potential impacts of each alternative on wetlands.

4.9.3.1 No Build Alternative

There would be no permanent or construction impacts on wetlands as a result of the No Build Alternative.

4.9.3.2 Union Pacific Railroad Alternative - East Option

Permanent Impacts

The East Option could affect up to 15.34 acres of wetlands at the 120th Street yard and shop site and the 130th Street station site. The precise quantity of wetlands potentially affected would be reconfirmed based on the actual footprint to be determined in final design.

Mitigation - If there are jurisdictional wetlands and they cannot be avoided, CTA would provide compensatory mitigation. After compensatory mitigation, there would be no adverse permanent impacts on potential wetlands. The preference for compensatory mitigation would be to purchase credits from a mitigation bank or to participate in a USACE-approved in-lieu fee program. Approved mitigation banks would be reviewed at the time of final design to identify ones that include the project area in their service areas and which have available credits. If there are no suitable mitigation banks or in-lieu fee programs available, then compensatory mitigation would be provided through a mitigation project sponsored by CTA. CTA-sponsored compensatory mitigation would take place on public or private land at or near the impact site or at another location generally within the same watershed where it is most likely to replace lost functions.

There are several areas associated with the Little Calumet River that appear to have been disturbed or filled by past industrial activities that could be restored as compensatory mitigation.

Impacts on wetlands would be mitigated through implementation of any of the potential compensatory mitigation measures discussed above.

Construction Impacts

Compensatory mitigation would be needed for construction-related, temporary impacts on wetlands. Construction staging areas would be sited outside of wetlands as much as possible, but if there were any temporary impacts, those areas would be restored as wetlands after construction.

Impacts Remaining After Mitigation

Impacts on wetlands would be mitigated through implementation of any of the potential compensatory mitigation measures discussed above.

4.9.3.3 Union Pacific Railroad Alternative - West Option

Permanent and construction impacts on potential wetlands, and associated mitigation, from the West Option would be the same as with the East Option because the potential wetlands would be within the common segment of the UPRR Alternatives; see the East Option **Section 4.9.3.2**.

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Chapter 5
Indirect and Cumulative Impacts

While the other chapters of this Draft EIS provide analysis and findings on direct impacts of the project, NEPA also requires the consideration of the potential indirect and cumulative impacts of federally funded projects.

5.1 Regulatory Framework/Methods

Indirect impacts, also known as secondary impacts, are defined under 40 CFR § 1508.8. As defined, indirect impacts are caused by the project or plan, but are separated from direct impacts by time and/or distance (yet still in the foreseeable future). Indirect impacts include induced growth and related environmental impacts, such as changes to land use patterns, population density or growth rates, and related impacts on air quality, water and other natural systems. Cumulative impacts are defined under 40 CFR § 1508.7 as the aggregate result of the incremental direct and indirect effects of a project or plan, the effects of past and present actions, and impacts of reasonably foreseeable future actions by others on resources of concern.

CTA used the following guidance documents in determining the potential for indirect and cumulative impacts:

- *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (USEPA 1999)
- *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality [CEQ] 1997)
- *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ 2005)
- *National Cooperative Highway Research Program (NCHRP) Report 466 - Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (Transportation Research Board 2002)

To determine the potential indirect impacts of this project, CTA followed the eight-step method described in the NCHRP Report 466. The project area boundary for the analysis was based on all proposed elements of the project, including construction limits and proposed property acquisitions. For the analysis, CTA reviewed the findings from the environmental resource analyses to properly evaluate the potential for indirect impacts on land use, transportation, and economic development plans and goals, as well as to identify notable or sensitive resources such as community facilities, historic resources, and other vulnerable or unique resources. The potential for and impacts of induced growth that could result from this project were then determined through a qualitative assessment of changes in growth and development expected as a result of the increases in transit accessibility from the project. Based on these factors, a determination was made on the potential and magnitude of impacts that could result from the project and whether those impacts would be consistent with surrounding growth, trends, and goals within the project area.

To identify the potential for cumulative impacts, CTA followed the 11-step method identified in CEQ guidance to meet best practice methods for conducting this type of analysis. Areas within ½

mile of the project corridor (consistent with other analyses conducted for this Draft EIS) were used to evaluate the potential for indirect effects. CTA reviewed applicable current and future regional and local plans.

5.2 Existing Conditions

The project area encompasses a diverse mix of land uses including residential, commercial, and light industrial as described in **Chapters 2, 3, and 4**.

Reasonably foreseeable projects include projects identified in *GO TO 2040*, the TIP, and known private development and redevelopment projects in the project area. The *Cumulative Impacts Technical Memorandum* (**Appendix T**) presents a list of projects in the project area and analyzes the potential cumulative impacts in more detail. CTA reviewed the FY 2014–2019 TIP database to determine whether any new projects would have the potential for cumulative impacts, as those projects were not included in the *Cumulative Impacts Technical Memorandum*. None of the FY 2014–2019 TIP projects would have the potential to have cumulative impacts with the RLE Project.

The specific projects discussed in this section have the potential for cumulative impacts when considered with the RLE Project. The projects that were considered were within the general RLE Project area, anticipated to be completed before the start of RLE Project construction in 2022, or that may be under construction during the RLE Project's proposed construction period of 2022–2026. Projects identified in *GO TO 2040* were also considered. The analysis was based on known projects from information available from CTA, the City of Chicago, CMAP, the Chicago Region Environmental and Transportation Efficiency Program (CREATE), IDOT, the Illinois State Toll Highway Authority, Metra, and NICTD.

Past, present, and reasonably foreseeable future actions within the project area that have the potential for benefits or impacts include the following:

- The CREATE 75th Street Corridor Improvement Project would provide improvements in the UPRR corridor. CREATE would increase freight volumes by its forecasted 2029 build year. Full implementation of CREATE would increase the number of passenger and freight trains using the UPRR tracks by 21 trains per day. CREATE projections include an increase in passenger trains from two to four trains per day by 2029 within the UPRR corridor.

- Metra's Southeast Service (SES) expansion project consists of 33.2 miles of proposed rail line from LaSalle Street station to a terminal near Balmoral Park. The rail line would run along the following four existing railroad rights-of-way: joint UPRR/CSX Transportation freight corridor from Balmoral Park to Dolton junction, UPRR from Dolton junction to Oakdale junction, Chicago Rail Link from Oakdale junction to Gresham interlocking, and Metra Rock Island District from Gresham interlocking to LaSalle Street station. Ten new stations and additional service at three existing stations (existing Rock Island District stations) are proposed. The SES would, if implemented, run along the UPRR tracks adjacent to the East or West Option alignment.

- NICTD is studying the West Lake Corridor Project, an approximately 9-mile alignment that would extend the NICTD South Shore Line from Dyer, Indiana to Hammond, Indiana. The project would connect with the existing NICTD South Shore Line and the ME Line, providing

new transit service between Dyer and Millennium station in downtown Chicago. The West Lake Corridor Project alignment would run through the east side of the RLE Project area.

- The Red and Purple Modernization (RPM) Program is a series of proposed improvements to the North Red Line (from just north of Belmont station to the northern terminus of the Red Line at Howard station) and the Purple Line (from just north of Belmont station to Linden station). These improvements would increase passenger capacity and modernize transit stations, track systems, and structures along the 9.6-mile RPM corridor from just north of Belmont station to the northern terminus at Linden station, passing through the Lakeview, Uptown, Edgewater, and Rogers Park community areas of Chicago, the City of Evanston, and the Village of Wilmette.

- The Crown Commercial Real Estate & Development - Roseland Plaza redevelopment would be adjacent to the Michigan Avenue station location. The proposal includes a strip mall within a 91,000-square-foot property with 250 parking spaces. There would be 49,000 square feet of commercial space, which would include a grocery store, pharmacy, clothing store, and a bank. The City's Community Development Commission designated the developer in February 2005. The City approved the sale of its land and land write-down costs in May 2009. The developer modified its proposal and received approval of its Planned Development application from the Chicago Plan Commission in October 2011.

- The Pullman Historic District was declared a National Monument on February 19, 2015. The park is on the east side of the RLE Project area. The designation as a National Monument under the National Park Service is expected to bring economic opportunities to the surrounding communities.

5.3 Environmental Consequences

5.3.1 No Build Alternative

The No Build Alternative is defined as the existing transportation system plus any committed transportation improvements that are already in the FY 2014–2019 TIP. TIP projects consist of several road improvement projects including resurfacing and coordination of signal timing, work on Metra's ME district facilities to replace catenary lines, construction of a bicycle/pedestrian multi-use trail south of the project area, and preservation of historic facilities.

Indirect Impacts

The lack of improved transportation options and lack of new infrastructure would do little to reverse the disinvestment in the project area that has occurred over the past several decades.

Cumulative Impacts

The RPM Program, West Lake Corridor Project, and SES line are reasonably foreseeable actions that would result in beneficial air quality impacts because they would increase ridership, which would reduce trips made by vehicles. The cumulative impacts would result in a reduction of air emissions and would be beneficial. The air quality benefits of the No Build Alternative would be smaller in scale than for the East or West Option.

5.3.2 Union Pacific Railroad Alternative - East Option

Indirect Impacts

Implementation of the East Option would have the potential for indirect benefits to the project area economy. There would be potential for redevelopment from new employment accessibility, attraction of new development near RLE stations, and overall livability improvements. The private sector would likely perceive the East Option as a public-sector commitment to improve the overall project area and regain confidence in the area's economic development market. The retail and commercial space on the ground floor of the Michigan Avenue station's park & ride facility, combined with the proposed Roseland Plaza north of the station site, would help prompt greater social activity in the neighborhood and enhance the station's role as a focal point of community activity and services. The station and retail improvements may contribute to a southward expansion of the current commercial and entertainment district along Michigan Avenue between 111th and 113th Streets.

Cumulative Impacts

The CREATE 75th Street Corridor Improvement Project would provide improvements in the UPRR corridor. CREATE would increase freight volumes substantially by its forecasted 2029 build year. Because the UPRR freight traffic would remain and is projected to increase under the East Option, freight trains would have potential safety and accessibility impacts on pedestrian and vehicular traffic. The addition of more vehicular and pedestrian traffic accessing the proposed stations would increase the potential for safety and accessibility impacts near the proposed stations. Freight traffic could affect travel times for bus service to the station and could increase delays for passengers who choose to use the park & ride facilities. If the frequency of freight trains increases, the amount of time that the gates are down to accommodate the freight train movements would also increase, and vehicular traffic could be delayed while waiting for the trains to pass.

In addition to the expected increase in automobile and pedestrian traffic volumes as a result of the RLE Project when compared to the No Build Alternative, the full implementation of CREATE would increase the number of trains using the UPRR tracks from 27 to 48 per day (train volumes include both freight and passenger trains). The proposed Metra SES Project, if implemented, could also increase the number of passenger trains per day on the line beyond the existing two Amtrak trains per day. The increase in train volumes could correlate to an increase in potential crash frequency at highway-rail grade crossings. This increase in crash potential would be an adverse impact at the existing highway-rail grade crossings along the UPRR tracks at 101st Street, 103rd Street, 107th Street, 109th Street, 111th Street, Wentworth Avenue, 115th Street, and State Street. All of these crossings currently have gates on both roadway approaches and have flashing lights. Crash potential could be further mitigated by installing safety protection technologies for vehicles to prevent drivers from going around the gates. If warranted by an engineering traffic study, CTA may install traffic signals to mitigate pedestrian safety impacts. To further mitigate impacts and improve pedestrian safety, CTA would consider installation of security surveillance cameras, alarm notifications (e.g., flashing blue lights), sidewalk lighting in the immediate vicinity of station entrances, pedestrian crossing treatments, such as refuge medians with appropriate signage, and police patrols. To mitigate adverse safety impacts at the roadway-railroad grade crossings, CTA would install safety cameras and would consider installing additional passive or active safety devices to enhance the safety devices that are already in place at the existing grade crossings. Additional audible warning devices or non-mountable curbs are examples of other

safety measures for at-grade railroad crossings. CTA would install fencing to deter pedestrians from crossing the freight railroad tracks in places other than the designated locations.

The West Lake Corridor Project would run through the east side of the RLE Project area and might accommodate a future connection between the NICTD South Shore Line and the Red Line near the 130th Street station. The combination of the RLE Project and the West Lake Corridor Project would provide additional transit options for people commuting to downtown Chicago.

The RPM Program, West Lake Corridor Project, and SES line are reasonably foreseeable actions that would result in beneficial air quality impacts because they would increase ridership, which would reduce trips made by automobiles. The cumulative impacts with the implementation of the East Option would result in a reduction of air emissions and would be beneficial.

The permanent cumulative impacts of these projects would be beneficial to the surrounding communities because they would improve access to jobs, places of interest, and residences. The potential for an increase in crash frequencies at the at-grade crossings would be mitigated by installing additional grade crossing protection that would prevent vehicles and pedestrians from going around the crossing gates. CTA anticipates the incremental impact from reasonably foreseeable future actions to be more efficient mobility and access to jobs, retail, and places of interest within the project corridor for Chicago residents and visitors. CTA expects that over a period of time retail establishments and places of interest would benefit from the more efficient access to their locations.

5.3.3 Union Pacific Railroad Alternative - West Option

Indirect Impacts

The indirect impacts under the West Option would be the same as those described for the East Option.

Cumulative Impacts

Cumulative impacts with the West Option would be similar to those of the East Option; however, it is anticipated that vehicular and pedestrian impacts would be fewer than with the East Option based on the locations of the park & ride facilities in relation to the proposed station areas.

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Chapter 6
Resources with Limited or No Adverse Impacts

This chapter describes the environmental resource categories for which the RLE Project would have limited or no adverse impacts. Based on the nature of these resource areas, impacts would be similar for both the East and West Options and are therefore discussed together.

6.1 Air Quality

Under authority of the Clean Air Act (42 USC § 7401) and its amendments, the USEPA has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants to protect the public health and welfare. The IEPA maintains a statewide network of monitoring stations that continuously measure pollutant concentrations in the ambient air. These stations provide data to assess compliance with the NAAQS and the Illinois Ambient Air Quality Standards (IAAQS) and to evaluate the effectiveness of pollution control strategies. The maximum ambient concentrations for these pollutants were measured at representative monitoring stations nearest the project corridor for calendar year 2011. Except for one exceedance of the 8-hour ozone (O_3) at the Lawndale Street station, there were no exceedances in the project area of any of the NAAQS or IAAQS in 2011.

Because the RLE Project is in a "Moderate" O_3 nonattainment area, it is FTA's responsibility, as the federal funding agency, to ensure that the proposed project conforms to the Illinois State Implementation Plan. Conformity is demonstrated by showing that the proposed project is included in a conforming Regional Transportation Plan and a TIP. The RLE Project is included in a conforming Regional Transportation Plan, CMAP's *GO TO 2040*, and a corridor-wide emissions inventory analysis. It is therefore not necessary to demonstrate transportation conformity at the regional level. An air quality assessment of the localized air quality impact of the UPRR Alternative was completed because the project is adding new service that could change local vehicle miles traveled[7] (VMT) and emissions.

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 project area, the results of the air quality analysis apply equally to the East and West Options, as well as to the 120th Street yard and shop. That is, it makes no difference in the analysis whether the Red Line trains would be on the east side or on the west side of the UPRR right-of-way; the pollutant

[7] Annual VMT, which is an output of CMAP's Regional Travel Demand Model (CMAP 2012c), is the total number of miles driven by all vehicles during 1 year in a defined a geographic area.

emissions would be the same in each case. In addition, the air pollutant emissions associated with the 120th Street yard and shop would not be substantial. The UPRR Alternative, both East and West Options, are therefore discussed together here.

CTA trains run on electricity; therefore, they cause no direct emissions. Their electricity comes from the electric utility grid, which may include local, fossil-fueled power plants. An increase in indirect emissions due to electrical power consumption by the Red Line trains would be expected with the UPRR Alternative. The UPRR Alternative would not result in an exceedance of the carbon monoxide (CO) standards, and because its implementation would reduce VMT, it would therefore slightly improve greenhouse gas (GHG) emissions, particulate matter with an aerodynamic diameter of 2.5 micrometers and less ($PM_{2.5}$) impacts, and mobile source air toxics emissions as compared to the No Build Alternative.

CTA conducted CO dispersion modeling at three "worst-case" intersections, based on LOS and total traffic volumes in 2030 during the peak hour, as required by USEPA guidance (USEPA 1992). The maximum 1-hour and 8-hour CO concentrations were compared to the NAAQS for CO to determine impacts. Modeling determined that the UPRR Alternative alignment would not exceed the federal standards of 35 parts per million (ppm) for the 1-hour concentration or 9 ppm for the 8-hour concentration.

CTA conducted a quantitative assessment of project-related GHG benefits and/or impacts on climate change to reflect the changes in GHG emissions based on differences in VMT, travel speed, fuel consumption, and delay along the project corridor (see **Appendix U** for additional information). The quantitative assessment determined that the East and West Options would have slightly lower estimated GHG emissions as compared to the No Build Alternative.

Emissions from construction equipment would occur during site preparation activities such as grading, installing curbs, or grubbing and removal of vegetation to prepare a site for construction. Impacts during construction would be primarily associated with fugitive dust and emissions from on-road and non-road vehicles. The equipment producing these emissions could include haul trucks, concrete trucks, front-end loaders, excavators, cranes, drill rigs, compressors, flatbed trucks, and generators. Short-term exposure (i.e., 1-hour averaging period) to nitrogen dioxide (NO_2) can worsen the effect of allergens in allergic asthmatics and can contribute to atmospheric discoloration. Long-term exposure (i.e., annual averaging period) can lead to increased respiratory symptoms and medication use in asthmatics, emergency room visits for asthma in children, hospitalization for respiratory and cardiovascular disease, and premature mortality. IEPA has strict guidelines for controlling fugitive dust (by BMPs), diesel particulate emissions (by exhaust emission controls and use of low-sulfur fuels), and GHG emissions (by limiting equipment operations such as excessive idling and by using alternative fuels). In addition, the contractor would follow Chicago's Clean Diesel Construction Ordinance, which would further reduce the potential for construction-related air quality impacts.

Construction activities can also result in traffic disruption, rerouting, and temporary shutdown of traffic. Traffic disruption, such as detours or decreased roadway capacity, can lead to increased traffic congestion, thereby increasing motor vehicle exhaust emissions on nearby roadways, and resulting in elevated localized pollutant concentrations.

Mitigation - The following mitigation measures would be implemented:

- Work would be sequenced to minimize air quality impacts on adjacent roadways and commercial and residential buildings due to traffic disruptions during construction. Alternate routes would be planned for construction-related truck traffic, creating temporary detours for regular roadways where capacities have been diminished, providing traffic control, routing trucks away from residential neighborhoods, and restricting construction activities during hours of high traffic volumes on the existing roadways. Contractors would also consider locations of schools, parks, and daycares when deciding where to route local traffic and construction equipment, and to the extent possible, route traffic away from places where children congregate.

- A Dust Control Plan would be prepared to address in detail how dust would be controlled at the construction site, the staging areas, and the access and egress routes.

- All diesel-powered equipment and vehicles would be required to be retrofitted with emissions control devices and to use ultra-low-sulfur diesel fuel (15 ppm sulfur maximum) to control diesel particulate emissions.

- Contractors would retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.

- Contractors would position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing fume exposure for personnel.

- Contractors would use catalytic converters to reduce CO, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low-sulfur fuels.

- Contractors would use enclosed, climate-controlled cabs pressurized and equipped with high-efficiency particulate air filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. High efficiency particulate air filters would filter incoming air.

- Contractors would regularly maintain diesel engines, which is essential to keep exhaust emissions low. Contractors would follow the manufacturer's recommended maintenance schedule and procedures.

- Contractors would reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.

- Contractors would repower older vehicles and/or equipment with diesel- or alternative-fueled engines certified to meet newer, more stringent emissions standards. Contractors would purchase new vehicles that are equipped with the most advanced emission control systems available.

- Contractors would use electric starting aids such as block heaters with older vehicles to warm their engines to reduce diesel emissions.

- CTA would require the contractor to develop a plan (including a truck queuing plan) and schedule to allow construction trucks to enter and exit the construction sites and staging areas without excessive disruption and impacts on residences and commercial establishments.

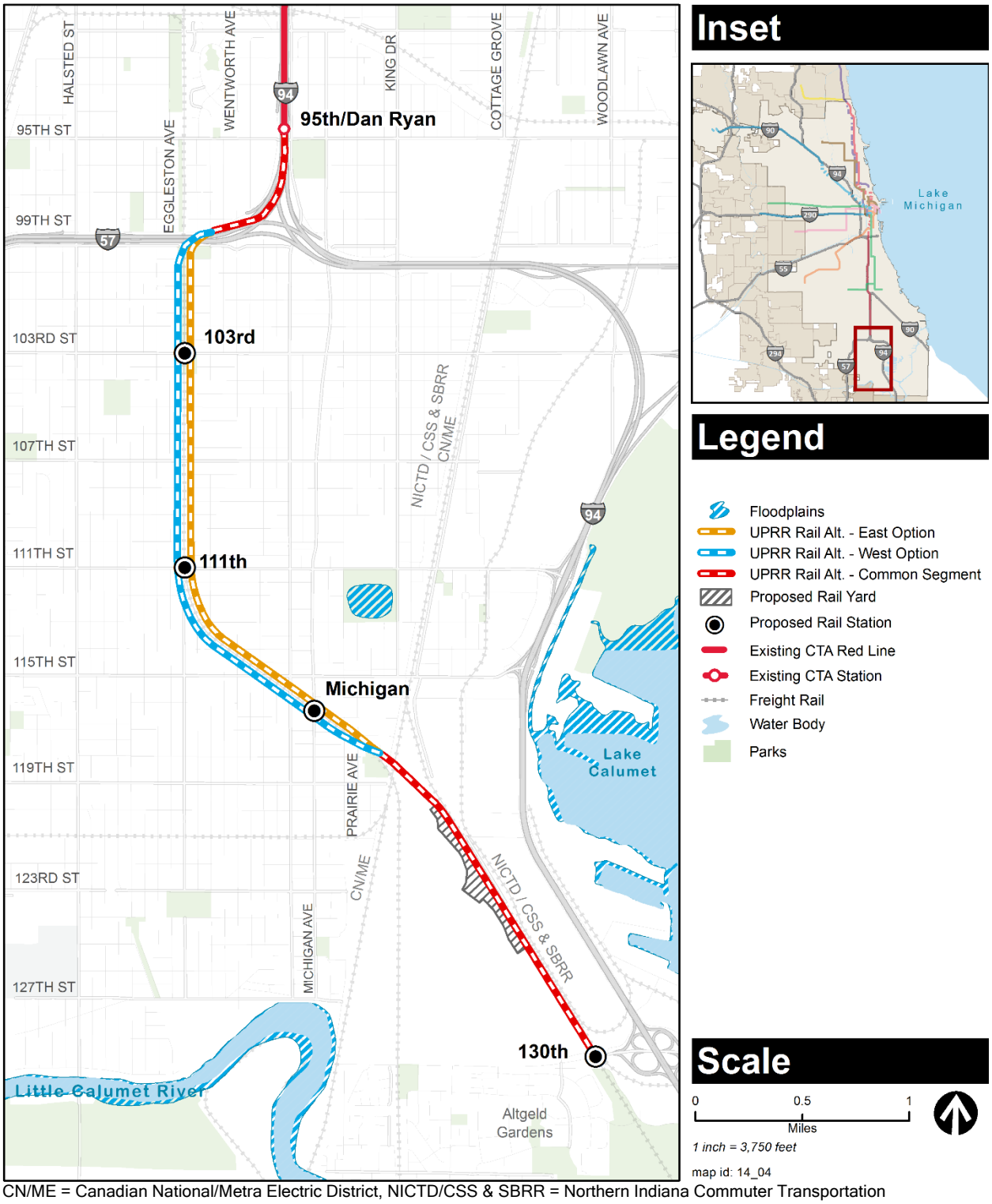
The UPRR Alternative would not have permanent adverse air quality impacts. With the use of appropriate construction-related mitigation measures as described above, no violations of the IAAQS or NAAQS would be anticipated for the UPRR Alternative. With appropriate mitigation measures in place, no adverse air quality impacts due to construction activities would be anticipated with this alternative. The *Air Quality Technical Memorandum* (**Appendix U**) contains additional details.

6.2 Water Quality

The Clean Water Act (33 USC § 1251) establishes the basic structure for regulating discharges of pollutants into waters of the United States and gives the USEPA the authority to implement pollution control programs and actions, such as setting wastewater standards for industries. Section 10 of the Rivers and Harbors Act of 1899 (33 USC § 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. Sole source aquifers are regulated under 40 CFR § 149.

Lake Michigan is the dominant topographic feature in the region and is approximately 4.8 miles from the project area at its closest point near the UPRR Alternative alignment. Lake Calumet is in the eastern portion of the project area, and the Little Calumet River flows west along the southern boundary of the project area. The Little Calumet River is on Illinois 303(d) list (a list of waters where water quality is impaired or threatened); it is listed as impaired for mercury, polychlorinated biphenyls, aldrin, iron, dissolved oxygen, total phosphorus, and silver (IEPA 2012). IEPA has not yet developed a Total Maximum Daily Loads analysis for this segment of the Little Calumet River system. Neither the East Option nor the West Option would cross or come in contact with any local water bodies.

Lake Michigan is the drinking water source for Chicago and its suburbs. Groundwater is not a drinking water source and there are no sole source aquifers within the project area (USEPA 2012). Due to the predominance of impervious surfaces throughout the project area, minimal percolation to the underlying groundwater occurs. **Figure 6-1** shows waterbodies near the project area.



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: Ducks Unlimited 2012, Federal Emergency Management Agency 2008

Figure 6-1: Waterbodies and Floodplains in the Project Area

The No Build Alternative would have no adverse impacts on water resources. The East or West Option would have minimal adverse impacts on water resources. Stormwater drainage may be affected by the proposed structure; however, the alterations would not greatly affect the direction of drainage. Dewatering activities during construction could temporarily affect local groundwater levels. Contaminated groundwater encountered during construction would be disposed of properly in accordance with federal, state, and local regulation. Construction could increase erosion and sedimentation near construction areas. The use of construction BMPs would mitigate these potential impacts. The project would involve reconstruction of impervious surfaces, but would not result in a net change of impervious area, because the project area is heavily urbanized. While the potential exists for minor construction-related impacts, as described above, the East and West Options would have few or no adverse impacts on water quality; therefore, no mitigation measures would be required beyond BMPs currently followed by CTA.

The *Water Resources Technical Memorandum* (**Appendix S**) contains additional details.

6.3 Floodplains

Presidential Executive Order 11988 requires the protection of floodplains. The Executive Order directs federal agencies to avoid conducting, allowing, or supporting actions on a floodplain. The existing floodplains within the project area have been identified using the Federal Emergency Management Agency Flood Insurance Rate Maps. **Figure 6-1** shows the mapped floodplains within the project area. The UPRR Alternative would not cross a floodplain or result in any new structures or construction in a floodplain. Flooding would not affect the project. There would be no impacts on floodplains from the East or West Option.

6.4 Vegetation and Wildlife Habitat

Vegetation and wildlife habitats are regulated on the federal level by the Endangered Species Act (16 USC § 1531), Migratory Bird Treaty Act (16 USC 703–712), Fish and Wildlife Coordination Act (16 USC § 661–667e), and the Bald and Golden Eagle Protection Act (16 USC § 668–668c).

The vegetation and wildlife habitat investigation assessed existing biological resources in the project area and evaluated potential impacts on these resources. CTA reviewed the IDNR EcoCAT report to identify special-status plants and animals and Illinois Natural Areas Inventory (INAI) sites with the potential to occur in the project area (IDNR 2012). The IDNR EcoCAT database identified the Lake Calumet INAI Site near Lake Calumet east of the UPRR Alternative alignment. There are no national wildlife refuges within 0.5 mile of the East or West Option alignments (U.S. Fish and Wildlife Service 2012b).

CTA reviewed aerial photographs and identified all areas within ¼ mile of the UPRR Alternative alignment that appeared to contain approximately ½ acre or more of contiguous habitat cover. (In a heavily urbanized area, ½ acre provides a minimum amount of cover where wildlife not generally found in residential yards might be found.) During the field investigation, CTA visited and evaluated all of these areas. With the exception of the forested habitats (approximately 13 acres) in the vicinity of the 120th Street yard and shop site, it was determined that none of these areas would support wildlife communities that are substantially different from those of the surrounding residential and commercial areas.

The East and West Options have the potential to require the removal of trees. Trees occur in a narrow band immediately adjacent to the proposed track location, in the vicinity of the proposed 120th Street yard and shop, and at properties along the alignment. The narrow bands of trees along the northern portion of the alignment have a lower value to wildlife than blocks of habitat; therefore, removal of these bands of trees would have minimal impacts on wildlife. Along the southern portion of the alignment, the East and West Options have the potential to affect blocks of habitat. The East Option would affect approximately 61 acres of potential habitat and the West Option would affect approximately 67 acres of potential habitat. Tree removal in any part of the project area might affect birds protected under the Migratory Bird Treaty Act (16 USC § 703–712), and depending on what part of the project area the trees are in, tree removal might also be regulated by local ordinances. When applications for local construction permits are made it may be necessary to prepare more detailed tree inventories and update the results of this investigation because some trees may have been removed and others may have grown to a size that would be protected by local tree ordinances.

The East and West Options would have the potential to have adverse impacts on vegetation and wildlife habitat during construction due to tree removal; however, with the implementation of mitigation measures outlined below, potential impacts would not be adverse. Mitigation measures would be required for compliance with the Migratory Bird Treaty Act, for consistency with local tree protection ordinances, and to reduce potential impacts on wildlife habitat. Bird species may use trees that could be removed or disturbed during construction and could be affected. Potential mitigation measures would include the following:

- Tree removal would be timed as much as possible to occur outside the migratory bird nesting season, which occurs generally from April 1–September 15 and as early as March 1 for some species.

- If tree removal must occur during the nesting season, two biological surveys would be conducted: one 15 days before and a second 72 hours before the construction that would remove or disturb suitable nesting habitat. The surveys would be performed by a biologist with experience conducting breeding bird surveys. The biologist would prepare survey reports documenting the presence or absence of any protected bird in the habitat to be removed and any other such habitat within 300 feet of the construction work area. If a protected bird were found, surveys would be continued to locate any nests. If an active nest were located, construction within 300 feet of the nest would be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting.

- Avoidance measures would be incorporated into the design of the project during preliminary engineering where feasible; however, if construction of the project were to require removal of a protected tree, a permit would be required in accordance with applicable codes and ordinances of the City of Chicago. Tree removal permits may require replanting of protected trees within the project area or at another location to mitigate for the removal of these trees. Replanting would be done according to the ratios required by tree removal permits and in a size that is appropriate for the species and setting as determined by an arborist. In addition, planted trees would be maintained such that 90 percent are in good condition after 6 months and irrigation would be carried out until the tree is established.

The *Biological Resources Technical Memorandum* (**Appendix V**) contains additional details.

6.5 Threatened and Endangered Species

The Endangered Species Act (16 USC § 1531) and subsequent amendments provide for the conservation of threatened and endangered species and the ecosystems upon which they depend. There are 114 federal- and state-listed species that potentially occur in Cook County (U.S. Fish and Wildlife Service 2012a). CTA also reviewed the IDNR EcoCAT report for information about known occurrences of listed species within the project area. The IDNR EcoCAT database recorded occurrences of seven state-listed species within the sections that encompass the project area, including black-crowned night heron (*Nycticorax nycticorax*), Blanding's turtle (*Emydoidea blandingii*), common moorhen (*Gallinule chloropus*), little blue heron (*Egretta caerulea*), peregrine falcon (*Falco peregrinus*), yellow-crowned night heron (*Nyctanassa violacea*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). These recorded occurrences were not within the project area, so CTA compared each species' habitat requirements to the existing habitats within the project area. CTA conducted reconnaissance-level field verification of identified habitat areas to confirm the presence or absence of threatened and endangered species and their habitats within the project area. The field investigation included parks and other public open spaces within ¼ mile of the proposed alignment, stations, and maintenance yard.

CTA identified no federal-listed species in the project area. The only state-listed species with a potential to occur in the project area is the peregrine falcon. There is no suitable habitat for species identified by the EcoCAT database in the project area except for the peregrine falcon. There are no known nesting pairs of peregrine falcons in the project area (Field Museum 2015). In addition, there is no part of the project area that would be expected to provide unique or particularly rich foraging habitat for peregrine falcons. The semi-natural habitats in the vicinity of the 120th Street yard and shop site, and large parks and open spaces might, however, be expected to provide slightly greater foraging opportunities for falcons than elsewhere in the project area.

Neither the East nor West Option would have adverse permanent or construction-related impacts on state- or federal-listed animal and plant species. No mitigation measures for listed species would be required. The *Biological Resources Technical Memorandum* (**Appendix V**) contains additional details.

6.6 Geology and Soils

CTA reviewed existing data on geology, soil, and topography to understand the general geologic setting and identify the locations of geologic hazards that could result in substantial damage to structures or infrastructure or could expose people to substantial risk of injury and to determine potential impacts of the East and West Options. CTA reviewed soil boring and water well logs, geologic maps of Cook County and of Illinois published by the Illinois State Geological Survey, U.S. Geological Survey (USGS) topographic maps, and geologic maps and reports from USDA NRCS. To identify adverse impacts, CTA also considered the project area's proximity to any identified geologic hazards and the potential severity of those hazards. The potential for impacts exists because earthwork activities (such as excavation and grading that occur during construction) can cause soil erosion, affect soil stability, and create topographic disturbances. Potential adverse impacts due to ground settlement, which can occur during both construction and operation, were also considered.

Local topography is generally flat and typically varies less than 50 feet, with a minimum elevation of 590 feet and a maximum elevation of 625 feet above sea level. Bedrock underlying the project

area is present at variable depths, ranging from 50 to 100 feet below ground surface. The region has been subjected to tectonic movements; however, the local area does not show evidence of faults or substantial earthquakes (USGS 2002). The project area is underlain by urban land complexes, which are identified as soil that has been disturbed (such as fill material) (USDA NRCS 2012). CTA would perform a geotechnical investigation as part of the preliminary design of the selected option. Some aspects of preliminary plans and design may need revisions based on results of the geotechnical investigation.

Operation or construction of the East or West Option would not have adverse impacts on geologic or soil resources, because all of the features of the options would be located primarily on or within existing transportation use areas such as streets and railroad corridors. No mitigation measures would be required.

6.7 Energy

The Energy Policy Act of 2005 (Public Law 109–58) includes transportation-related provisions that reduce reliance on foreign energy sources (mainly petroleum) and increase use of recovered mineral content in federally funded projects involving procurement of cement or concrete.

CTA evaluated potential energy impacts and benefits associated with construction and operation of the RLE Project. Changes related to the project—in travel patterns and mode choice within the regional transportation network—have the potential to result in changes in net energy demand.

Analysis of long-term energy consumption changes included regional transportation-related energy consumption based on VMT and transit operations. As people choose to use improved transit instead of driving automobiles, VMT can be reduced. Transit operations use energy for vehicle propulsion and operation of stations. The baseline energy consumption was determined from the total regional VMT for the No Build Alternative in 2030, as estimated by CMAP's Regional Travel Demand Model (CMAP 2012c). The VMT was converted to British thermal units (BTU) using 3,650 BTU per vehicle mile traveled, a value derived from an estimated achieved fuel economy of 34.5 miles per gallon for cars and light trucks in 2025 from Corporate Average Fuel Economy standards (National Highway Traffic Safety Administration 2012). Either the East or West Option would result in lower regional VMT than with the No Build Alternative, and would thus result in less vehicular energy consumption than the No Build Alternative.

CTA calculated operational energy consumption based on the total additional annual rail car miles and the average kilowatt-hour per revenue car mile provided by CTA. Kilowatt-hours were then converted to BTU. Station energy was calculated based on similar CTA Red Line elevated stations in 2010.

The projected annual transportation-related energy consumption in the region for the No Build Alternative is approximately 368 trillion BTU, based on output from CMAP's Regional Travel Demand Model (CMAP 2012c). The projected regional travel demand for the East and West Options is marginally smaller than for the No Build Alternative; the East or West Option would result in 11.4 to 19.6 million fewer annual VMT than the No Build Alternative. The difference in projected energy use (regional transportation plus transit operations) between the East or West Option and the No Build Alternative would not be greater than the margin of error for regional modeling.

The East and West Options would require energy for operations. The net difference in energy use for either option would be less than +/- 0.02 percent, which is smaller than the margin of error for regional modeling. The difference in energy use between the East and West Options and the No Build Alternative (368 trillion BTU for regional vehicular travel in 2030) would be negligible. Operation of the East and West Options would not have an impact on regional energy consumption. While the difference in energy use would be negligible, this analysis shows there would be no adverse energy impact associated with the East or West Option.

CTA evaluated construction energy consumption for the East and West Options to determine the short-term impacts of the project on regional energy use. Capital cost estimates were used to determine the construction energy consumption by applying an energy cost factor from *Energy and Transportation Systems* (California Department of Transportation 1983). Energy was expressed using BTU. Energy use includes both manufacture of components and construction to install the components. Energy would be required for construction of either the East or West Option.

Energy would be used for the production of the guideway and station components (including steel, cement, copper, and glass). Energy would also be used for the operation of construction equipment. Energy use by construction equipment would be localized and temporary. Construction energy use for the East and West Options includes construction of elevated structures and stations. The East Option would use approximately 6,130 billion BTU for construction and the West Option would use approximately 6,170 billion BTU for construction.

The one-time irreversible commitment of energy resources for construction would amount to less than 1.2 percent of the total annual energy consumption for Cook County, which is 530 trillion BTU (CNT Energy 2009). Construction of either option would not have an impact on energy consumption in the Chicago Metropolitan Area, Cook County, or the project area.

Because the RLE Project would not have an impact on regional energy consumption, no mitigation measures are proposed. The *Energy Technical Memorandum* (**Appendix W**) contains additional details.

Chapter 7
Environmental Justice

Environmental justice (EJ) is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (USEPA 2004). This chapter summarizes the EJ analysis and outreach conducted for this project. The *Environmental Justice Technical Memorandum* (**Appendix X**) provides additional details.

The project area consists entirely of minority communities, some of which are also low-income areas. All of the benefits and impacts of the project would occur within these minority and low-income populations (EJ populations). Few benefits would occur outside of the minority and low-income areas. As such, both the East and West Options would have impacts on EJ populations; however, none of the impacts would be disproportionately high and adverse. FTA and CTA have undertaken outreach and ongoing coordination with affected communities to identify EJ populations, discuss project impacts and benefits, and mitigation measures where relevant.

7.1 Regulatory Framework/Methods

Federal agencies are required to consider the potential for disproportionately high and adverse impacts on EJ populations that could result from all programs, policies, and activities (Executive Order 12898). As described in Executive Order 12898, a disproportionate impact is one that would negatively affect EJ populations to a greater extent than non-EJ populations. In accordance with FTA guidance, including the August 2012 FTA Circular 4703.1 (*Environmental Justice Policy Guidance for Federal Transit Administration Recipients*), the EJ process and analysis for the RLE Project were designed to accomplish the following:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental impacts, including social and economic impacts, on EJ populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by EJ populations.

CTA performed the EJ analysis in compliance with Executive Order 12898 (1994), USDOT Order 5610.2(a) (2012), and FTA Circular 4703.1 (2012). **Appendix X** contains additional details regarding federal, state, and local EJ regulations.

CTA performed the analysis of the potential for disproportionate impacts on EJ populations using the following steps:

1. Demographic Analysis and Initial Community Outreach
    - CTA used socioeconomic data from the 2010 Census and the American Community Survey to describe the population in the project area. Income, ethnicity, employment, age, housing characteristics, disability, and English proficiency were used in conjunction with

field observations and stakeholder interviews to help identify the presence of EJ populations.

- CTA collected information about elderly and disabled populations in accordance with the laws of the State of Illinois. CTA identified distinct elderly populations using a 50 percent threshold in accordance with the Illinois Environmental Justice Act. Disability statistics were compiled from 2010 Census data and American Community Survey data at the block group level to include individuals with a sensory, physical, or mental disability or other condition that limits activities of daily living. CTA then compared these statistics to citywide averages. Information on elderly and disabled populations was also overlaid onto the federally protected minority and low-income community areas to provide additional information on elderly populations and people with disabilities within the project area.

- **Section 7.2** summarizes the data analysis, and **Appendix X** contains the limited English proficiency (LEP) analysis. The project area consists of predominantly minority populations, with some concentrations of low-income groups. CTA also identified pockets of Spanish-speaking populations, indicating the need for outreach in both English and Spanish languages.

2. Environmental Analysis to Identify Adverse Impacts and Benefits

   - All of the benefits and impacts of the project would accrue to the same EJ populations. The EJ-specific environmental analysis focused on identifying all adverse impacts and mitigation measures of the East and West Options because they would both affect EJ populations.

   - Benefits that would offset the potential impacts were also identified and included in the analysis. Identification of additional mitigation measures specifically for EJ purposes would not be necessary for the RLE Project, because none of the impacts would be disproportionately high and adverse. No additional mitigation measures—beyond those identified in **Chapters 3, 4, 5, and 6** of this Draft EIS—would be needed to meet EJ requirements. **Section 7.4** presents the results of the EJ analysis.

3. Engagement with EJ Populations in the Public Outreach and Decision-Making Process

   - The stakeholder interview process and CTA's ongoing community relations efforts helped identify effective outreach methods. As described in **Chapter 10**, traditional outreach methods such as public meetings and comment periods were augmented by nontraditional outreach. Nontraditional activities included website postings, presentations to local community groups, e-mail and direct mail newsletters, and one-on-one meetings with elected officials and community group leaders. Per the LEP analysis, CTA provided Spanish translation of meeting handouts and Spanish and sign language interpreters at open house meetings. In addition, CTA maintains a project-specific e-mail address to receive comments and requests to receive updates on the project. **Section 7.3** and **Chapter 10** summarize the outreach process.

4. Incorporation of Input from EJ Populations into the NEPA Process

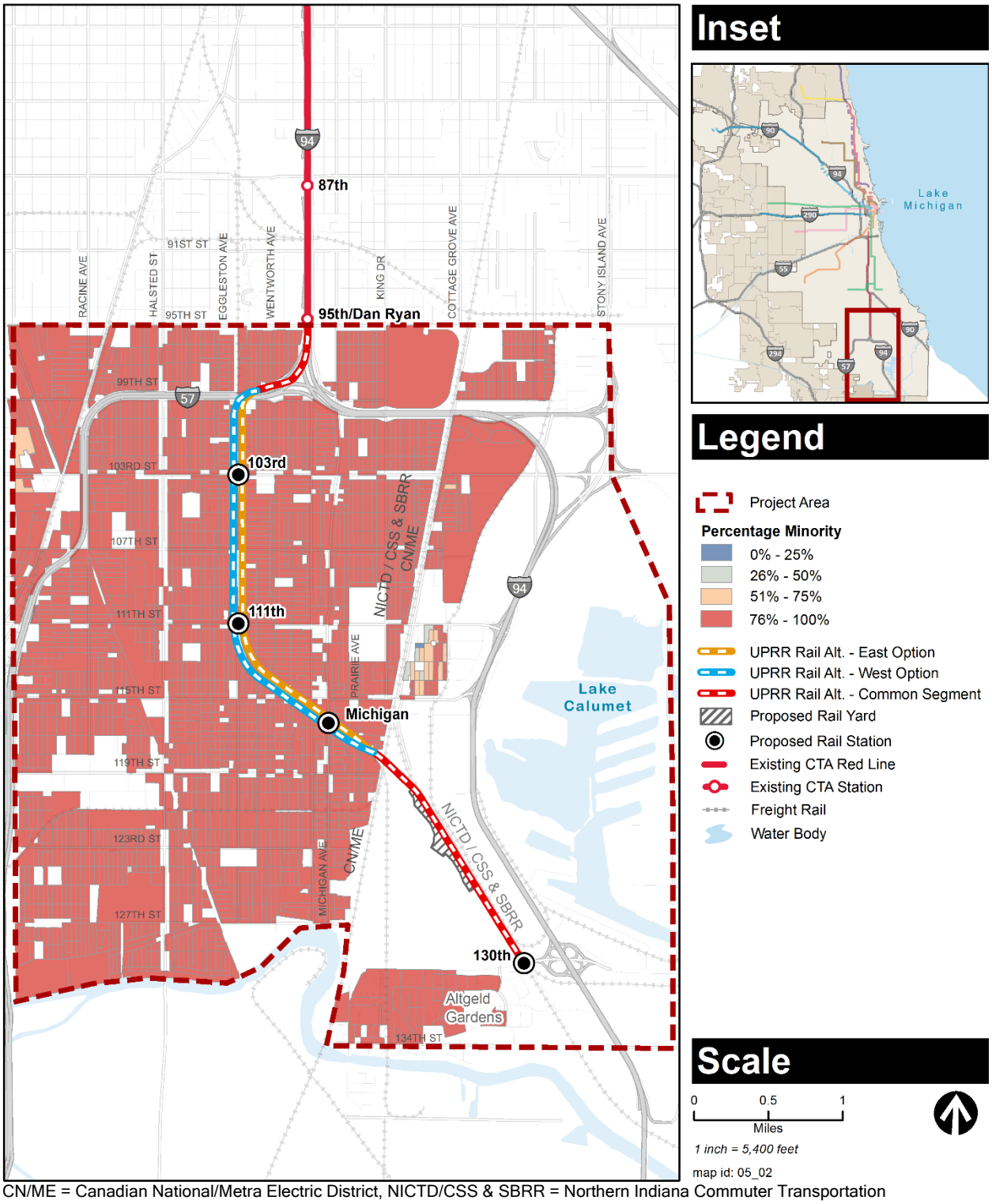
   - After the public meetings held in spring 2014, CTA decided not to pursue the Halsted Alternative in part because of public comments, including comments from EJ populations and community groups, in opposition to that alternative. In addition, the Halsted Alternative failed to fully meet the purpose and need of the project as described in **Section 2.4.3**. After the public meeting, CTA conducted additional engineering analysis to further refine the East and West Options to minimize displacements and impacts on the area parks where possible.

7.2 Existing Conditions

The project area consists entirely of predominantly minority populations (see **Figure 7-1**). Nearly all residential portions of the project area contain over 75 percent African American residents, with many areas approaching 100 percent. The project area contains a higher proportion of minority residents (97.9 percent) than the City of Chicago as a whole (68.3 percent).

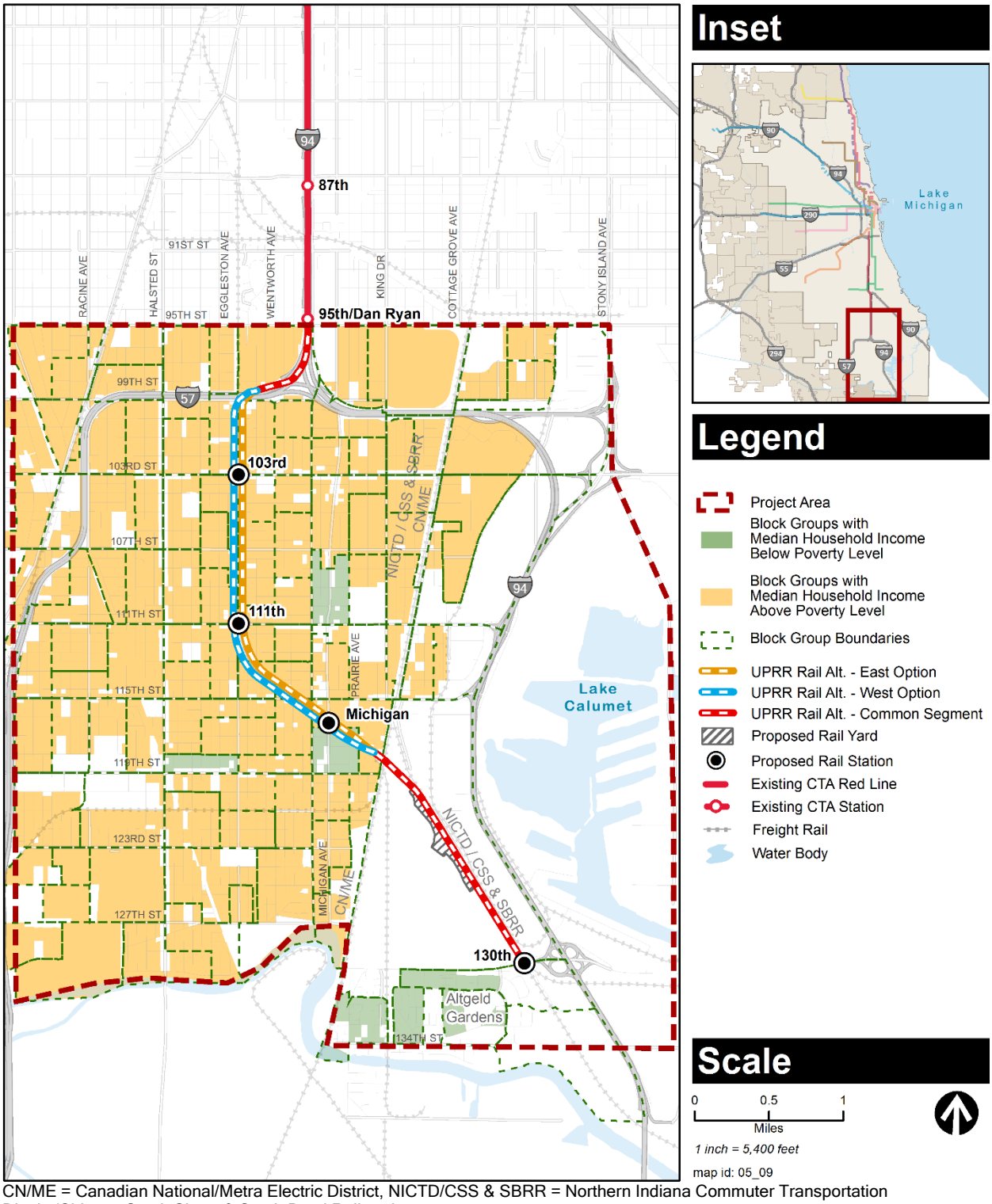
The 2010 annual median household income for communities in the project area ranges from approximately $11,000 in Riverdale to $54,000 in the Village of Calumet Park. Project area median income (approximately $41,000) is lower than the City of Chicago as a whole ($46,900) and Cook County ($54,000). Within the project area, the census block groups with the lowest income are concentrated around the Riverdale community area (southeastern portion of the project area) and the Altgeld Gardens public housing project, with some pockets along Michigan Avenue in Roseland and along 119th Street in West Pullman (see **Figure 7-2**). Note: Blocks of white space represent areas with low population density such as schools and industrial areas.

The highest percentages of LEP populations occur in the West Pullman community, east of State Street between 115th and 119th Streets (see **Figure 7-3**). Other areas with LEP residents include Pullman east of the Metra Electric District Line between 111th and 119th Streets, and near Lake Calumet. According to the 2010 U.S. Census, English is the most spoken language at home in the project area, with 92.6 percent of households speaking English only. Spanish is the second most spoken language at home, with over 6 percent of households speaking Spanish. The largest Spanish-speaking populations live in the Village of Calumet Park, where 15.5 percent of households speak Spanish. Pullman and West Pullman also have large percentages of Spanish-speaking households with 10.4 percent and 6.7 percent of homes speaking Spanish, respectively. Specific census tracts in the West Pullman and South Deering community areas and the Village of Calumet Park reported that over 30 percent of households speak Spanish. The full LEP Assessment is included in **Appendix X**.



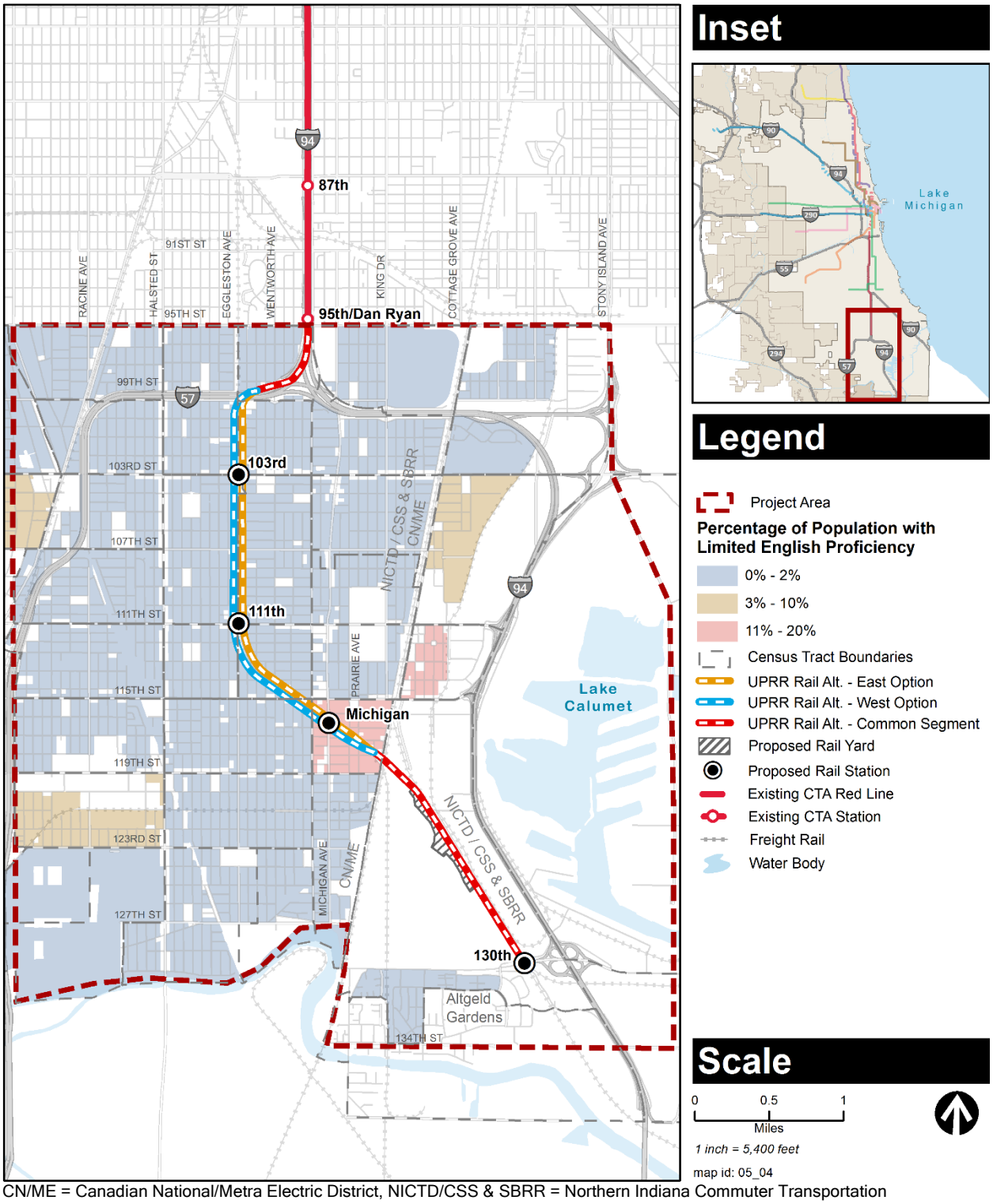
CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: U.S. Census Bureau 2010
Note: Blocks of white space represent areas with low population density such as schools and industrial areas.

Figure 7-1: Minority Populations



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: U.S. Census Bureau 2010
Note: Blocks of white space represent areas with low population density such as schools and industrial areas.

Figure 7-2: Low-Income Populations



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
Source: U.S. Census Bureau 2010
Note: Blocks of white space represent areas with low population density such as schools and industrial areas.

Figure 7-3: Percentage of Population that has Limited English Proficiency

The entire project area consists of predominantly minority populations (**Figure 7-1**), with some concentrations of low-income groups (**Figure 7-2**). For these reasons, the entire project area is considered an EJ community. The low-income area in Riverdale (the southeastern portion of the project area) has minimal population between 115th and 130th Streets; the majority of the population in this area resides south of 130th Street and is living below the poverty level.

In addition, approximately 15.3 percent of those living within the project area are elderly, which is higher than the citywide elderly proportion of 10.3 percent (U.S. Census Bureau 2010). Disabled populations within the project area constitute 15.4 percent of the project area population, higher than the 11.0 percent found at the citywide level (U.S. Census Bureau 2012). The *Environmental Justice Technical Memorandum* (**Appendix X**) provides further details about elderly and disabled populations.

7.3 Specialized Outreach

Full and fair access to meaningful involvement by EJ populations in project planning and development is an important aspect of EJ (Executive Order 12898). Using demographic data to determine the presence of EJ populations is only the first step in a robust EJ approach. Ensuring full and fair access means actively seeking the input and participation from those typically under-represented groups throughout all project stages. Residents can provide important information on community concerns, special sites, and unusual traffic, pedestrian, or employment patterns in the corridor. This information can be used in the design and evaluation of alternatives, to avoid negative impacts on valued sites, and to support the development of safe, practical, and attractive transportation options that are responsive to the concerns of EJ communities.

CTA has implemented a robust outreach program with an emphasis on meaningful exchange with EJ populations. **Chapter 10** and **Appendix C** provide additional details on public and agency coordination conducted.

Public and community meetings were conducted in compliance with NEPA guidelines and held at locations selected to reflect equitable geographic coverage and proximity to public transportation, and to minimize overlap with other meetings scheduled in the project area. The locations were within the project area, accessible by public transit, and ADA compliant. CTA performed an LEP assessment in 2009 and determined that public outreach materials should be prepared in both English and Spanish. Spanish translation of meeting handouts and Spanish and sign language interpreters were made available at every public meeting. CTA also offered to make translators for additional languages available upon request at the open house meeting.

In September 2009, two public scoping meetings provided the public with an opportunity to comment on the project purpose and need, alternatives considered, and issues and areas of concern to be considered in the Draft EIS. The meetings were publicized via direct mail and e-mail notices using the stakeholder database, postings on CTA's website, display advertisements in multilingual publications (English and Spanish), a legal notice placed in the Chicago Tribune, CTA customer alerts, flyers distributed to key locations along the project corridor, and notices posted in libraries and village halls.

CTA held an open house meeting at St. John Missionary Baptist Church on August 2, 2011 to update the community regarding the RLE Project. The meeting was publicized using the same methods as listed above. The meeting location was chosen because of its central location in the

project area and proximity to public transportation, and to minimize overlap with other meetings scheduled in the project area. The location was accessible by public transit and compliant with the ADA. Spanish and sign language interpreters were available at the meeting.

In April and May 2014, CTA again reached out to the general public as well as the identified EJ population and local community groups via a public open house meeting and individual community group meetings. Within the project area, community groups who were identified and contacted as part of the EJ and community group outreach included the following:

- 34th Ward Town Hall
- Agape Community Center
- Chicago Neighborhood Initiatives
- Chicago Park District
- DCP
- Far South Side Community Development Corporation
- Friends of the Parks
- Golden Gate Homeowners Association
- Greater Roseland Chamber of Commerce
- People for Community Recovery
- Roseland Business Development Council
- Roseland Manor
- Rosemoor Community Association
- St. Anthony of Padua Parish

CTA contacted each of the groups by telephone and provided them an opportunity for a presentation on the proposed project.

At the request of interested community groups, CTA conducted meetings to share information about the project and allow community members to ask questions and voice concerns. CTA held 13 community group meetings. **Appendix C** contains meeting notes and other supporting information for the outreach efforts.

The purpose of the spring 2014 outreach was to get public feedback on the alternatives, potential impacts, and mitigation and to give the community an opportunity to ask questions about the project. In addition to the 13 community group meetings, CTA held an open house on May 13, 2014.

Input received at the open house and community meetings affected the RLE Project in several ways, the most significant of which was the elimination of the BRT and Halsted Alternatives from further consideration. The community expressed concern about the BRT Alternative's failure to meet the purpose and need.

CTA has considered the EJ communities' comments and concerns in the crafting of mitigation measures to reduce adverse impacts. These mitigation measures are described in greater detail in the environmental consequences analysis.

In addition, CTA has been mindful to promote full and fair participation from all members of the public during the decision-making process for the RLE Project. CTA's public meetings on the RLE Project are held in the evening so that the largest number of community members can attend. CTA's efforts include specialized outreach to people who, as a result of national origin, have LEP. CTA evaluated the need for additional outreach by using 2010 Census data and analyzing whether populations throughout the project corridor were linguistically isolated because of challenges with reading, writing, and/or speaking English. The largest Spanish-speaking populations live in the Village of Calumet Park, where 15.5 percent of households speak Spanish. Pullman and West Pullman also have a large percentage of Spanish-speaking households with 10.4 percent and 6.7 percent of homes speaking Spanish, respectively. Specific census tracts in the West Pullman and South Deering community areas and the Village of Calumet Park reported that over 30 percent of households speak Spanish.

Based on CTA's analysis, Spanish language interpreters were made available at all public meetings. Interpreters for other languages were also made available upon request at all public open houses, community meetings, and the public hearing for the project. Sign language interpreters were also made available at all public meetings.

7.4 Environmental Consequences

FTA Circular 4703.1 indicates that projects in areas consisting entirely of EJ populations do not necessarily eliminate the possibility of disproportionately high and adverse impact findings; however, the following characteristics are true of the project area and East and West Options:

- The entire project area is predominantly minority populations. No community in the project area contains less than 92.9 percent minority populations, and the project area as a whole contains 97.9 percent minority populations.

- All of the impacts and benefits of the East and West Options would accrue to the same minority populations.

- The purpose of this community-initiated project includes connecting disadvantaged communities to Chicago's major employment and activity centers in an effort to spur economic development and improve livability. The project would help remediate the geographic isolation and lack of employment and development opportunities that currently exist in the project area.

A multistep process was used to assess the potential for disproportionately high and adverse impacts on EJ populations as described in **Section 7.1**. Categories that had adverse impacts remaining after mitigation were analyzed further to determine whether any of those impacts

would be disproportionately high or adverse. An impact would be disproportionately high or adverse if the effect (1) would be predominantly borne by an EJ population, or (2) would be suffered by the EJ population and would be appreciably more severe or greater in magnitude than the adverse effect suffered by the non-EJ population. Project benefits to EJ communities were also considered.

To provide a complete picture of how the RLE Project would affect EJ populations, this section summarizes the benefits and adverse impacts that would occur in EJ communities and the associated mitigation measures:

- **Beneficial Impacts of the Project** - To estimate the extent of the benefits derived from the East and West Options, the analysis in **Table 7-1** provides a comparison of the benefits with regard to the following criteria:
    - Reduced Transit Times
    - Increased Travel Choices
    - Increased Economic Competitiveness
    - Environmental Criteria
- **Resources with Limited or No Adverse Impacts** - The East and West Options would have limited or no adverse impacts in these environmental resource categories (**Chapter 6**). Because there would be no adverse impacts, there is no potential for disproportionately high and adverse impacts and these categories will not be carried forward for further analysis.
    - Air Quality
    - Water Quality
    - Floodplains
    - Vegetation and Wildlife Habitat
    - Threatened and Endangered Species
    - Geology and Soils
    - Energy
- **Resources with No Adverse Impacts after Mitigation** - The East and West Options would have adverse impacts that would not remain adverse after mitigation in the following categories. Because there would be no adverse impacts after mitigation, there is no potential for disproportionately high and adverse impacts and these categories will not be carried forward for further analysis. Further details about these impacts and the proposed mitigation measures are provided in **Chapter 4**.
    - Land Use and Economic Development

- Displacement and Relocation of Existing Uses
- Noise and Vibration
- Safety and Security
- Historic and Cultural Resources
- Hazardous Materials
- Wetlands

- **Resources with Adverse Impacts after Mitigation** - As shown in **Table 7-2**, adverse impacts would remain after mitigation for both the East and West Options in two categories. These adverse effects would not be fully addressed through mitigation measures, resulting in unavoidable adverse effects. Categories with potential adverse effects after mitigation are considered for their potential for disproportionately high and adverse effects on EJ communities. They are discussed in more detail in **Sections 7.4.2** and **7.4.3**.
  - Neighborhoods and Communities - Permanent Impacts
  - Visual and Aesthetic Conditions - Permanent Impacts

Table 7-1: Summary of Benefits

Benefits and Resource Areas	No Build Alternative	Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
Reduced Transit Times	No	Yes	Yes
Travel Times Between Stations:[1] 130th to 95th 130th to Jackson	 28 minutes 58 minutes	 14 minutes 39 minutes	 14 minutes 39 minutes
Increased Travel Choices	No	Yes	Yes
Increased Economic Competitiveness	No	Yes	Yes
Land Use and Economic Development	No Impacts	Economic development benefits resulting from the enhanced transit service	Economic development benefits resulting from the enhanced transit service
Neighborhoods and Communities	No Impacts	Improved mobility, access to parklands and community facilities, access to jobs, possible economic development, community revitalization, new space for community facilities and retail, and direct service to Altgeld Gardens	Improved mobility, access to parklands and community facilities, access to jobs, possible economic development, community revitalization, new space for community facilities and retail, and direct service to Altgeld Gardens
Hazardous Materials	No Impacts	Cleanup and/or removal of contaminated material during construction	Cleanup and/or removal of contaminated material during construction
Transportation	No Impacts	Public transportation would benefit from expanded rail transit service and rerouted bus service within the project area. Pedestrians would benefit from upgraded intersections immediately adjacent to the stations with ADA-accessible curb ramps and replacement of deteriorated sidewalks.	Public transportation would benefit from expanded rail transit service and rerouted bus service within the project area. Pedestrians would benefit from upgraded intersections immediately adjacent to the stations with ADA-accessible curb ramps and replacement of deteriorated sidewalks.

[1] Source: CTA 2009

Table 7-2: Summary of Potential Impacts after Mitigation

Resource Area	Alternative			Analyze for Potential High and Adverse Impacts on EJ Populations
	No Build	Union Pacific Railroad - East Option[1]	Union Pacific Railroad - West Option[1]	
Transportation	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Land Use and Economic Development	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Displacement and Relocation of Existing Uses	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Neighborhoods and Communities	--	Permanent: Adverse impact after mitigation Construction: No disproportionate adverse impacts after mitigation	Permanent: Adverse impact after mitigation Construction: No disproportionate adverse impacts after mitigation	Yes
Visual and Aesthetic Conditions	--	Permanent: Adverse impact after mitigation Construction: --	Permanent: Adverse impact after mitigation Construction: --	Yes
Noise and Vibration	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Safety and Security	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Historic and Cultural Resources	--	--	--	No
Hazardous Materials	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Wetlands	--	No disproportionate adverse impacts after mitigation	No disproportionate adverse impacts after mitigation	No
Air Quality	--	--	--	No
Water Quality	--	--	--	No
Floodplains	--	--	--	No
Vegetation and Wildlife Habitat	--	--	--	No
Threatened and Endangered Species	--	--	--	No
Geology and Soils	--	--	--	No
Energy	--	--	--	No
Cumulative	--	--	--	No

-- = No disproportionate adverse effect before mitigation (no mitigation required).
[1] Unless noted separately, impacts are stated for both permanent and construction.

7.4.1 No Build Alternative

The No Build Alternative would not involve any new construction for the RLE Project, and would not have any adverse impacts. No mitigation measures would be required. The No Build Alternative would, however, lack the transportation benefits that the East or West Option would provide, such as reduced travel times, better access to jobs, and economic development. The No Build Alternative would also fail to address the community's desire for growth initiatives that could attract new economic development interests to the area. In addition, potential remediation benefits associated with the UPRR Alternative would not occur with the No Build Alternative.

7.4.2 Union Pacific Railroad Alternative - East Option

The UPRR Alternative East Option would involve an extension of the Red Line from its current endpoint at the 95th Street Terminal southward to 130th Street in the vicinity of Altgeld Gardens via existing highway rights-of-way and railroad corridors. The new rail service would improve commute times to jobs, provide better transit access to geographically isolated communities, and potentially spur economic development in surrounding neighborhoods. The East Option would have permanent adverse impacts on neighborhoods and communities as well as visual and aesthetic conditions. The adverse impacts would occur in the project area, which consists entirely of EJ communities.

Neighborhoods and Community Impacts

The East Option would have permanent adverse impacts on community character and cohesion that could not be mitigated due to the visual encroachment of the elevated structure into the neighborhood north of I-57 in Roseland and at 117th Street and Prairie Avenue in West Pullman. Mitigation measures for impacts on community character, including planting additional landscaping, would not be sufficient to offset this permanent impact. The East Option alignment would pass through the northwestern corner of Wendell Smith Park and the western portion of Block Park, would displace Now Faith Church of God Holiness, and would displace part of the schoolyard at Kwame Nkrumah Academy. The church could be relocated within the neighborhood. The East Option would largely leave the functional and recreational use of the parks intact and impacts would not be adverse after mitigation. See **Section 4.3** for additional details on mitigation measures for permanent neighborhood and community impacts.

By improving travel time, operation of the East Option would improve access to parklands and community facilities within walking distance (½ mile) of the station locations. The East Option would substantially reduce travel times between neighborhoods in the project area, and would enhance their connection with major job and activity centers to the north. The new transit service and the subsequent increase in pedestrian traffic could attract new businesses to the area and support the growth and enhancement of these neighborhood retail and service nodes. The parking garage at the Michigan Avenue station would provide space for retail and community facilities. The station would serve as a transit hub that brings additional passengers and visitors to the area, which could further boost economic development. The result would be an overall increase in community livability. The mobility and development impacts of the East Option would be beneficial.

Visual and Aesthetic Conditions

The elevated structure would cause adverse visual impacts north of I-57 and at 117th Street and Prairie Avenue, as discussed in **Section 4.4**. Mitigation measures would reduce the impacts at

these locations, but due to the proximity of the elevated structure to residential areas, the impacts would remain adverse despite mitigation. Mitigation measures to reduce visual impacts would include landscaping, using urban design techniques to reduce massing, and creating pedestrian-friendly surroundings.

Conclusion

Considering the impacts, mitigation measures, and benefits, the East Option's permanent impact on community character and permanent visual impact would not be appreciably more severe or greater in magnitude than similar effects elsewhere in CTA's rail system. The mitigation measures proposed are similar in nature to those for other CTA projects and have been proposed by CTA, with input from local communities, consistently in EJ and non-EJ communities alike. The project offers substantial benefits that would accrue to the resident EJ populations. Although the East Option would still have adverse impacts on EJ communities, these impacts would not be disproportionately high or adverse. As such, no EJ-specific mitigation measures beyond those identified in **Chapter 4** would be required.

7.4.3 Union Pacific Railroad Alternative - West Option

Like the UPRR Alternative East Option, the West Option would involve an extension of the Red Line from its current endpoint at the 95th Street Terminal southward to 130th Street in the vicinity of Altgeld Gardens via existing highway rights-of-way and railroad corridors. The new rail service would improve commute times to jobs, provide better transit access to geographically isolated communities, and potentially spur economic development in surrounding neighborhoods. The West Option would have permanent adverse impacts on neighborhoods and communities as well as visual and aesthetic conditions. The adverse impacts would occur in the project area, which consists entirely of EJ communities.

Neighborhoods and Communities

The West Option would have permanent adverse impacts on community character and cohesion that could not be mitigated due to the visual encroachment of the elevated structure into the neighborhood north of I-57 and between 99th and 103rd Streets in Washington Heights. The 103rd Street station in Roseland and Washington Heights and the Michigan Avenue station park & ride facility in West Pullman would also cause adverse visual impacts because they would change the scale, density, and character of the local community. Mitigation measures for impacts on community character, including planting additional landscaping, would not be sufficient to offset these permanent impacts. The West Option alignment would pass through Fernwood Parkway, and would displace the Grace Temple Church of God Established in Christ. The church could be relocated within the neighborhood; however, as of July 2015 the building is vacant. CTA would keep the area beneath the track structure in Fernwood Parkway open for use, and improve park space elsewhere in the neighborhood. See **Section 4.3** for additional details on mitigation measures for permanent neighborhood and community impacts.

Other impacts, benefits, and mitigation measures would be similar to those for the East Option, as discussed above in **Section 7.4.2**.

Visual and Aesthetic Conditions

The elevated structure would cause adverse visual impacts north of I-57, between 99th Street and 103rd Street, near the 103rd Street station, and near the Michigan Avenue station park & ride

facility, as discussed in **Section 4.4**. Mitigation measures to reduce visual impacts would include providing landscaping and replanting vegetation where possible, designing the station and park & ride facility to match the character of the surrounding neighborhood, using urban design techniques to reduce massing, and creating pedestrian-friendly surroundings. Exterior lighting would be shielded and carefully placed when adjacent to sensitive areas such as residential communities. The impacts would remain adverse after mitigation.

Conclusion

Considering the impacts, mitigation measures, and benefits, the West Option's permanent impact on community character and permanent visual impact would not be appreciably more severe or greater in magnitude than similar effects elsewhere in CTA's rail system. The mitigation measures proposed are similar in nature to those for other CTA projects and have been proposed by CTA consistently in EJ and non-EJ communities alike. The project offers substantial benefits that would accrue to the resident EJ populations. Although the West Option would still have adverse impacts on EJ communities, these impacts would not be disproportionately high or adverse. As such, no EJ-specific mitigation measures beyond those identified in **Chapter 4** would be required.

Chapter 8
Section 4(f) Evaluation

Section 4(f) of the USDOT Act of 1966 is a federal law that established requirements for USDOT (including FTA) consideration of publicly owned parks/recreational areas that are accessible to the general public, publicly owned wildlife/waterfowl refuges, and publicly or privately owned historic sites of federal, state, or local significance in developing transportation projects. This law, commonly known as Section 4(f), is now codified in 49 USC § 303 and 23 USC § 138, and is implemented by FTA through the regulation 23 CFR § 774. Additional guidance on the implementation of Section 4(f) may be found in FHWA's *Section 4(f) Policy Paper* (USDOT, FHWA 2012). FTA has formally adopted this guidance and this analysis was conducted consistent with this guidance.

Publically owned park or recreation land would be used as a result of the options evaluated in the Draft EIS and is further evaluated in this Section 4(f) chapter. Based on the evaluation in this Draft EIS, no historic properties would be affected or used by the project alternatives and further Section 4(f) evaluation of historic properties is not required. Historic properties are described within this chapter to provide sufficient documentation that there is no Section 4(f) use of these properties. This chapter summarizes the findings of the *Parklands and Community Facilities Technical Memorandum* (**Appendix M**), the *Historic and Cultural Resources Technical Memorandum* (**Appendix Q**), and the *Park Replacement Analysis Technical Memorandum* (**Appendix Y**).

As part of the public hearing for this Draft EIS, the public will be offered the opportunity to comment on FTA's preliminary determinations in this Section 4(f) analysis and on the mitigation measures identified, including potential replacement park options. After the public comment period is complete, FTA will make a final Section 4(f) determination based on information in this chapter, the referenced technical memoranda, further coordination with the Chicago Park District, and public comments received. FTA's Section 4(f) determination will either (1) confirm the preliminary findings within this Draft EIS for inclusion in the Final EIS and ROD for the project, or (2) require additional Section 4(f) analysis, which will be prepared as part of the Final EIS.

8.1 Project Description and Supporting Information

CTA, as project sponsor to FTA, proposes to extend the existing Red Line HRT service 5.3 miles south from the existing 95th Street Terminal to 130th Street on Chicago's Far South Side. The project area is 11 miles south of the Loop. The project would address the following needs:

- Transit trips to jobs are longer for Far South Side residents than they are for residents in the Chicago seven-county region as a whole.
- Transit-dependent populations in the project area have limited direct access to rapid transit rail service.

- The project area is geographically isolated from major activity centers and provides residents limited viable transportation options, limiting access between affordable housing (e.g., Altgeld Gardens public housing project) and employment centers outside of the project area.
- Existing transit markets are underserved and transit connectivity is challenging in the project area.
- Disinvestment and limited economic development in the project area have negatively affected Far South Side communities.
- The existing 98th Street Yard does not have capacity to store rail cars for any substantial increase in Red Line capacity accompanying future Red Line expansion.

Additional details on the purpose and need for the project are in **Chapter 1**. The Chicago Transit Board designated the UPRR Alternative, discussed further in **Chapter 2** of the Draft EIS, as the LPA on August 12, 2009.

The UPRR Alternative alignment would run south along I-94 from the 95th Street Terminal, then curve west along the north side of I-57 (within the I-57 right-of-way) for nearly ½ mile until reaching the UPRR corridor in the vicinity of Eggleston Avenue. The alignment would turn south to follow the UPRR corridor. Two UPRR Alternative options for the segment of the proposed alignment between I-57 and the CN/ME tracks near 119th Street are being analyzed:

- East Option - The CTA elevated structure would be placed immediately adjacent to the east side of the UPRR right-of-way.
- West Option - The CTA elevated structure would be placed immediately adjacent to the west side of the UPRR right-of-way.

The alignment would follow the UPRR corridor to Prairie Avenue, where it would cross over the CN/ME tracks near 119th Street. South of this point, the East and West Options would follow the same alignment southeast along the NICTD/CSS & SBRR right-of-way using a portion of the Norfolk Southern Railway and Conrail right-of-way to the terminus (end) of the RLE at 130th Street.

Chapter 2 provides further details on the AA process leading to the development and selection of the LPA and these alignment options.

8.2 Regulatory Framework

This section describes regulatory framework and requirements under Section 4(f) of the USDOT Act of 1966, as amended by 23 USC § 138 and 49 USC § 303, and its implementing regulations and guidance. It includes information on the definition of "use" under Section 4(f) (**Section 8.2.1**) and the basis of making Section 4(f) determinations (**Section 8.2.2**).

8.2.1 Section 4(f) "Use" Determinations

To determine whether Section 4(f) applies to the proposed project and as defined in 23 CFR § 774.17, the protected Section 4(f) properties must be assessed to determine whether there would

be a "use" of the property as defined in the statute. Per the regulation, use of a protected Section 4(f) property occurs when any of the following conditions are met:

1. **Permanent Incorporation/Direct Use** - A permanent incorporation or direct use of a Section 4(f) property occurs when land is permanently incorporated into a transportation facility. *"Permanent incorporation"* of a Section 4(f) property would include purchasing part or all of the property for use as right-of-way or for transportation facilities, or purchasing a permanent easement for construction or operations. Even small partial acquisitions of Section 4(f) lands are considered permanent incorporation.

2. **Temporary Use** - A temporary use of a Section 4(f) property occurs when there is a short-term use of the property that is considered adverse in terms of the preservation purpose of the Section 4(f) statute. Under 23 CFR § 774.13, a temporary occupancy of a property does not constitute a "use" of a Section 4(f) property when all of the following conditions are satisfied:

   - The duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of land.
   - The scope of work is minor (i.e., both the nature and magnitude of the changes to a Section 4(f) property are minimal).
   - There are no anticipated permanent adverse physical impacts, nor is there interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.
   - The land being used is fully restored to a condition that is at least as good as that which existed before the project.
   - There is documented agreement among appropriate federal, state, and local official(s) with jurisdiction over the Section 4(f) property regarding the above conditions.

3. **Constructive Use** - A constructive use of a Section 4(f) property occurs when a transportation project would not incorporate land from the property, but the proximity of the project would result in impacts so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) would be substantially impaired (23 CFR § 774.15).

8.2.2 Section 4(f) Approval Options

FTA may not approve the use of a Section 4(f) property, unless it determines the following, as defined in 23 CFR § 774.17:

- There is no feasible and prudent alternative to the use of that land and the project includes all possible planning to minimize harm of using the property.

  OR

- FTA determines that Section 4(f) use of the property would have a "*de minimis*" impact.

Feasible and prudent standards for evaluating avoidance alternatives to using Section 4(f) property are defined in 23 CFR § 774.17. If it is ultimately determined no feasible and prudent avoidance alternative exists, then the alternative with the least overall harm to Section 4(f) properties must be selected. Seven factors, which are established in 23 CFR § 774.3(c)(1), are used in making a determination of the alternative with least overall harm to Section 4(f) properties.

Alternatively, the requirements of Section 4(f) are satisfied with respect to a Section 4(f) property if it is determined by FTA that a transportation project would have a "*de minimis*" impact on the Section 4(f) property.

A *de minimis* impact is defined in 23 CFR § 774.17 as follows:

- For parks, recreation areas, and wildlife/waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f), and the official with jurisdiction has concurred with this determination after there has been a chance for public review and comment.

- For historic sites, a *de minimis* impact means that FTA has determined, in accordance with 36 CFR § 800, that either no historic property would be affected by the project, or the project would have "no adverse effect" on the property in question. The official with jurisdiction must be notified that FTA intends to make a *de minimis* finding based on their concurrence with the "no adverse effect" determination under 36 CFR § 800. This is usually done in the effect determination letter sent to the official with jurisdiction for their concurrence.

If an alternative is found to use Section 4(f) properties, a *de minimis* finding can be made for direct uses or temporary uses that do not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. The provision allows avoidance, minimization, mitigation, and enhancement measures to be considered in making the *de minimis* determination.

Projects determined to have *de minimis* impacts on Section 4(f) properties may proceed without needing to make a determination that no feasible and prudent avoidance alternatives exist. The officials with jurisdiction must concur in writing with a *de minimis* finding. For parks, recreational areas or wildlife or waterfowl refuge properties, concurrence from the officials having jurisdiction over the properties is required. For historic sites, concurrence from the SHPO on FTA's "No Adverse Effect" determination is required.

8.3 Organization of this Chapter

The sections within this Section 4(f) chapter consider potential impacts in accordance with all applicable regulations and guidance referenced in the previous chapters, and sections are organized to follow the major analysis processes outlined in FHWA's *Section 4(f) Policy Paper*. Each section provides appropriate citations, definitions, and evaluation criteria for each of these steps.

Section 8.4 provides documentation on the identification of all properties potentially afforded protection under Section 4(f). This section includes summary information to identify potential impacts on historic properties, archaeological resources, public parks, recreational facilities, or wildlife/waterfowl refuges.

Sections 8.5 and **8.6** provide the Section 4(f) evaluations for each alignment option proposed. For each Section 4(f) property that was identified, subsections include the following:

- A full description of the Section 4(f) property, including significance for parks identified
- Assessment and determination of Section 4(f) use for that property
- All possible planning to minimize harm, including proposed mitigation measures
- Agency coordination and consultation conducted, including views of the official with jurisdiction over the Section 4(f) property
- A preliminary Section 4(f) finding for the Section 4(f) property

Section 8.7 provides next steps to confirm the preliminary Section 4(f) findings in this chapter.

8.4 Identification of Section 4(f) Properties

The identification of Section 4(f) properties and analyses of use of Section 4(f) properties is based on the findings of the historic and cultural resources analysis (**Section 4.7**, which addresses historic properties), and the neighborhood and community impacts analysis (**Section 4.3**, which addresses parks). The evaluation of properties was also informed by the 2012 *Federal Highway Administration Section 4(f) Policy Paper* issued by FHWA and formally adopted by FTA. Worst-case scenario impacts were assumed throughout the environmental analysis for full disclosure of all potential impacts and identification of potential Section 4(f) uses. Conclusions will be confirmed as part of the Final EIS based on any additional project design decisions that might be made in development of the project, such as station and structure designs beyond conceptual engineering, and after public input on the Draft EIS.

8.4.1 Historic and Archaeological Resources

CTA has been undertaking the Section 106 consultation process since August 2012, as described in **Section 4.7.2**. CTA met with consulting parties in January 2013 to discuss NRHP-eligible properties. As a result of the field investigations and comments received from consulting parties on potentially eligible resources, 15 total resources were identified as eligible for inclusion on the NRHP, including 13 individual buildings and 2 historic districts. On May 8, 2014, FTA and CTA met with consulting parties to discuss potential project effects on NRHP-eligible historic properties. A Draft Effects Report was mailed to consulting parties on April 18, 2014 and responses to comments were provided to consulting parties on November 23, 2016. As described in **Section 4.7.4**, no adverse effects on historic resources would occur because of the RLE Project (East or West Option); no mitigation measures would be required and therefore consultation with consulting parties is complete. In correspondence to the SHPO dated September 21, 2016, FTA made the determination that the UPRR Alternative (East and West Options) would result in no adverse effects. Coordination with the SHPO related to concurrence with FTA's eligibility and effects determinations is ongoing and will continue through the remainder of the project.

Appendix Q contains a full summary of the meeting, comments received, and responses to the comments for the Section 106 consultation.

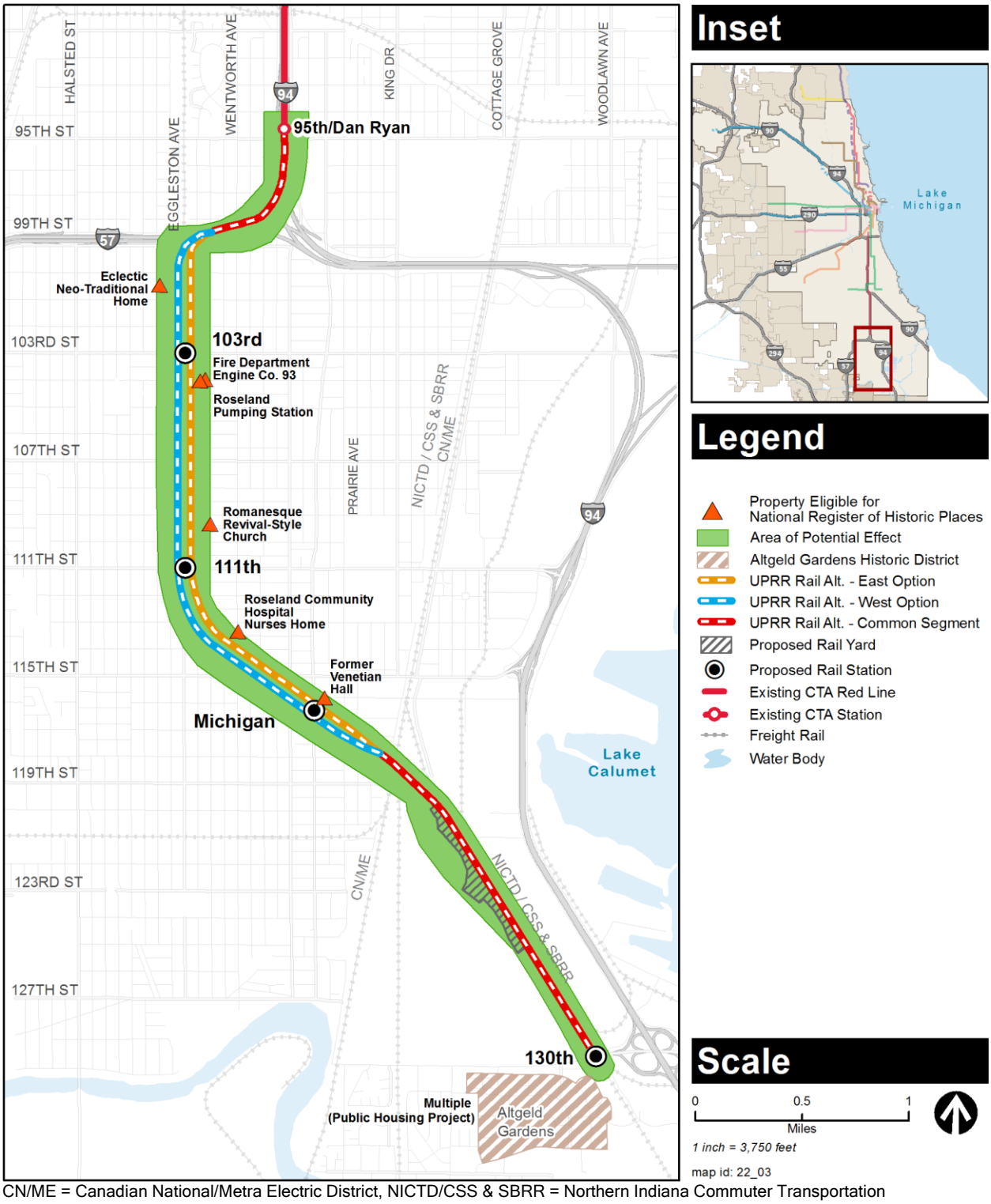
For historic properties, all properties within the APE that were found to be listed on the NRHP or eligible for listing were identified for further evaluation of potential Section 4(f) use. **Table 8-1** lists the historic properties identified within the APE and summarizes determinations of Section 4(f) use for each alignment option. **Figure 8-1** shows the locations of these historic properties.

Table 8-1: Historic Properties Evaluated for Section 4(f) Use

Address	Property Description	Community Area	Section 4(f) Use	
			Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
444 W. 100th Place	Eclectic Neo-Traditional Home (built 1930)	Washington Heights	No Use	No Use
324 W. 104th Street	Fire Department Engine Co. 93 (built 1917)	Roseland	No Use	No Use
351 W. 104th Street	Roseland Pumping Station (built 1911)	Roseland	No Use	No Use
10920 S. Princeton Avenue	Romanesque Revival-Style Church (built 1916)	Roseland	No Use	No Use
11321 S. Wentworth Avenue	Roseland Community Hospital Nurses Home (built 1930s)	Roseland	No Use	No Use
133-139 E. Kensington Avenue	Former Venetian Hall (built 1925)	Riverdale	No Use	No Use
Multiple (Public Housing Project)	Altgeld Gardens Historic District (built 1945)	Riverdale	No Use	No Use

There would be no permanent incorporation, temporary use, or a constructive use of any of the historic properties under either option. No historic properties or land would be acquired or used for construction or permanently for either alignment option. As such, neither option would result in the use of any historic properties protected under Section 4(f).

There are no known archaeological sites within the project APE. There would be no permanent incorporation, temporary use, or constructive use of any archaeological resources under either option; therefore, neither option would result in the use of any archaeological resources protected under Section 4(f).



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 8-1: Historic Properties in the Area of Potential Effects

8.4.2 Parks, Recreation, and Wildlife/Waterfowl Refuge Resources

No wildlife or waterfowl refuges were identified within ½ mile of the proposed alignment options. There would be no permanent incorporation, temporary use, or a constructive use of any wildlife/waterfowl resources under either option; therefore, neither option would result in the use of any wildlife/waterfowl refuges protected under Section 4(f).

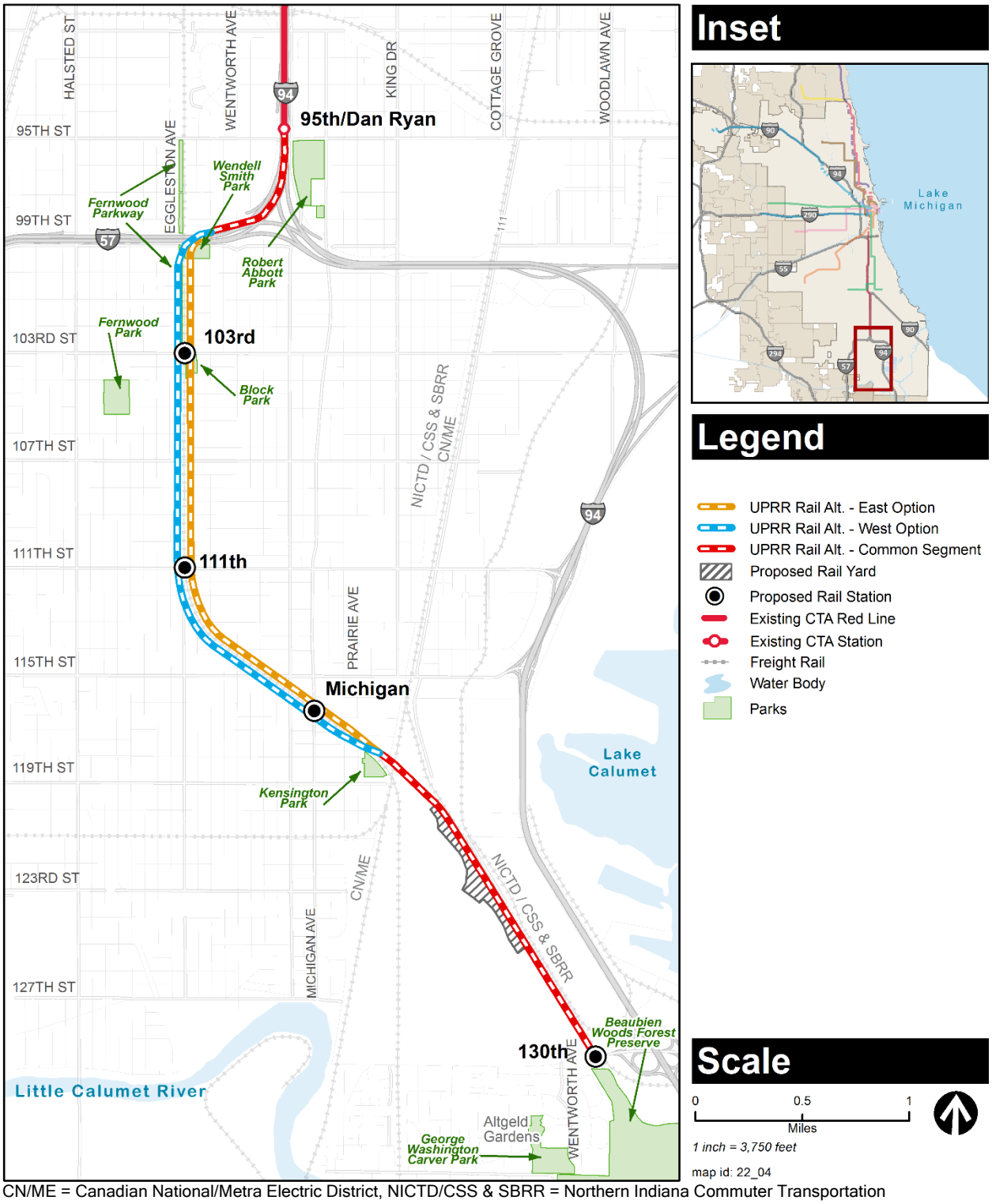
All public parks and recreational properties within 500 feet of the proposed right-of-way area and within ½ mile of the proposed station locations were analyzed for further evaluation of potential Section 4(f) use. **Table 8-2** lists the parks adjacent to the project and determinations of Section 4(f) use for each alignment option. **Figure 8-2** shows the locations of these parks.

There would be no Section 4(f) use of Robert Abbot Park, Kensington Park, Beaubien Woods Forest Preserve, or George Washington Carver Park permanently or during construction. While these parks would be exposed to increased noise during construction or operations, each of these parks is currently located near an existing highway, freight rail line, or major city streets. As such, these parks are not currently quiet, thus, quiet is not essential to their attributes, features, or activities. In addition, noise barriers would mitigate noise impacts near Robert Abbot Park and Kensington Park. Any increased noise would therefore not substantially impair the attributes, features, or activities that render the parks eligible for Section 4(f) protection. In addition, most parks in the project area would benefit from the transit extension due to improved public accessibility.

Parks subject to further evaluation under Section 4(f) include Wendell Smith Park, Fernwood Parkway, and Block Park. **Sections 8.5** and **8.6** of this chapter provide further details on the determination of Section 4(f) uses of these properties and preliminary findings.

Table 8-2: Park and Recreational Properties Evaluated for Section 4(f) Use

Park or Recreational Property Name	Address	Section 4(f) Use	
		Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
Robert Abbott Park	49 E. 95th Street	No Use	No Use
Wendell Smith Park	9912 S. Princeton Avenue	*De minimis*	No Use
Fernwood Parkway	9501 S. Eggleston Avenue	No Use	*De minimis*
Block Park	346 W. 104th Street	*De minimis*	No Use
Kensington Park	345 E. 118th Street	No Use	No Use
Fernwood Park	10436 S. Wallace Street	No Use	No Use
Beaubien Woods Forest Preserve	1 W. Doty Avenue South	No Use	No Use
George Washington Carver Park	939 E. 132nd Street	No Use	No Use



CN/ME = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 8-2: Publicly Owned Park and Recreational Properties Adjacent to the Project

8.5 Union Pacific Railroad Alternative East Option Section 4(f) Evaluation

Two Section 4(f) park properties would be used as result of this alignment option: Wendell Smith Park and Block Park, which are evaluated below.

8.5.1 Wendell Smith Park

Description and Significance of Property

Wendell Smith Park is approximately 4.7 acres (340 feet wide by 610 feet long) and is an actively used recreational facility with basketball courts, baseball fields, a play lot, recreation building, and 0.3 mile of walking trails in Roseland. Regularly scheduled activities at Wendell Smith Park include basketball tournaments, baseball/softball games, and concerts. The park is also actively used by day camps and for activities organized by the Chicago Park District. **Figure 8-3** through **Figure 8-5** are photos and an aerial view of Wendell Smith Park.

Figure 8-3: Photo of Entrance to Wendell Smith Park Facing West from Princeton Avenue

Figure 8-4: Photo of Wendell Smith Park Basketball Courts Facing West

Source: Google Maps 2011

Figure 8-5: Aerial Photograph of Wendell Smith Park

Section 4(f) Use Assessment

The East Option alignment would run through the northwestern corner of the park, as shown in **Figure 8-6**. Elevated track structure supports would be placed permanently in the park space. Of the 4.7 acres of the park, approximately 0.7 acre would be overlapped by the elevated structure and its associated clearances. Piers would be located in the park, and the bottom of the elevated structure would be approximately 15 feet above ground level.

The following attributes and features of the park are within or adjacent to the overlap area:

- **Paved Walking Path/Trees/Bench** - An existing paved walking path is maintained along the entire rectangular perimeter of the park. The westernmost north-south portion of the walking trail and a small portion of the northwestern edge of the walking path would be overlapped by the track structure. A number of small trees line the existing walking path and would be used by the overlap with tracks. In addition, there are two benches along the westernmost north-south walking path within the overlap area.

- **Baseball Field** - There are two baseball fields within Wendell Smith Park. The sand-filled baseball field on the northeast portion of the park is a junior-size baseball diamond. A small portion of the existing outfield/open space would be within the overlap area, but the overlap would not affect the ability to use the baseball field. The second baseball field is a smaller, junior-sized baseball field in the southwest corner of the park. This junior baseball field contains a backstop and bench. Due to the proposed overlap area, the bench and space behind this backstop would be used.

The overlap of the elevated track and placement of elevated track structure supports within the park would limit park use in the overlapped area. This limitation on land owned or operated by the Chicago Park District (because of the elevated structure being placed on its property) is referred to as a permanent easement. Because a permanent easement is proposed, the land within

the easement would be considered a permanent incorporation (direct use) of the park facilities. The park would remain active during construction, with the exception of the overlapped portion of the park, and construction would not result in substantial changes to the park. There would be temporary and permanent uses of the protected attributes, features, and activities of the park due to the overlapped portion of the park needed for permanent right-of-way. There would be no noise impacts related to operation of the proposed project after construction of mitigation measures (noise barrier). Mitigation measures, further discussed below, would be implemented in advance of construction to the extent possible to maintain all park facilities. Remaining land used (area not used for the structure) would be restored to a condition at least as good as that which existed before the project.

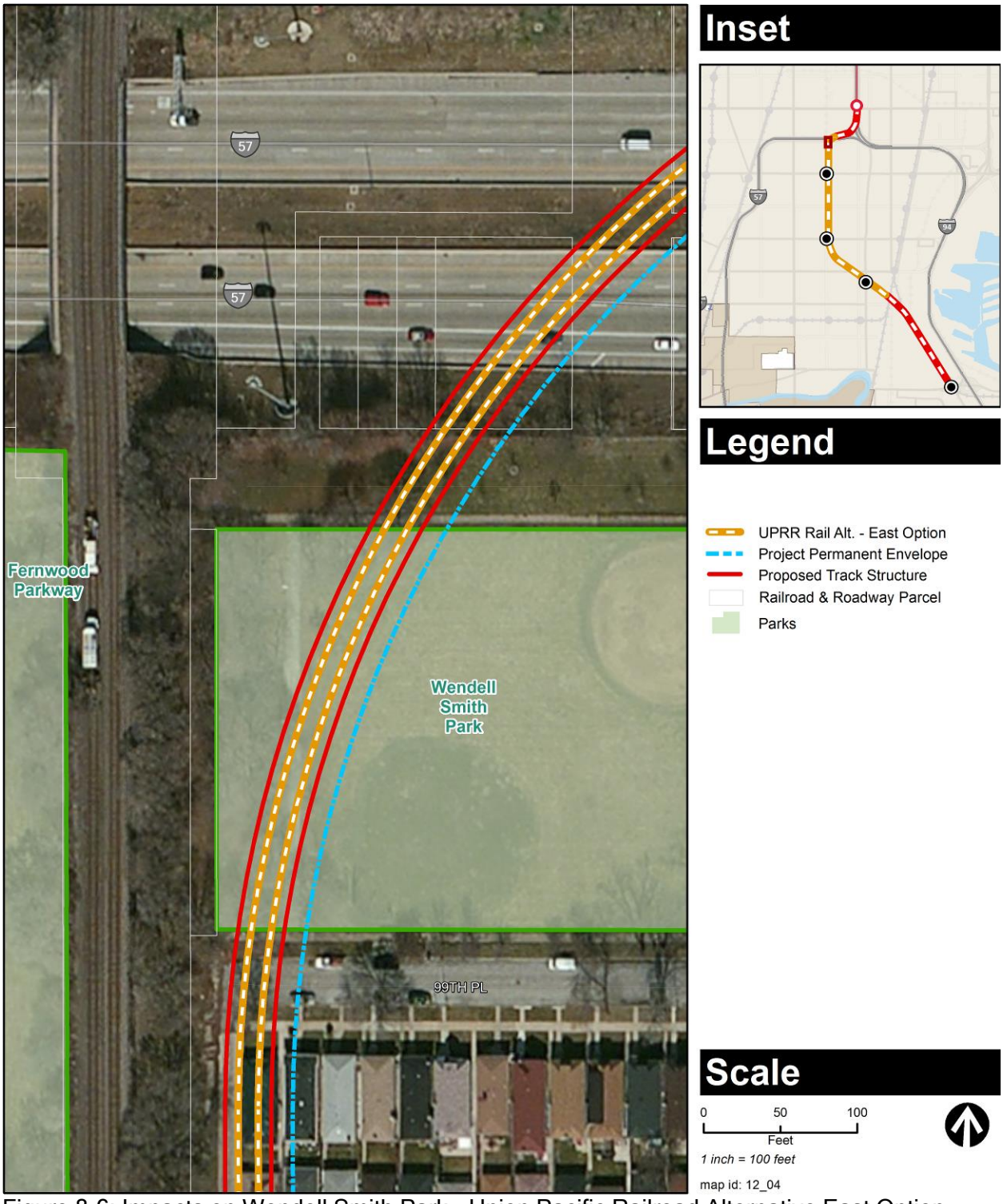


Figure 8-6: Impacts on Wendell Smith Park - Union Pacific Railroad Alternative East Option

All Possible Planning to Minimize Harm

Wendell Smith Park would continue to serve the surrounding community after implementation of the project. The following mitigation and enhancement measures are proposed so that there

would be no adverse impacts on the features, attributes, and activities of the park as a result of the project. CTA coordinated with the Chicago Park District as part of the preparation of the Draft EIS to further develop mitigation measures and conceptual plans. **Appendix Y** provides conceptual plans for replacement of amenities within Wendell Smith Park and other replacement park options.

- Replacement of lands (acreage) used with lands of reasonably equivalent usefulness and location and of at least comparable value. The replacement land would be used to construct new park space in or near the Roseland community area to enhance parkland availability for the surrounding community. New park area created through this replacement acreage would be constructed in accordance with Chicago Park District standards and would facilitate Chicago Park District master planning goals and objectives.

- Replacement of the two smaller, junior-sized baseball fields within Wendell Smith Park to provide one larger baseball field. This mitigation measure was developed based on coordination with the Chicago Park District so that the attributes, features, and activities within the park would not be adversely affected as a result of the East Option. This measure would enhance existing baseball facilities and activities within the park. Additional outreach to the public will be conducted to share concepts and obtain public feedback.

- Relocation and replacement of the smaller, junior-sized baseball field on replacement parkland based on coordination with the Chicago Park District and outreach to the public so that the attributes, features, and activities would not be adversely affected by the use of the northwest corner of the park.

- Replacement and relocation of facilities affected by the project including sidewalks, paths, benches, trees, and other facilities within Wendell Smith Park.

- Restoration and landscaping of disturbed areas.

- Incorporation of design features where necessary to reduce or minimize impacts of use on the Section 4(f) property. Such features would be designed in a manner that would enhance the park but not adversely affect the safety of the transit facility.

Preliminary Section 4(f) Finding

Based on consideration of the proposed direct use as well as the proposed mitigation and enhancement measures, no adverse impacts on the attributes, features, or activities would result from the East Option; therefore, a *de minimis* finding is proposed for this Section 4(f) use. The Chicago Park District has concurred with this No Adverse Effect determination with the commitment of proposed mitigation measures in its letter dated August 17, 2015 (see **Appendix C**).

A public involvement process will be held in conjunction with the required NEPA public involvement process after publication of the Draft EIS for review and comment on this preliminary finding. During development of this Draft EIS, CTA and the Chicago Park District coordinated on several potential locations for new/replacement park space and replacement of amenities within Wendell Smith Park. **Appendix Y** provides conceptual plans for potential

replacement parks based on this coordination. These locations and conceptual plans will be shared with the public for input as part of the Draft EIS public hearing.

FTA will consider public comment and the availability of the replacement park in determining whether the preliminary *de minimis* impact determination within this Draft EIS is appropriate. Based on FTA's finding and public input, a preferred location for replacement parkland will be identified as part of the Final EIS. The final location of the replacement park will be confirmed and secured based on ability to acquire property voluntarily, following the completion of the environmental phase of this project.

Agency Coordination and Consultation

Coordination with the agency with jurisdiction over the property, the Chicago Park District, is ongoing and will continue through development of the Final EIS. Early coordination meetings were held on April 18, 2011; July 23, 2013; May 8, 2014; and April 8, 2015 to provide Chicago Park District staff with information on the purpose and need for the project, identification and refinement of alternatives, and potential impacts on parks, and to discuss proposed mitigation measures. The Chicago Park District provided its concurrence on August 17, 2015 that after implementation of the proposed mitigation measures there would be no adverse impact on parks from either alignment option. Additional coordination meetings were held to further develop and refine proposed mitigation measures on October 8, 2015; March 10, 2016; April 6, 2016; May 18, 2016; and June 15, 2016. This coordination will continue as public input is obtained and when finalizing replacement park options and other mitigation measures in the Final EIS. The Chicago Park District has indicated that it regards this project as an opportunity to expand and enhance park activities and overall connectivity in the community once mitigation measures are in place.

8.5.2 Block Park

Description and Significance of Property

Block Park is a passive green space and is divided into two parcels by Harvard Avenue in Roseland. The east parcel is approximately 1.4 acres (130 feet wide by 460 feet long) and includes amenities such as benches, walking paths, and sidewalks. The west parcel is approximately 1.3 acres (90 feet wide by 600 feet long) and is open space with a sidewalk and no other park amenities. In addition, a communications tower and two utility structures are on the west parcel. **Figure 8-7** and **Figure 8-8** are photos of Block Park.

Figure 8-7: Photo of Block Park with the Roseland Pumping Station in the Background (Facing South)

Figure 8-8: Photos of East Parcel (left) and West Parcel (right) of Block Park (Facing South)

Section 4(f) Use Assessment

The East Option alignment would run through the west parcel of Block Park, and the elevated structure and its associated clearances would overlap 0.9 acre of park space, as shown in **Figure 8-9**. Elevated track structure supports would be placed permanently in the west parcel of the park space. An auxiliary station entrance would also be located in the park, along the western edge of the existing parcel. The affected parcel includes an isolated portion of the park's open space and a communications tower, and does not currently serve a recreational use. The key recreational features of the park, walking trails and benches, are on the other side of Harvard Avenue in the east parcel of the park.

Because the alignment would run through the west parcel of Block Park, there would be a permanent incorporation (direct use) of the park facilities. Some temporary closure of the overlapped area (west parcel) would be necessary during construction and be used permanently. The east parcel of the park would remain open during construction and there would be no temporary or permanent impacts on the protected attributes, features or activities of the park. There would be no noise impacts related to operation of the proposed project after construction of mitigation measures (noise barrier). Mitigation measures, further discussed below, would be implemented in advance of construction to the extent possible. Remaining land used (area not used for the structure) would be restored to a condition at least as good as that which existed before the project.

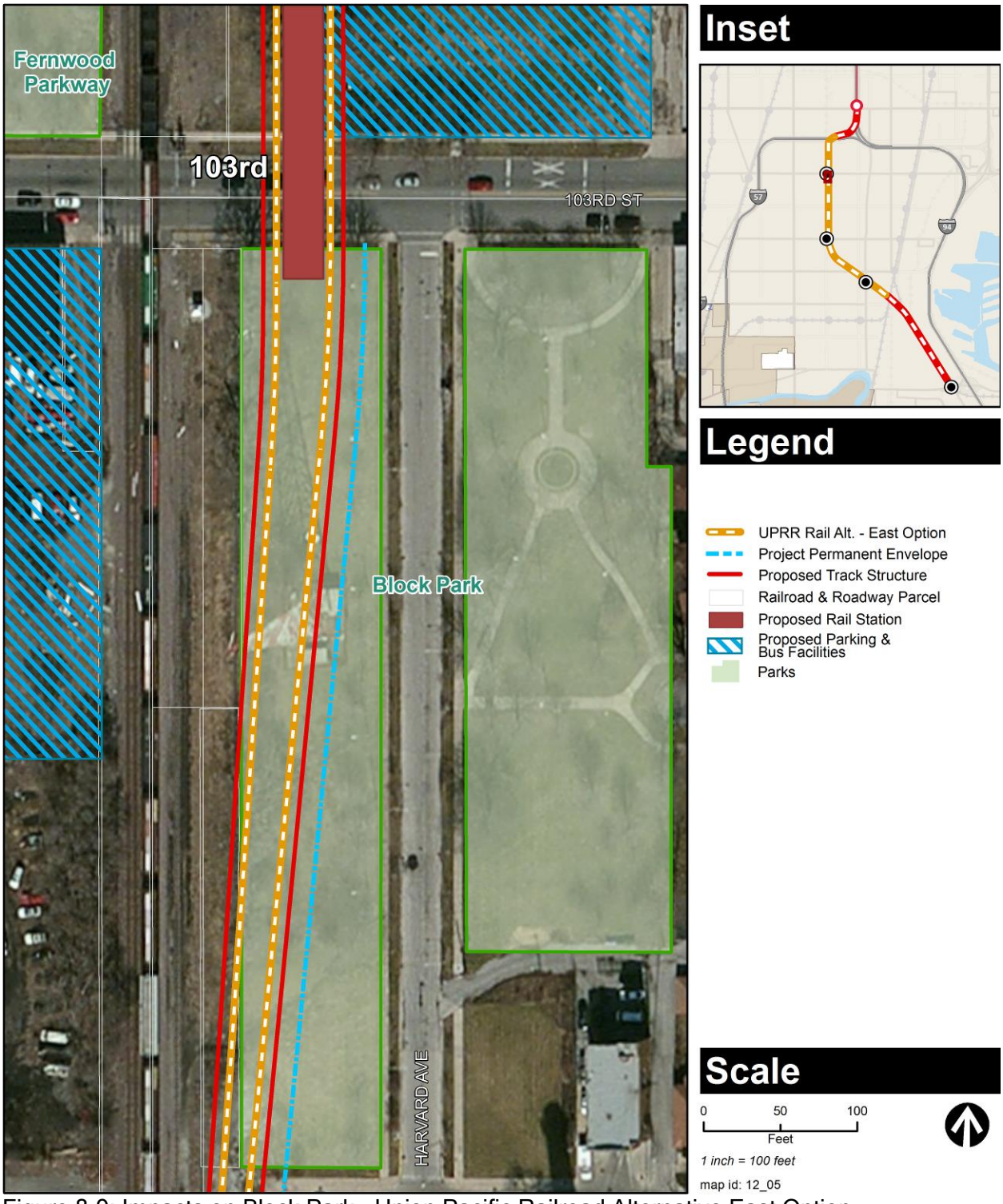


Figure 8-9: Impacts on Block Park - Union Pacific Railroad Alternative East Option

All Possible Planning to Minimize Harm

After implementation of the following proposed mitigation and enhancement measures, there would be no adverse impact on the features, attributes, and activities of the park. **Appendix Y** provides conceptual plans of Block Park and other replacement park options.

- Replacement of lands used (acreage) with lands of reasonably equivalent usefulness and location and of at least comparable value. The replacement land would be used to construct additional new park space in or near the Roseland community area to enhance parkland availability for the surrounding community. New park space created through this replacement acreage would be constructed in accordance with Chicago Park District standards and would facilitate Chicago Park District master planning goals and objectives.

- Restoration and landscaping of disturbed areas.

- Incorporation of design features where necessary to reduce or minimize impacts of use on the Section 4(f) property. Such features would be designed in a manner that would enhance the park but not adversely affect the safety of the transit facility.

While not related to the attributes, features, or activities of the park, additional mitigation measures would include coordination with the City of Chicago and the Federal Communications Commission regarding relocation of the communications tower.

Preliminary Section 4(f) Finding

Based on consideration of the proposed direct use as well as the proposed mitigation and enhancement measures, no adverse impacts on the attributes, features, or activities would result from the East Option; therefore, a *de minimis* finding is proposed for this Section 4(f) use.

The Chicago Park District has concurred with this No Adverse Effect determination with the commitment of proposed mitigation measures in its letter dated August 17, 2015 (see **Appendix C**).

A public involvement process would be held in conjunction with the required NEPA public involvement process after publication of the Draft EIS for review and comment on this preliminary finding. During development of this Draft EIS, CTA and the Chicago Park District coordinated on several potential locations for new/replacement park space. **Appendix Y** provides conceptual plans for potential replacement parks based on this coordination. These locations and conceptual plans will be shared with the public for input as part of the Draft EIS public hearing.

FTA will consider public comment and the availability of the replacement park in determining whether the preliminary *de minimis* impact determination within this Draft EIS is appropriate. Based on FTA's finding and public input, a preferred location for replacement parkland will be identified as part of the Final EIS. The final location of the replacement park will be confirmed and secured based on ability to acquire property voluntarily, following the completion of the environmental phase of this project.

Agency Coordination and Consultation

Coordination with the agency with jurisdiction over the property, the Chicago Park District, is ongoing and will continue through development of the Final EIS. Early coordination meetings

were held on April 18, 2011; July 23, 2013; May 8, 2014; and April 8, 2015 to provide Chicago Park District staff with information on the purpose and need for the project, identification and refinement of alternatives, and potential impacts on parks, and to discuss proposed mitigation measures. The Chicago Park District provided its concurrence on August 17, 2015 that after implementation of the proposed mitigation measures there would be no adverse impact on parks from either alignment option. Additional coordination meetings were held to further develop and refine proposed mitigation measures on October 8, 2015; March 10, 2016; April 6, 2016; May 18, 2016; and June 15, 2016. This coordination will continue as public input is obtained and in finalizing replacement park options and other mitigation measures in the Final EIS. The Chicago Park District has indicated that it regards this project as an opportunity to expand and enhance park activities and overall connectivity in the community once mitigation measures are in place.

8.6 Union Pacific Railroad Alternative West Option Section 4(f) Evaluation

During construction of the West Option, there would be temporary and minor construction activities within Wendell Smith Park for a short duration. These temporary construction activities, further described below, would not rise to a level of Temporary Occupancy under Section 4(f) and there would be no permanent use of the park under Section 4(f).

One Section 4(f) park property would be used as result of the West Option—Fernwood Parkway, which is further evaluated in this section.

8.6.1 Wendell Smith Park

Description and Significance of Property

Section 8.5.1 provides a full description and pictures of Wendell Smith Park.

Section 4(f) Use Assessment

The West Option alignment would be located near the existing park, but would not permanently use any parkland. Due to the proximity of the West Option alignment to the park, during construction there would likely be temporary closure of a small portion of the northwest corner of the park (approximately 0.1 acre) while the tracks are constructed and piers are installed. This closure would be temporary (expected to be no more than 3 to 4 months as piers are installed).

There would be no permanent incorporation of Wendell Smith Park proposed under the West Option, because no land from this park would be used for the project. There would be a short-term closure of the northwest corner of the park (approximately 0.1 acre) during construction, but this closure would not rise to the level of temporary occupancy under 23 CFR § 774.13. The total closure time of 3 to 4 months of this small portion of the park would be substantially less than the total time needed for construction and there would be no change in ownership of the land. The work proposed would be minor, and due to the proximity of the park to the elevated track it would have minimal impact on the property during construction and no permanent physical impact on the park. The temporarily used land would be fully restored to a condition at least as good as that which existed before the project.

Public use of the park would continue throughout construction of the project, and construction would not affect the attributes, features, or activities of the park. There would be no noise impacts related to operation of the proposed project after construction of mitigation measures (noise

barrier). If there were any impact on the existing walking trail during these construction activities, the affected portion of the walking trail would be temporarily relocated within the park. No impacts on existing trees are expected to occur as a result of construction activities. Should any trees need to be cut to allow for activities, the trees would be replaced. Appropriate construction BMPs would be followed to shield construction activities, allow use of the property by the general public, and minimize any safety risks.

The Chicago Park District provided its concurrence on August 17, 2015 that after implementation of the proposed mitigation measures there would be no adverse impact on any parks from either alignment option. Based on these factors and the nature of the minor construction-related work proposed, the temporary construction proposed under the West Option would not rise to the level of temporary occupancy of Wendell Smith Park and there would therefore be no use of the park under Section 4(f).

8.6.2 Fernwood Parkway

Description and Significance of Property

Fernwood Parkway is a passive green space in Washington Heights that extends from 95th Street to 103rd Street. The parkway is divided into four parcels, two of which are north of I-57 and two of which are south of I-57. The two parcels south of I-57 are separated by 101st Street. The northern parcel, from 99th Street to 101st Street, is approximately 2.4 acres (78 feet wide by 1,325 feet long). The southern parcel, from 101st Street to 103rd Street, is approximately 2.9 acres (78 feet wide by 1,277 feet long). Both the north and south parcels of Fernwood Parkway serve as open space and do not contain recreational facilities or amenities such as sidewalks or benches. Some trees are planted within the park and a chain-link fence separates the green space from the existing at-grade UPRR tracks. **Figure 8-10** and **Figure 8-11** show Fernwood Parkway facing north and south.

Figure 8-10: Photo of Fernwood Parkway at 100th Street and Eggleston Avenue (Facing North)

Figure 8-11: Photo of Fernwood Parkway at 100th Street and Eggleston Avenue (Facing South)

Section 4(f) Use Assessment

The West Option track structure would run through two of the four parcels that make up Fernwood Parkway between 101st and 103rd Streets. Elevated track structure supports would be placed permanently in the parkway. Approximately 1.9 acres of the parkway would be overlapped by the elevated structure and its associated clearances (see **Figure 8-12**). The parkway functions as open space, and does not contain recreational amenities.

The West Option would result in a permanent incorporation of the park space, which constitutes use under Section 4(f). Temporary closure of the overlapped section of the parkway would be necessary during construction. Elevated track structure supports would be placed permanently in the park space. There would be no noise impacts related to operation of the proposed project after construction of mitigation measures (noise barrier). Mitigation measures, further discussed below, would be implemented in advance of construction to the extent possible. Except for the piers that would be placed in the park, the land used would be restored to a condition at least as good as that which existed before the project.

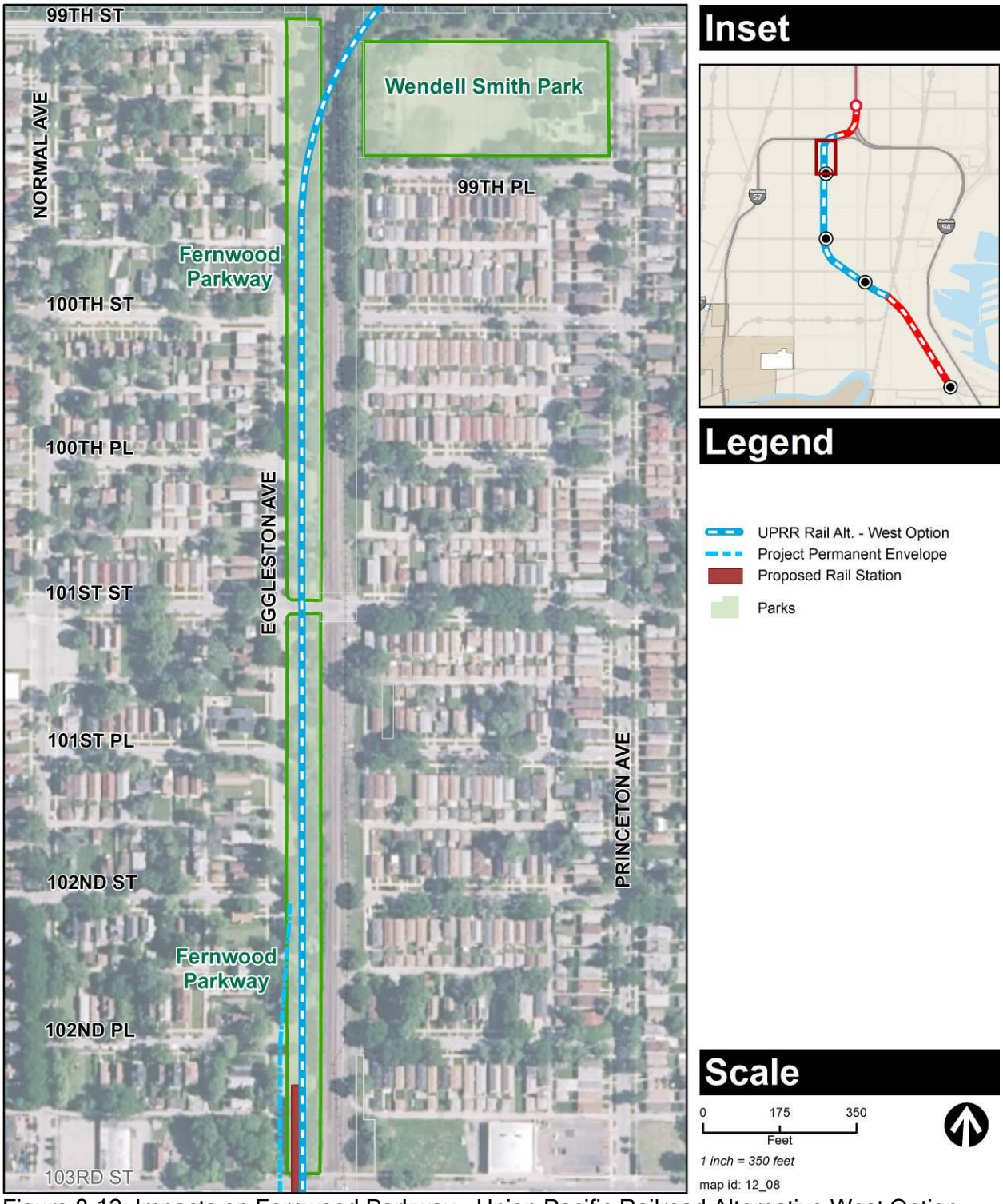


Figure 8-12: Impacts on Fernwood Parkway - Union Pacific Railroad Alternative West Option

All Possible Planning to Minimize Harm

After implementation of the following proposed mitigation and enhancement measures, there would be no adverse impact on the features, attributes, and activities of the park. **Appendix Y** provides conceptual plans of Fernwood Parkway and other replacement park options.

- Replacement of lands (acreage) used with lands of reasonably equivalent usefulness and location and of at least comparable value. The replacement land would be used to construct replacement park space in or near the Washington Heights community area to enhance parkland availability for the surrounding community. New park space created through this replacement acreage would be constructed in accordance with Chicago Park District standards and would facilitate Chicago Park District master planning goals and objectives.

- Potential installation of a new bicycle path beneath the elevated track structure, subject to use for CTA maintenance, which would enhance the existing unused green space and better connect parks and the newly proposed transit infrastructure. Additional coordination with CDOT as part of the Final EIS will finalize the feasibility of this measure.

- Restoration and landscaping of disturbed areas.

- Incorporation of design features where necessary to reduce or minimize impacts of use on the Section 4(f) property. Such features would be designed in a manner that would enhance the green space but not adversely affect the safety of the transit facility.

Preliminary Section 4(f) Finding

Based on consideration of the proposed direct use as well as the proposed mitigation and enhancement measures, no adverse impacts on the attributes, features, or activities would result from the West Option; therefore, a *de minimis* finding is proposed for this Section 4(f) use. There are no physical features requiring replacement, and replacement parkland proposed as mitigation would replace this linear open green space near existing at-grade rail with more enhanced opportunities for active recreation park space within or near the surrounding community. Additional potential for bicycle paths beneath the elevated track structure could enhance connectivity between the proposed transit facility and other nearby community facilities.

The Chicago Park District has concurred with this no adverse effect determination with the commitment of proposed mitigation measures in its letter dated August 17, 2015 (see **Appendix C**).

A public involvement process would be held in conjunction with the required NEPA public involvement process after publication of the Draft EIS for review and comment on this preliminary finding. During development of this Draft EIS, CTA and the Chicago Park District coordinated on several potential locations for new/replacement park space. **Appendix Y** provides conceptual plans for potential replacement parks based on this coordination. These locations and conceptual plans will be shared with the public for input as part of the Draft EIS public hearing.

FTA will consider public comment and the availability of the replacement park in determining whether the preliminary *de minimis* impact determination is appropriate. Based on FTA's finding and public input, a preferred location for replacement parkland will be identified as part of the Final EIS. The final location of the replacement park will be confirmed and secured based on

ability to acquire property voluntarily, following the completion of the environmental phase of this project.

Agency Coordination and Consultation

Coordination with the agency with jurisdiction over the property, the Chicago Park District, is ongoing and will continue through development of the Final EIS. Early coordination meetings were held on April 18, 2011; July 23, 2013; May 8, 2014; and April 8, 2015 to provide Chicago Park District staff with information on the purpose and need for the project, identification and refinement of alternatives, and potential impacts on parks, and to discuss proposed mitigation measures. The Chicago Park District provided its concurrence on August 17, 2015 that after implementation of the proposed mitigation measures there would be no adverse impact on parks from either alignment option. Additional coordination meetings were held to further develop and refine proposed mitigation measures on October 8, 2015; March 10, 2016; April 6, 2016; May 18, 2016; and June 15, 2016. This coordination will continue as public input is obtained and in finalizing replacement park options and other mitigation measures in the Final EIS. The Chicago Park District has indicated that it regards this project as an opportunity to expand and enhance park activities and overall connectivity in the community once mitigation measures are in place.

8.7 Next Steps

This Draft EIS provides information on preliminary findings of *de minimis impact* for the UPRR Alternative East and West Option Section 4(f) uses. These preliminary findings include all possible planning to minimize harm to the extent possible with the conceptual engineering details available to date, in accordance with 23 CFR § 774.7(e)(1).

In addition, public review and comment is required for input into these preliminary *de minimis impact* findings. During development of this Draft EIS, CTA and the Chicago Park District coordinated on several potential locations for new/replacement park space. **Appendix Y** provides conceptual plans of the affected parks and other replacement park options. These locations and conceptual plans will be shared with the public for input as part of the Draft EIS public hearing.

Based on the results from these coordination activities, in the Final EIS and ROD FTA will confirm and finalize the findings by reference to the documentation included in this Draft EIS. Concurrence from the Chicago Park District, as the agency with jurisdiction over Section 4(f) properties evaluated in this chapter, is required to confirm these preliminary findings. Correspondence from the Chicago Park District confirming FTA's determinations will be included in the Final EIS.

The Final EIS will confirm whether the East or West Option is the selected option, and a preferred replacement park site will be identified based on public input. During the Final EIS and based on public feedback on park replacement sites, CTA will conduct outreach to property owners to determine availability of land and ability to acquire replacement property. As part of the Final EIS, additional coordination with the Chicago Park District will occur as well. The Final EIS will lay out the process to be conducted between CTA and the Chicago Park District to further identify replacement park locations should any of the identified replacement park options not be available at the time of property acquisition. The final park replacement site will be acquired in coordination with the Chicago Park District after completion of the environmental phase of this project (i.e., after FTA issues a ROD for the Final EIS). Additional environmental documentation

in the form of a Phase I ESA per Chicago Park District requirements for developing new parks will be conducted before construction of the replacement park. CTA will also coordinate with CDOT as part of the Final EIS regarding potential installation of a new bicycle path beneath the elevated track structure at Fernwood Parkway if the West Option is selected.

Any new or more detailed engineering information available during the preparation of the Final EIS and ROD that could raise new Section 4(f) concerns not already considered herein would be included in that final documentation. If for any reason FTA determines that additional Section 4(f) analysis is required, additional Section 4(f) analysis will be prepared as part of the Final EIS.

Chapter 9
Evaluation of Alternatives

This chapter evaluates the alternatives with two comparisons. First, this chapter reviews and compares the capital expenditures (e.g., construction costs) and operations and maintenance (O&M) costs associated with the East and West Options. The potential funding sources and financing approaches under consideration for the project area are described. Second, this chapter compares the benefits and impacts of the East and West Options.

9.1 Potential Capital and Operating Funding Strategies

The purpose of this analysis is to provide a financial comparison of the East and West Options. Capital and O&M costs included in the analysis reflect the results of planning and engineering completed to date to support the technical analyses in the Draft EIS. These costs and potential revenue sources will be refined to reflect more detailed engineering and operational planning that will be conducted as the project moves through FTA's project development process and to reflect changes in available funding sources and financing approaches.

CTA would prepare a detailed financial plan to support CTA's request for funding through the FTA Section 5309 Capital Investment Grant (CIG) Program. This future detailed financial plan will document CTA's ability to fund construction and operation of the project within FTA requirements for grants awarded under the Section 5309 CIG Program. This initial analysis completed for the Draft EIS and the more detailed future financial plan will assist FTA, CTA, cooperating and participating agencies, and the public in understanding and evaluating CTA's financial capacity to construct and operate the RLE Project and to continue to operate and maintain the existing transit system.

Costs and revenues presented in this chapter are in FY 2015 base year dollars and in year of expenditure (YOE) dollars. YOE dollars reflect the financial impact of funding that would need to be expended in the actual YOE and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the preliminary implementation schedules are used to project base year dollars to YOE dollars. For example, in YOE dollars, $3.00 in 2015 is equivalent to $3.18 in 2017, using an annual inflation rate of 3.0 percent.

9.1.1 Capital Cost Estimates

Reflecting engineering and planning completed to support the Draft EIS, the base year capital costs are estimated to be $1,716 million (2015 dollars) for the East Option and $1,746 million (2015 dollars) for the West Option.

For the Draft EIS, the base year capital cost estimates were originally prepared in 2013 dollars and have been escalated to 2015 base year dollars using the annual and compound annual construction cost growth rates summarized in **Table 9-1**. The annual construction cost growth rates reflect the January 2013 R.S. Means Construction Cost Index Forecast for Chicago, IL that was prepared for the RLE Project.

Table 9-1: Annual Inflation Rates

Year	Annual Construction Cost	Compound Annual Construction Cost

	Growth Rate	Growth Rate
2015	-	1.00
2016	3.65%	1.04
2017	3.66%	1.07
2018	3.58%	1.11
2019	3.50%	1.15
2020	3.43%	1.19
2021	3.36%	1.23
2022	3.30%	1.27
2023	3.25%	1.31
2024	3.19%	1.36
2025	3.14%	1.40
2026	3.08%	1.44
2027	3.04%	1.48
2028	2.99%	1.53

Source: Moody's Analytics 2013, Financial Plan for Chicago Transit Authority's Red Line Extension Project

Additionally, for the YOE analysis, CTA escalated capital costs from 2015 base year dollars using the R.S. Means Construction Cost Index combined with preliminary implementation schedules for the East and West Options as summarized in **Table 9-2**. The table summarizes the percent of construction activities expected to be completed by year (cost curve), which was used to estimate the annual capital costs for the East and West Options over the FY 2016 to FY 2028 period. As the selected option moves through FTA's project development process, this implementation schedule will be revised to reflect future federal approvals, detailed engineering, and funding availability.

Table 9-2: Preliminary Implementation Schedule Cost Curve Assumptions

Year	Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
2016	1.2%	1.2%
2017	1.9%	1.9%
2018	1.6%	1.6%
2019	2.8%	2.8%
2020	5.4%	5.6%
2021	7.9%	8.3%
2022	17.7%	17.6%
2023	23.8%	23.7%
2024	32.4%	32.1%
2025	5.1%	5.0%
2026	0.0%	0.0%
2027	0.1%	0.1%
2028	0.1%	0.1%
Total	**100.0%**	**100.0%**

Based on the projected annual construction cost growth rates and preliminary implementation cost curve assumptions above, the total capital costs would be $2,260 million (YOE dollars) for the East Option and $2,300 million (YOE dollars) for the West Option. **Figure 9-1** summarizes the estimated annual costs for the East and West Options. As shown in the figure and reflecting the cost curve assumptions, between FY 2016 and FY 2021 costs reflect engineering, right-of-way acquisition, utility relocation, and construction staging activities. Construction and acquisition of rail cars would occur between FY 2022 and FY 2025. Start-up activities, including testing, would occur in FY 2025, and project close-out and remaining professional services activities, including FTA's Before and After Study requirements, would be completed in FY 2027–2028.

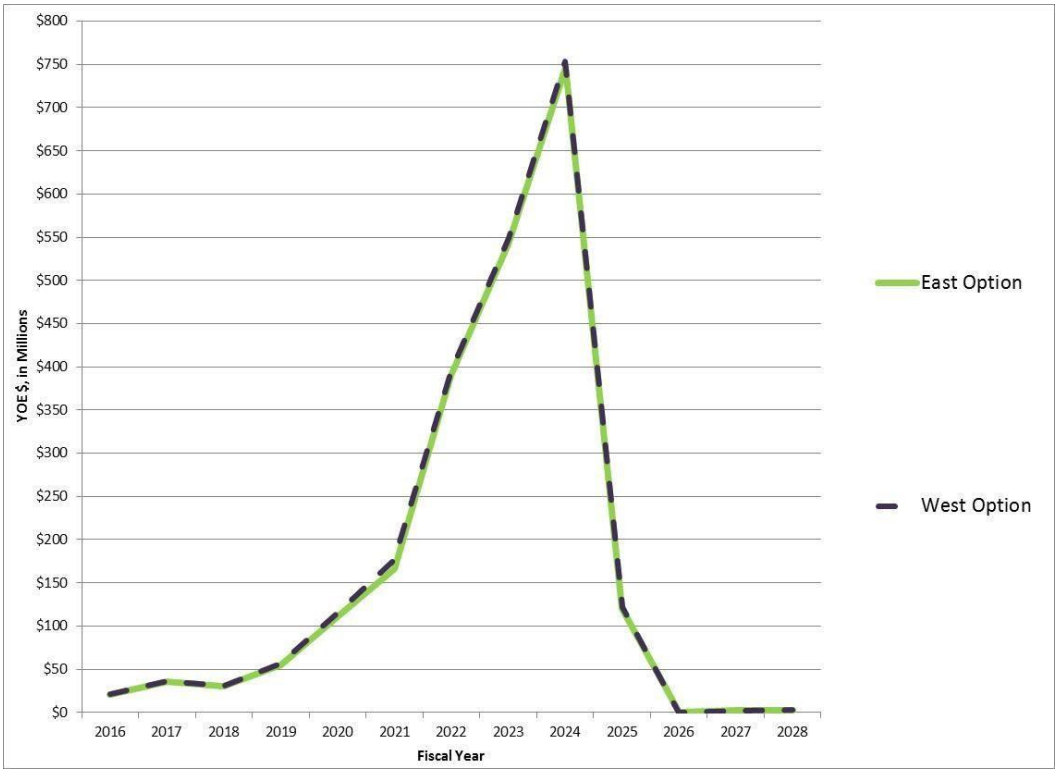


Figure 9-1: Annual Capital Cost Estimates (Year of Expenditure Dollars, in Millions)

9.1.2 Potential Capital Funding Sources and Financing Options

The potential funding sources and financing mechanisms described below reflect an initial list that could support the implementation of either the East or West Option. At this stage of project development, the funding analysis assumes a 49 percent (approximately $1,100 million YOE dollars) contribution from the FTA Section 5309 CIG Program (New Starts), and 51 percent funding from non-New Starts sources.

Potential Capital Funding Sources

Below are summary descriptions of the Section 5309 CIG Program and potential traditional and innovative approaches CTA could consider to fund the non-New Starts share of total project costs. As the selected option continues through the FTA project development process, CTA will determine the specific sources and levels of funding to cover the non-CIG Program share. This is consistent with CTA's traditional project implementation approach of working with the public and key stakeholders to determine the preferred alternative before requesting funds.

- FTA Section 5309 CIG Program (New Starts) - CTA intends to seek CIG funding from FTA for one or more of the alternatives examined in this NEPA document. The CIG Program, more commonly known as the New Starts, Small Starts, and Core Capacity Program, involves a multiyear, multistep process that project sponsors must complete before a project is eligible for funding. The steps in the process and the basic requirements of the program can be found on FTA's website at www.fta.dot.gov.

  FTA must evaluate and rate proposed projects seeking funding from the CIG Program on a set of project justification and local financial commitment criteria specified in law. The criteria evaluate the merits of the project and the projects sponsor's ability to build and operate it as well as the existing transit system. FTA assigns ratings from low to high based on information that project sponsors submit on the project cost, benefits, requested amount of CIG Program funds, and overall financial plan. Projects must receive a medium or better overall rating to advance through the steps in the process and be eligible for funding from the program. As projects proceed through the steps in the process, information concerning costs, benefits, and impacts is refined and the ratings are updated to reflect new information.

  As stated above, the financial analysis completed for the Draft EIS assumes CTA will pursue CIG Program funds through a New Starts Full Funding Grant Agreement of approximately 49 percent of the total project costs.

- Other Federal Funding Programs - In addition to the proposed New Starts funding, CTA could pursue the use of other federal funding programs to support implementation of the selected option. The total federal funding share for the project (New Starts plus other federal funding programs) cannot exceed 80 percent. The other federal funding programs under consideration include the FHWA programs and the USDOT Competitive Grant Program listed below.

  - FHWA Funding - Funding from these programs would be eligible to be "flexed" (transferred) to FTA to support implementation of transit capital investment projects. These funds are programmed by CMAP and would require adoption in the Long Range Transportation Plan and TIP to be used to fund a portion of the selected option's capital costs. Flexible FHWA funding sources include the following:

    - Congestion Mitigation and Air Quality Program - These funds are available for transportation projects likely to reduce congestion and to contribute to the attainment or maintenance of one or more NAAQS, with a high level of effectiveness in reducing air pollution.

    - Surface Transportation Program - This program provides funding for projects that preserve and improve the conditions and performance on any federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects.

    - Transportation Alternatives Program - This competitive grant program could provide funding for non-motorized elements of the project.

  - USDOT Transportation Investment Generating Economic Recovery (TIGER) Program - The TIGER grant program was established as part of the Recovery Act in 2009 and is a competitive grant program to support implementation of "shovel ready" infrastructure

projects, including highways, bridges, public transit, passenger and freight rail, port infrastructure, and intermodal facilities. Grants are made available for transportation projects of national and regional significance that contribute to the long-term economic competitiveness of the nation, improve the condition of existing transportation facilities and systems, increase energy efficiency and reduce GHG emissions, improve the safety of U.S. transportation facilities, and/or enhance the quality of living and working environments of communities through increased transportation choices and connections.

- Since 2009, USDOT has issued eight separate requests for TIGER applications. CTA was successful in obtaining a $20 million TIGER grant in 2012 for the 95th Street Terminal Improvements. For the RLE Project, a specific element of the overall project with independent utility (i.e., a stand-alone component of the overall project) would need to be identified to meet the TIGER grant eligibility requirements.

- State Funds - Historically the State of Illinois has provided funding assistance for CTA's major capital improvement projects. As the selected option moves through the project development process, CTA will work with State leaders to potentially include the project in future transportation funding packages. CTA could also pursue funding through the Illinois Transportation Enhancement Program (ITEP). ITEP is a competitive grant funding mechanism for Illinois transportation projects to improve pedestrian and bicycle accessibility and could potentially be used for street-level infrastructure improvements in conjunction with the RLE Project.

- Local/Private Funds - As part of the future detailed financial plan, CTA will evaluate opportunities to leverage existing and/or potential local revenue sources to fund specific project elements such as stations. This could include the use of value capture mechanisms such as special assessment districts or TIF districts. In special assessment districts, revenue is generated from a fee on properties in a specified area that is used to pay a portion of the capital improvements made within and specifically benefiting that area. In an assessment district, a connection between benefit received and cost charged is essential, in that assessments charged in these districts must be proportional to and no greater than the benefit to the assessed property. A TIF district reflects a concept where existing facilities and planned capital improvement projects would result in increased property taxes within the defined geographic area. The incremental revenue increase can then be used to support further capital investment within the district. Within the project area there are currently three TIF districts that could potentially provide funding to the project: 107th/Halsted TIF District (includes the site of the 111th Street station), Roseland/Michigan TIF District (includes the site of the Michigan Avenue station), and the Lake Calumet Industrial Corridor TIF District (includes the site of 120th Street yard and shop).

  Additionally, on June 30, 2016, the Illinois General Assembly approved a modified form of TIF to raise local revenues to fund the following four major transit improvements in Chicago and adjacent municipalities: the RLE Project, the RPM Program, Union Station improvements, and the Blue Line Modernization Project. These new districts will be called Transit Facility Improvement Areas (TFIA) and would use incremental property tax revenue to fund improvements. A TFIA as defined in the legislation is an area whose boundaries are no more than ½ mile in any direction from the location of a mass transit facility, provided that the length of any existing or proposed right-of-way included in any transit facility improvement

area does not exceed 6 miles. The TIF district for a TFIA will have a 50-year life. Transit capital expenses, including costs related to the construction, reconstruction, rehabilitation, remodeling, or repair of any existing or proposed transit facility, whether publicly or privately owned or servicing debt issued for transit capital expenditures, are the only eligible expenses for revenue collected with the new TIF districts.

Traditional and Innovative Financing Approaches

Below is an overview of traditional federal and local financing mechanisms, as well as potential innovative public-private partnership financing, that could be used to accelerate implementation of the selected option. A new source(s) of funding would be required to repay these potential financing mechanisms. CTA is working with regional and state partners to evaluate a variety of potential new revenue sources and/or expansion of existing revenue sources that would support transportation improvements throughout the region. The potential sources could include new or increased levels of state, county, and local taxes, as well as potential value capture mechanisms such as assessment districts and TIFs, including the newly created TFIA districts.

- Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan - TIFIA provides federal credit assistance (financing) for eligible projects of regional and national significance. TIFIA credit assistance provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than can be found in private capital markets for similar financing instruments. TIFIA can help advance qualified, large-scale projects that otherwise might be delayed or deferred because of size, complexity, or uncertainty over the timing of revenues. Given the flexible repayment terms and favorable interest rates, TIFIA finance has become an increasingly popular financial tool for transportation agencies. A challenge for future financing through TIFIA was the recent 70 percent reduction in annual program funding, from $1.0 billion to $287 million, with the December 2015 passage of the FAST Act. In April 2014, CTA was successful in obtaining CTA's first TIFIA Loan of $79.2 million for the 95th Street Terminal Improvement Project.

- CTA Bonds - CTA's existing debt financing is composed primarily of four different types of long term bonds: Sales and Transfer Tax Receipts Revenue Bonds, Sales Tax Receipts Revenue Bonds, Building Revenue Bonds, and Capital Grant Receipts Revenue Bonds. As the project moves forward in the project development process, CTA will determine the most appropriate bonding mechanism to provide local support for the non-federal share of funding required for the project.

- Private Financing - Private financial participation could take a number of different forms, ranging from Private Activity Bonds, (where tax-exempt interest rates are made available to private issuers), to equity participation in particular project components including transit-oriented developments, parking, or other real estate-related investments.

9.1.3 Operating Cost Estimates

CTA's O&M Cost Model was used to compare the operating costs of the East and West Options to the No Build Alternative. Based on planning completed to date, it is assumed that both options would have the same rail operating plan and associated proposed changes to existing local bus service. As a result, the comparison of operating statistics and O&M costs to the No Build is the same for the East Option and West Option.

The version of CTA's O&M Cost Model used for the Draft EIS was calibrated to the agency's FY 2012 system-wide operating budget ($1,273.7 million) and estimates costs for system-wide rail and bus costs separately. The model allows CTA staff to evaluate the financial impact of different rail and bus operating plans compared to existing service levels based on changes to the key operating statistics shown in **Table 9-3**. As shown in **Table 9-4**, the unit costs from the O&M Cost Model have been inflated to 2015 dollars based on the Chicago Area Consumer Price Index Forecast provided in the 2013 *Moody's Analytics Financial Plan for Chicago Transit Authority's Red Line Extension Project* economic analysis.

Table 9-3 compares the annual operating statistics for the East and West Options to the No Build Alternative. Compared to the No Build Alternative, the East and West Options would provide substantially higher levels of rail service (hours and miles) while streamlining existing bus service levels as new rail service replaces current bus service.

Table 9-3: Key Operating Statistics - Union Pacific Railroad Alternative East and West Options Compared to the No Build Alternative

	Difference from No Build Alternative
Rail Characteristics	
Annual Train Hours	37,227
Annual Train Car Miles	5,489,502
Peak Trains	8
Peak Train Cars	64
Stations	4
Track Miles	10.6
Existing Bus Characteristics	
Revenue Bus Miles	-276,451
Revenue Bus Hours	-3,991
Peak Buses	6

Note: Rail and bus characteristics reflect service planning assumptions developed as part of the Draft EIS. Service levels may be adjusted in the future to reflect additional planning and actual ridership demand.

Table 9-4 summarizes the estimated impact on annual O&M costs attributable to each of the variables that drive O&M costs, in total for the East and West Options and as compared to the No Build Alternative. The estimated difference in annual operating costs is $17.4 million (2015 dollars) for either the East or West Option as compared to the No Build Alternative. This difference for either of the options represents approximately 1 percent of CTA's total FY 2015 O&M budget ($1,443.7 million).

Table 9-4: Impact on Operations and Maintenance Costs for the Union Pacific Railroad Alternative East or West Option Compared to the No Build Alternative (2015 dollars, in millions)

	CTA O&M Model Unit Costs (2015$)	Difference from No Build Alternative (2015$)
Rail Variables		
Annual Train Hours	173.77	6.5
Annual Car Miles	2.03	2.6
Peak Trains	259,179.20	2.1
Peak Cars	32,216.70	2.1
Stations	647,739.00	2.6
Track Miles	259,259.05	2.7
Existing Bus Variables		
Revenue Bus Miles	3.91	(1.1)
Revenue Bus Hours	82.88	(0.3)
Peak Buses	52,564.05	0.3
Total[1]		**17.4**

O&M = Operations and Maintenance
[1] Total may not match due to rounding
Note: While the capital cost estimate includes costs associated with the construction of park & ride spaces, the O&M cost estimate does not include operating expenses for the park & ride facilities. The O&M cost estimate assumes CTA will contract with an outside company to manage and operate the park & ride facilities. This assumption is consistent with CTA's current contract with CPS Chicago Parking LLC to operate and manage existing park & ride facilities.

9.1.4 Potential Operating Revenue Sources

CTA would use the following system-generated and public funding sources to fully fund the O&M costs of the selected option as well as system-wide rail and bus operations:

- System-Generated Revenues - Fares and passes; reduced fare subsidy; advertising, charters and concessions revenues; investment income revenue; statutory required contributions from the City of Chicago and Cook County; and other revenues includes parking charges, rental revenue, third-party contractor reimbursements, and filming fees, among other income sources.

- Public Funding - The amount of public funding available for CTA operations is determined by the Regional Transportation Authority. Public funding has three sources: sales tax revenue, public transportation funds, and the real estate transfer tax. The three funding sources are authorized under Illinois statutes passed in 1983 and 2008.

9.2 Comparison of Alternatives

This section summarizes information from the other chapters of this Draft EIS and highlights important trade-offs between the East and West Options. Key points of comparison include project benefits, potential to meet purpose and need goals, environmental impacts, and costs.

9.2.1 Evaluation Goals and Criteria

CTA used the following evaluation goals and criteria to compare the benefits and drawbacks of the East and West Options. These goals reflect CTA's desire to provide enhanced transit service and promote economic development in the project area in a fiscally sound manner while minimizing adverse environmental impacts. For each goal, this evaluation applied the criteria listed below to determine the extent to which the East and West Options would meet that goal.

These goals are based on the purpose and need (**Chapter 2** of the Draft EIS), the AA process, comments received during scoping, public involvement, and the environmental analysis in **Chapters 3–7** of this Draft EIS.

Goal 1 - Reduce Transit Times

Goal 1 is evaluated based on the following criteria:

- Reduce transit times for residents, from within and south of the project area to the 95th Street Terminal and the Loop.
- Provide direct access to the CTA rail system for transit-dependent populations.
    - New stations convenient to transit-dependent communities
    - Direct service to public housing such as Altgeld Gardens

Goal 2 - Increase Travel Choices

Goal 2 is evaluated based on the following criteria:

- Provide better transit access to regional employment centers and local commercial areas.
- Allow for potential connections to other public transportation modes including regional commuter rail.
- Reduce geographic isolation of the project area and improve connections to major activity centers.
- Provide opportunities for drivers commuting on expressways to park and use transit to complete their trips.
    - Number of stations with park & ride facilities
    - Total park & ride spaces

Goal 3 - Increase Economic Competitiveness

Goal 3 is evaluated based on the following criterion:

- Foster economic development in the project area by providing stations that can encourage nearby development.

Goal 4 - Minimize Environmental Impacts

Goal 4 is evaluated based on minimizing environmental impacts:

- Displacement and Relocation Impacts
- Noise Impacts
- Park Impacts

- Community Character Impacts
- Visual and Aesthetic Impacts

Goal 5 - Provide the Best Value

Goal 5 is evaluated based on the following criteria:

- Projected ridership
- Capital costs to construct the project
- Changes in operating and maintenance costs for the system

9.2.2 Evaluation Results

Table 9-5 provides specific measurements for the goals identified in **Section 9.2.1**, and compares the extent to which the East and West Options and the No Build Alternative would meet the goals.

Table 9-5: Comparative Evaluation of Alternatives

Criteria	No Build Alternative	Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
Goal 1 - Reduce Transit Times			
Travel Times Between Stations[1,2]			
130th Street to 95th Street Terminal	28 minutes	14 minutes	14 minutes
130th Street to Jackson Station (Loop)	58 minutes	39 minutes	39 minutes
Would the proposed stations serve transit-dependent communities?	No	Yes	Yes
Would there be new direct service to Altgeld Gardens?	No	Yes	Yes
Goal 2 - Increase Travel Choices			
Would there be better access to regional employment centers and local commercial areas?	No	Yes	Yes
Would potential connections to other public transportation modes within the project area be possible?	No	Yes	Yes
Would geographic isolation be reduced?	No	Yes	Yes
How many stations would have park & ride facilities?	0	4 of 4	4 of 4
Total Park & Ride Spaces	0	3,700	3,700
Goal 3 - Increase Economic Competitiveness			
Could nearby development be encouraged?	No	Yes	Yes
Goal 4 - Minimize Environmental Impacts			
Displacements and Relocations			
Properties	0	260	205
Buildings	0	106	46
Residential Buildings	0	90	26
Mixed-Use Buildings	0	1	2
Commercial and Industrial Buildings	0	13	17
Places of Worship	0	1	1
City-Owned Buildings	0	1	0
Noise Impacts After Mitigation	No change	Not adverse	Not adverse
Receivers with Moderate Impacts	0	574/0	738/0

Criteria	No Build Alternative	Union Pacific Railroad Alternative East Option	Union Pacific Railroad Alternative West Option
(before mitigation/after mitigation) Receivers with Severe Impacts (before mitigation/after mitigation)	0	83/0	49/0
Park Impacts (Not Adverse After Mitigation)[3] Construction Phase Permanent Permanent (acres)	 0 parks 0 parks 0 acres	 2 parks 2 parks 1.6 acres	 2 parks 1 park 1.9 acres
Would there be community impacts after mitigation?	No	Yes	Yes
Would there be visual and aesthetic impacts after mitigation?	No	Yes	Yes
Goal 5 - Provide the Best Value			
Projected Ridership (per weekday)	0	42,000	42,000
Capital Costs[4]	$0	$2.26 Billion	$2.30 Billion
Annual Change in O&M Costs[5]	No Change	+$17.4 Million	+$17.4 Million

N/A = Not Applicable
[1] Source: CTA 2009
[2] Travel time between stations does not include wait time at 130th Street.
[3] Based on the Section 4(f) analysis. Findings contingent on continued coordination process.
[4] Year of expenditure dollars
[5] O&M = Operations and maintenance. Difference from No Build Alternative shown in year 2015 dollars

Based on the criteria above, both the East and West Options would meet the identified goals. The sections below provide further discussion of the evaluation.

Goal 1 - Reduce Transit Times

Under the No Build Alterative, transit times in the project area would remain the same. The East and West Options would reduce transit travel times between the project area and destinations along the existing CTA rail system. The build alternative options would extend the Red Line southward from the 95th Street Terminal, with no transfer at the 95th Street Terminal required. Both the East and West Options would include new stations in transit-dependent communities, which would provide residents with more mobility and better access to jobs and services. The 130th Street station would serve the residents of Altgeld Gardens. The East and West Options would provide enhanced mobility, particularly for project area residents who do not have access to a car, and would allow them easier access to regional employment and activity centers.

Goal 2 - Increase Travel Choices

The No Build Alternative would not provide any transit service improvements, and would therefore not increase travel choices in the project area.

The East and West Options would provide transit service to the project area and would provide better transit access to regional employment centers and local commercial areas. The East and West Options would allow for potential future connections to regional commuter rail, particularly to NICTD at the 130th Street station where the tracks are adjacent. The East and West Options would serve geographically isolated neighborhoods and improve their connections to regional job centers. With the extension of the Red Line, some existing bus routes would be rerouted to feed into the proposed stations. All stations for the East and West Options would include park & ride facilities for motorists wishing to park their cars and complete their trips using transit. These facilities would potentially attract motorists from the nearby expressways, and give project area

residents and residents from the south suburbs of Chicago more options for accessing the enhanced transit service.

Goal 3 - Increase Economic Competitiveness

The new stations could serve as catalysts for development and neighborhood revitalization. The Michigan Avenue station park & ride facility would include ground-floor space for community facilities and retail, which would help offset the negative impacts of the required displacements. By providing new, high-quality transit service to communities that have experienced long-term disinvestment, the East and West Options could encourage improvement of local economic conditions for project area residents.

Goal 4 - Minimize Environmental Impacts

The No Build Alternative would not have any environmental impacts, but also would not improve transit service in the project area. It would therefore not fulfill the purpose and need of the RLE Project, and would not satisfy the criteria for the environmental goal. The East and West Options would have greater environmental impacts than the No Build Alternative, but would fulfill the purpose and need of the project. Mitigation measures to address the potentially adverse impacts are proposed in **Chapters 3–7**.

Both the East and West Options would require displacements along their proposed alignments. The East Option would require 106 building displacements, most of which would be residential. The West Option would require 46 building displacements, which would be a mix of residential, commercial, and industrial. Noise-sensitive receivers along the East and West Option alignments would have moderate and severe noise impacts before mitigation. Under the East Option, 574 noise-sensitive receivers would have moderate impacts, and 82 noise-sensitive receivers would have severe impacts. Under the West Option, 738 noise-sensitive receivers would have moderate impacts, and 48 noise-sensitive receivers would have severe impacts. Under both the East and West Options, CTA would construct a noise barrier approximately 4 feet in height along both sides of the elevated track structure from the 95th Street Terminal to the CN/ME tracks near 119th Street, to reduce noise to levels below FTA noise impact criteria. Impacts would not be adverse after mitigation.

Both the East and West Options would affect parks in the project area. The East Option would have permanent and construction impacts on Wendell Smith Park and Block Park. The East Option would require the elevated structure to be built above the northwest corner of Wendell Smith Park and along the western parcel of Block Park. The West Option would have construction impacts on Wendell Smith Park and Fernwood Parkway and permanent impacts only on Fernwood Parkway. The West Option would require the elevated structure to be built above Fernwood Parkway between 99th and 103rd Streets. The East Option would permanently affect 1.6 acres of parkland, and the West Option would permanently affect 1.9 acres of parkland.

The placement of new elevated structures and park & ride facilities into existing communities would result in community character impacts that would remain adverse after mitigation under the East and West Options. The East Option would have adverse impacts on community character and cohesion despite mitigation because of the visual encroachment of the elevated structure into the neighborhood north of I-57 in Roseland and near 117th Street and Prairie Avenue in West Pullman. The West Option would have adverse impacts on community character and cohesion despite mitigation because of the visual encroachment of the elevated structure into

the neighborhood north of I-57 in Roseland and between 99th and 103rd Street in Washington Heights, near the 103rd Street station in Washington Heights, and near the Michigan Avenue station park & ride facility in West Pullman.

Both the East and West Options would have adverse visual impacts despite mitigation. Under the East Option, the elevated track structure would create an adverse visual impact north of I-57 and at the intersection of 117th Street and Prairie Avenue. As part of the West Option, the elevated track structure would create an adverse visual impact north of I-57 and between 99th and 103rd Streets, and at the 103rd Street station.

Goal 5 - Provide the Best Value

The approximate capital costs of the East Option would be $2.22 billion in YOE dollars, and the approximate capital costs of the West Option would be $2.26 billion in YOE dollars. Projected annual O&M costs for the CTA system would increase by approximately $17.4 million for either the East or West Option. CTA developed the East and West Options to meet Goals 1–4 described above and to meet the goals in a cost-efficient manner.

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Chapter 10
Public and Agency Coordination

This chapter and the *Agency Coordination and Public Involvement Appendix* (**Appendix C**) document the extensive outreach and coordination that FTA and CTA have undertaken for the RLE Project. CTA began public outreach on the project as part of the AA from 2006 to 2009. Outreach continued during the formal EIS scoping period in 2009, and has continued through the preparation of this Draft EIS starting in 2012.

10.1 Public Participation Plan

To ensure that the public was informed and had opportunities to comment at key milestones throughout the study, CTA developed a detailed Public Participation Plan (PPP) at the onset of the RLE scoping process and updated at the start of the Draft EIS phase. The PPP includes outreach goals, key issues, a detailed stakeholder database, communications protocols, public input tracking protocols, a proposed schedule for interfacing with the public, and recommendations for how meetings should be conducted at various stages of the study. The PPP also includes additional recommendations for individual stakeholder interviews or briefings, interagency coordination, and the formation of working groups. The PPP is included in **Appendix C**.

10.2 Agency Coordination

CTA has coordinated and will continue to coordinate with governmental and other agencies throughout the course of this project. Outreach efforts were conducted in compliance with NEPA and other applicable regulations, including Section 106 of the NHPA, Section 4(f) of the USDOT Act of 1966, joint guidance and regulations from FTA and FHWA, and other agency regulations and guidelines.

10.2.1 Section 106 Coordination

The effort to identify, contact, and consult with various interested groups and agencies to identify historic properties and cultural practices during the environmental planning process has been documented for the Section 106 consultation process (see also **Section 4.7**). The purpose of consultation was to identify historic resources and other concerns relating to the project's potential effects on historically important resources. FTA and CTA sought information from individuals and organizations likely to have knowledge of local potential resources. **Section 4.7** includes the list of consulting parties. Consultation meetings focusing on project introduction, eligibility review, and effects discussions were held on October 24, 2012, January 30, 2013, and May 8, 2014, as described in **Section 4.7**. **Appendix Q** contains copies of correspondence and Section 106 consultation materials. As described in **Section 4.7.4**, no adverse effects on historic resources would occur because of the RLE Project (East or West Option) and no mitigation measures would be required; therefore, consultation with consulting parties is complete. In correspondence to the SHPO dated September 21, 2016, FTA made the determination that the UPRR Alternative (East and West Options) would result in no adverse effects. Coordination with the SHPO related to concurrence with FTA's eligibility and effects determinations is ongoing and will continue through the remainder of the project.

10.2.2 Tribal Coordination

In July 2012, FTA sent invitation letters to 11 Native American tribes to inform them of the Section 106 process and request assistance in identifying areas with potential cultural and/or religious significance. Letters were sent to the following nations: the Ho-Chunk Nation, the Miami Tribe of Oklahoma, the Peoria Tribe of Indians of Oklahoma, the Sac and Fox Nation of Oklahoma, the Pokagon Band of Potawatomi Indians, the Prairie Band of the Potawatomi Nation, the Citizen Potawatomi Nation, the Forest County Potawatomi Nation, the Potawatomi Nation, the Sac and Fox Nation of Mississippi in Iowa, and the Sac and Fox Nation of Missouri. The Miami Tribe of Oklahoma, Peoria Tribe of Indians of Oklahoma, and the Forest County Potawatomi Nation responded confirming their participation in the Section 106 process; no response was received from the other tribes. Coordination with the tribes is ongoing and will continue through the remainder of the project.

10.3 Public Outreach

Community outreach for the RLE Project started with the AA, continued with NEPA scoping in 2009, and will continue through the Draft EIS and Final EIS phases of the project. CTA will continue to involve and consult with the community as the project proceeds through design. **Table 10-1** summarizes public meetings held to date.

Table 10-1: Public Meetings Held to Date

Meeting	Location	Date and Time	Number of Attendees
Alternatives Analysis Phase			
Screen 1	Chicago State University 9501 S. King Drive	April 10, 2007 6:00 to 8:00 PM	66
	Chicago Public Library - West Pullman 830 W. 119th Street	April 11, 2007 6:00 to 8:00 PM	81
Screen 2	Historic Pullman Visitor Center 11141 S. Cottage Grove Avenue	December 3, 2008 6:00 to 8:00 PM	43
	Chicago Public Library - Woodson Regional 9525 S. Halsted Street	December 4, 2008 6:00 to 8:00 PM	41
Screen 3	Olive Harvey College 10001 S. Woodlawn Avenue	June 3, 2009 6:00 to 8:00 PM	44
	Chicago Public Library - Woodson Regional 9525 S. Halsted Street	June 4, 2009 6:00 to 8:00 PM	67
Environmental Impact Statement Scoping Phase			
Scoping	Historic Pullman Visitor Center 11141 S. Cottage Grove Avenue	September 22, 2009 6:00 to 8:00 PM	87
Scoping	Chicago Public Library - Woodson Regional 9525 S. Halsted Street	September 24, 2009 6:00 to 8:00 PM	81
Draft Environmental Impact Statement Phase			
Open House	St. John Missionary Baptist Church 211 E. 115th Street	August 2, 2011 6:00 to 8:30 PM	96
Open House	Palmer Park Gymnasium 201 E. 111th Street	May 13, 2014 5:30 to 7:30 PM	212

10.3.1 Alternatives Analysis Phase

CTA conducted the RLE AA process between 2006 and summer 2009, during which time CTA regularly met with the public. Through presentations and displays, the public learned about the

methods of the New Starts federal planning processes and how evaluation criteria were developed and applied to the universe of alternatives for the RLE AA. A formal question and answer process allowed the general public to make comments and ask questions on the study's findings. CTA conducted individual and group briefings for elected and public officials; community, civic, business and religious leaders; and other stakeholders, providing them the opportunity to comment and inquire about the project.

CTA held two public meetings in April 2007 to present the findings of Screen 1 of the AA study; a total of 147 people attended the meetings and 209 comments were received. Two public meetings were held in December 2008 to present the findings of Screen 2 of the AA study; a total of 84 people attended the meetings and 139 comments were received. Two public meetings were held in June 2009 to present the findings of Screen 3 of the AA study; a total of 111 people attended the meetings and 111 comments were received. The AA process concluded with the Chicago Transit Board adoption of an LPA in August 2009.

Detailed information about the public involvement that took place during the AA process is included in **Appendix A**.

10.3.2 Environmental Impact Statement Scoping Phase

The NEPA scoping process began in 2009 to inform the public about the project and gather input on the scope of the environmental studies, draft purpose and need, and alternatives to be evaluated. The *Scoping Report* (**Appendix B**) details all public and agency outreach activities associated with the NEPA scoping process. FTA published the Notice of Intent (NOI) in the Federal Register on September 9, 2009. The NOI initiated the NEPA scoping process and included notification of the dates and locations of the agency and public scoping meetings, the dates of the public comment period, and descriptions of the project purpose and need and alternatives. CTA accepted comments from the date of publication of the NOI in the Federal Register (September 9, 2009) through October 27, 2009. This schedule provided a public comment period of 57 days.

An agency scoping meeting was held on September 24, 2009 with 12 agencies and jurisdictions represented:

- Chicago Department of Community Development
- Chicago Department of Environment
- Chicago Department Streets and Sanitation
- CDOT
- Chicago Park District
- Chicago Police Department
- Detroit Department of Transportation
- Illinois Commerce Commission
- IDOT

- Illinois State Police, Chicago District
- Metra
- MWRD

CTA held two public scoping meetings to provide the public with an opportunity to comment on the project purpose and need, alternatives considered, and issues and areas of concern to be considered in the Draft EIS.

CTA publicized the meetings via direct mail and e-mail notices using the stakeholder database, postings on CTA's website, display advertisements in multilingual publications (English and Spanish), a legal notice placed in the Chicago Tribune, CTA customer alerts, postings at the 95th Street Terminal and on CTA buses and trains, flyers distributed to key locations along the project corridor, and notices posted in libraries and village halls. CTA held four meetings with elected officials from along the project corridor so they could notify their constituents.

The public scoping meetings were hosted in ADA-compliant locations in the project area, accessible by public transit. The public scoping meetings were held approximately four weeks in advance of the end of the public comment period. The scoping meetings began with a 45-minute open house format. During the open house session, project team members were present at project display boards to answer questions related to the technical aspects of the project. The open house session provided attendees with an opportunity to review the project information and clarify their understanding of the project and environmental process before the start of the presentation and subsequent comment period. After the open house period, a presentation was made to provide attendees with information regarding the purpose of scoping, the project purpose and need, project background, the recently completed AA process, and the alternatives being carried forward into the Draft EIS. After the presentation, there was a formal public comment session, which was recorded by a court reporter. Spanish translators and sign language interpreters were available during the meeting.

Agencies, community groups, members of the public, elected officials, and other interested parties submitted 352 letters, e-mails, comment cards, and verbal testimonies during the scoping comment period. The comments largely fell into three topic categories: the project purpose and need (approximately 7 comments); the alternatives to be studied in the Draft EIS, including alignment options, station location options, and potential design features (approximately 326 comments); and environmental impacts and mitigation measures (approximately 37 comments). Many comments related to several topics and may have been counted under more than one category to fully characterize the feedback for each topic.

10.3.3 Draft Environmental Impact Statement Phase

August 2011 Open House Meeting

CTA held an open house meeting on August 2, 2011 to update the community regarding the RLE Project. The meeting was held at St. John Missionary Baptist Church, 211 E. 115th Street in Chicago from 6:00 PM to 8:30 PM. A total of 96 people signed in at the open house.

CTA publicized the meeting via direct mail and e-mail notices using the stakeholder database, postings on CTA's website, display advertisements in multilingual publications (English and

Spanish), CTA customer alerts, and a news release to local media outlets. CTA sent letters to participating agencies informing them of the project status and inviting them to the open house.

The open house meeting was hosted in an ADA-compliant location in the project area, accessible by public transit. An open house meeting format was used for the public meeting, during which project team members were present at project display boards to answer questions related to the technical aspects of the project. The open house provided attendees with an opportunity to review the project information and clarify their understanding of the project and environmental process. Spanish translators and sign language interpreters were available during the meeting. CTA collected written comments at the meeting and by mail, fax, and e-mail after the meeting. **Appendix C** provides additional details about the August 2011 open house.

Summer 2013 Newsletter

CTA sent a newsletter with a general project update to the approximately 3,200 addresses on the stakeholder database on August 27, 2013. **Appendix C** contains a copy of the newsletter.

Spring 2014 Outreach

CTA conducted outreach in April and May of 2014 to update the public on the status of the project; inform them of proposed alternatives, anticipated project benefits, and impacts; and gather feedback. Outreach included meetings with elected officials, interested community groups, and a public open house. The open house was held May 13, 2014 at the Palmer Park Gymnasium, 201 E. 111th Street in Chicago from 5:30 PM to 7:30 PM. The meeting was publicized using the methods described for the August 2011 open house. A total of 212 community members attended the meeting.

CTA received a total of 97 written comments from the community. Community members were asked to provide specific comments or concerns they had about alternatives, potential impacts, and mitigation measures. Overall, the community supports the RLE Project, and noted concerns related to property displacements, community and economic development, noise and vibration, safety and security, traffic, the project timeline, alternatives proposed, and alternative preferences. **Appendix C** provides additional details about the May 2014 open house.

10.4 Public Hearing and Public Comment Period

This Draft EIS serves as the primary document to facilitate review by agencies and the public of the proposed project. Comments on the Draft EIS will be accepted from October 6, 2016 to November 30, 2016. A copy of the Draft EIS is available on the CTA website (www.transitchicago.com/RedEIS), and hard copies of the Draft EIS are available at the following locations during the public review period:

- CTA headquarters, 567 W. Lake Street, 2nd Floor, Chicago, IL 60661
- Pullman Public Library, 11001 S. Indiana Avenue, Chicago, IL 60628
- West Pullman Public Library, 830 W. 119th Street, Chicago, IL 60643
- Altgeld Public Library, 13281 S. Corliss Avenue, Chicago, IL 60827
- Woodson Regional Public Library, 9525 S. Halsted Street, Chicago, IL 60628

- Calumet Park Public Library, 1500 W. 127th Street, Calumet Park, IL 60827
- Harold Washington Library Center, 400 S. State Street, Chicago, IL 60605

A public hearing is scheduled for November 1, 2016 from 5:30 to 7:30 PM at St. John Missionary Baptist Church (211 E. 115th Street, Chicago, IL 60628) to solicit comments from the community about findings presented in this Draft EIS. The public hearing was advertised through display ads in local and regional newspapers, an e-Blast, and through CTA press releases, flyers, and CTA customer alerts placed on CTA rail cars and buses within the project corridor. Additional details concerning the public hearing were also posted on CTA's website. The public hearing location is within the project area, ADA-compliant, and accessible by public transit.

Comments received during the public hearing will be reviewed by FTA and CTA, and will be entered into public record. Written comments will also be accepted at any time during the public comment period via e-mail to: RedExtension@transitchicago.com and U.S. mail to: Chicago Transit Authority, Strategic Planning, 10th Floor, Attn: Red Line Extension Project, 567 W. Lake Street, Chicago, IL 60661. A summary of the public hearing and responses to comments received will be included in the Final EIS.

10.5 Accommodations for Minority, Low-Income, and Disabled People

CTA made substantial efforts to ensure that minority, low-income, and disabled people were included in all outreach efforts. The efforts included sensitivity to multiple distribution channels and language needs, and all meetings were held in ADA-compliant facilities. CTA performed an LEP assessment in 2009, which determined that public outreach materials should be prepared in both English and Spanish. Meetings were advertised in multilingual and local publications. Spanish translators and sign language interpreters were made available at every public meeting.

In addition to direct mail and electronic notifications of meetings, CTA provided advance notice on buses and trains serving the project area to ensure that transit passengers were aware of opportunities to attend the meetings. Meeting notice materials included an offer of translation services in Spanish or other languages with advance request.

As noted, federal requirements for public participation plans include a process for seeking out and considering the needs of those traditionally underserved by existing transportation systems, such as minority and/or low-income groups. CTA actively worked with organized business and community groups in the project area and transit advocacy organizations to ensure that project information and public meetings were adequately publicized and had substantive participation by minority and low-income groups.

Chapter 11
List of Acronyms and Abbreviations

Acronym or Abbreviation	Definition
AA	Alternatives Analysis
ADA	Americans with Disabilities Act
APE	area of potential effects
API	area of potential impact
BMPs	best management practices
BRT	bus rapid transit
BTU	British thermal unit
CDOT	Chicago Department of Transportation
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CERCLIS-NFRAP	Comprehensive Environmental Response, Compensation and Liability Information System - No Further Remedial Action Planned
CESQG	conditionally exempt small quantity generators
CFR	Code of Federal Regulations
CHRS	Chicago Historic Resources Survey
CIG	Capital Investment Grant
CMAP	Chicago Metropolitan Agency for Planning
CN	Canadian National
CN/ME	Canadian National/Metra Electric District
CO	carbon monoxide
Conrail	Consolidated Rail Corporation
CREATE	Chicago Region Environmental and Transportation Efficiency Program
CSS & SBRR	Chicago South Shore & South Bend Railroad
CTA	Chicago Transit Authority
dB	decibels
dBA	A-weighted decibels
DCP	Developing Communities Project, Inc.
EB	eastbound
EcoCAT	Illinois Ecological Compliance Assessment Tool
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EJ	environmental justice
EJ populations	minority and low-income populations
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FAST	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	fiscal year

FQA	Floristic Quality Assessment
GHG	greenhouse gas
GO TO 2040	CMAP *GO TO 2040 Comprehensive Regional Plan*
HRT	heavy rail transit
IAAQS	Illinois Ambient Air Quality Standards
IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
IHB	Indiana Harbor Belt Railroad
ILCS	Illinois Compiled Statutes
INAI	Illinois Natural Areas Inventory
ITEP	Illinois Transportation Enhancement Program
L_{dn}	day-night average sound level
LEP	limited English proficiency
L_{eq}	equivalent continuous sound level
LOS	level of service
LPA	Locally Preferred Alternative
LUST	leaking underground storage tank
L_v	vibration velocity
LQG	large quantity generator
MAP-21	Moving Ahead for Progress in the 21st Century Act
ME	Metra Electric District
MUTCD	Manual on Uniform Traffic Control Devices
MWRD	Metropolitan Water Reclamation District of Greater Chicago
NAAQS	National Ambient Air Quality Standards
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act of 1969
NFR	No Further Remediation
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NICTD	Northern Indiana Commuter Transportation District
NICTD/CSS & SBRR	Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad
NOI	Notice of Intent
NO_2	nitrogen dioxide
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
O&M	operations and maintenance
O_3	ozone
Pace	Pace Suburban Bus Service
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 micrometers and less
ppm	parts per million
PPP	Public Participation Plan

PRP	potentially responsible party
RCRA	Resource Conservation and Recovery Act
RLE	Red Line Extension
ROD	Record of Decision
RPM	Red and Purple Modernization
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SES	Southeast Service
SHPO	State Historic Preservation Office
SPILLS	Spill Incident List
SQG	small quantity generator
SRP	Site Remediation Program
SSU	Illinois State Sites Unit Listing
TFIA	Transit Facility Improvement Area
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIF	tax increment financing
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TSM	transportation system management
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
VdB	decibels referenced to 1 microinch per second
VMT	vehicle miles traveled
WB	westbound
YOE	year of expenditure

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Chapter 12
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Chapter 13
List of Preparers

Federal Transit Administration

Name	Qualifications	Primary Responsibilities
Mark Assam, AICP	Environmental Protection Specialist	FTA Review
Tony Greep	Community Planner	FTA Review

Chicago Transit Authority

Name	Qualifications	Primary Responsibilities
Carole Morey	Chief Planning Officer	CTA Review
Michael McLaughlin	Deputy Chief of Staff	CTA Review
Leah Dawson Mooney	Director of Strategic Planning and Policy	CTA Review
Sonali Tandon	Senior Project Manager	CTA Project Manager

Chicago Transit Partners

Name	Qualifications	Primary Responsibilities
John Conroyd, SE, LEED AP	Program Manager; BS Civil Engineering, MS Civil Engineering, and MBA; PE; SE; LEED AP; CMAA Certified Construction Manager; OSHA Certified; 30 years' experience	Draft EIS Review
Paul Swanson	Planning/Design Oversight Manager; BS Civil Engineering; 52 years' experience	Conceptual Engineering Review

CDM Smith

Name	Qualifications	Primary Responsibilities
Christopher Albrecht	Senior Project Manager; BS Biology, MS Environmental Biology; IL-licensed asbestos inspector/management planner; 26 years' experience	Hazardous Materials Analysis
Robert W. Ball, RPA	Cultural Resources Specialist; BS Anthropology and MHP Historic Preservation; 21 years' experience	Section 106 Coordination; Historic and Cultural Resources Analysis
Lucila DeRosier	Planner; BS Evolution and Ecology; 11 years' experience	Noise and Vibration Analysis

Name	Qualifications	Primary Responsibilities
Benjamin Harber, AIA, LEED AP BD+C	Architectural Project Manager; BS and MS Architecture; Licensed Architect; 17 years' experience	Visual and Aesthetic Conditions Analysis, prepared visualizations, station concepts, and planning
Claudia Krug Lea, PE	Water Resources Engineer; BS and MS Environmental Engineering; PE; 11 years' experience	Project Coordinator, Public Involvement, Water and Wetlands Analyses
Christopher Martel, PE, LEED AP	Vice President; BS Civil Engineering and MS Environmental Engineering; LEED AP, PE, BCEE; 21 years' experience	Hazardous Materials QA/QC
Jenifer Palmer, AICP	Planner; BA Humanities and Critical Theory, MS Public Administration; Masters Certificate in Urban and Regional Planning; AICP; 8 years' experience	Section 4(f), QA/QC
Sohee Procek, PE	Planner; BS and MS Civil Engineering; PE; 11 years' experience	Traffic Analysis
Jeff Sangillo	Transportation Planner; BS in Operations & Logistics MS Transportation Policy; 10 years' experience	Land Use and Displacements, QA/QC
Greg Saur, PE, PTOE	Transportation Planner/Traffic Engineer; BS and MS Civil Engineering; PE, PTOE; 13 years' experience	Traffic and Transit Analyses
Michael Schultz, GISP, CFM	GIS Specialist, BS and MS Geography; 11 years' experience	GIS Analysis
Kate Stenberg, PhD	Senior Environmental Scientist; PhD Wildlife Science & Planning; MA Environmental Administration; BA Biology-Environmental Studies; 32 years' experience	Threatened and Endangered Species, Vegetation and Wildlife Habitat, Water Resources, Wetlands Analyses

Wight & Company

Name	Qualifications	Primary Responsibilities
Jacob Hohl, PE, LEED AP BD+C	Senior Civil Engineer, MS Civil Engineering, 7 years' experience	Conceptual Engineering
Robin Martel, LEED AP BD+C	Senior Project Manager; BS Geological Sciences; LEED AP BD+C; 22 years' experience	Conceptual Engineering, Draft EIS, Description of Construction, Cumulative, Geology and Soils, Floodplains, Transportation, and Visual Analyses
Peter H. Mesha, PE, LEED AP	President, Transportation Group; BS Civil Engineering; PE, LEED AP; 37 years' experience	Quality Control for Energy, Transportation
Nicole Rogers, LEED AP BD+C	Project Designer, Master of Architecture, 10 years' experience	Prepared visualizations, Visual Analyses

Name	Qualifications	Primary Responsibilities
Thomas W. Williams, PE	Senior Project Manager for Transit Planning; BS Civil Engineering; PE; 36 years' experience	Conceptual Engineering, Energy Analyses

Jacobs

Name	Qualifications	Primary Responsibilities
Joe Clemens, AICP	Senior Transit Planner; Master of City and Regional Planning; AICP; 15 years' experience	Purpose and Need
Mark D. Rinnan, AICP	Transportation Planner; BS Civil Engineering; AICP; 35 years' experience	Safety and Security, Parklands and Community Facilities, Neighborhood and Community Impacts Analyses
Emily Ritzler, AICP	Senior Transportation and Environmental Planner; BA Geography and MS Urban Policy Studies; AICP; 14 years' experience	Environmental Justice Analysis, Noise and Air Quality Documentation
Pat Smeeton	Senior Transportation Planner; BS Civil Engineering; 20 years' experience	Air Quality Analysis
Tom Underwood	Planner; BS Sociology, MS Environmental Science, MBA; 22 years' experience	Construction Impacts and Purpose and Need Analysis
Leonard Voellinger, AICP	Environmental Project Manager; MA Geography; AICP; 37 years' experience	Quality Control for Construction Impacts, Parks, Environmental Justice
John Wirtz, PE, PTOE	Transportation Engineer/Planner; BS and MS Civil Engineering; PE, PTOE; 10 years' experience	Safety and Security Analysis, Track Right-of-Way Protection
Jennifer Zankowski	Environmental Planner; MS Community and Regional Planning; 9 years' experience	Parklands and Community Facilities and Environmental Justice Analyses

KM Chng Environmental, Inc.

Name	Qualifications	Primary Responsibilities
Alan Goldman, QEP	Principal Air Quality Consultant; BS Meteorology; QEP; 30 years' experience	Air Quality Analysis
Richard Letty	Senior Noise and Vibration Consultant; BS Engineering Physics and MS Aeronautics and Astronautics; 42 years' experience	Noise and Vibration Analysis

Midwest Archaeological Research Services, Inc.

Name	Qualifications	Primary Responsibilities
M. Catherine Bird, PhD	Principal Investigator and Research Coordinator; PhD Anthropology; RPA; 32 years' experience	Historic and Cultural Resources Analysis
Jean Guarino	Architectural Historian; MA Art History; 17 years' experience	Historic and Cultural Resources Analysis

DLZ (Formerly Regina Webster & Associates, Inc.)

Name	Qualifications	Primary Responsibilities
Regina Webster, PE, PTOE	Principal; BS Civil Engineering; PE, PTOE; 38 years' experience	Traffic Data Collection
Surekha Lingala	Data Collection Manager; BS and MS Civil Engineering; 12 years' experience	Traffic Data Collection

HDR - Sharon Greene + Associates

Name	Qualifications	Primary Responsibilities
Sharon Greene	Senior Vice President/Director Finance Market Sector; BA English and Economics and MCP Urban and Regional Planning; 40 years' experience	Project Funding and Finance
Eric Rouse	Principal Consultant - Project Finance; BS Political Science and MS Community and Regional Planning; 20 years' experience	Project Funding and Finance
Adam Christian	Senior Consultant - Project Finance; BA Literature and MA Urban Planning; 7 years' experience	Project Funding and Finance

Gearbox Partners

Name	Qualifications	Primary Responsibilities
Sarah Layton Wallace	Strategic Communications and NEPA Public Involvement Expert; BA English; 28 years' experience	Public Involvement

Kathy Schaeffer and Associates, Inc.

Name	Qualifications	Primary Responsibilities
Kathy Schaeffer	Communications and Public Relations Professional; BA Journalism; 30 years' experience	Public Involvement
Kim Pool	Communications and Public Relations Professional; Certificate, Accounting and	Public Involvement

	Business Communications; 15 years' experience	
Jennifer Pennock	Communications and Government Affairs Professional; MS, Public Services Management; 20 years' experience	Public Involvement
Hannah Vander Laan	Administrative and Communications Professional; BA Economics and Political Science; 1 year experience	Public Involvement

Trinal, Inc.

Name	Qualifications	Primary Responsibilities
Alicia Garcia-Abner	President; Masters in Health Care Administration, BS Public Affairs; Master Compliance Administrator; 22 years' experience	Public Involvement
Ularsee Manar	Community Outreach Director; BA Sociology and Masters in Social Work; 37 years' experience	Public Involvement

Curalium Consulting

Name	Qualifications	Primary Responsibilities
Coral Cavanagh, AICP	Environmental Engineer/Planner; BS Civil Engineering and Masters in City Planning; AICP; 27 years' experience	Technical Editor

Hey and Associates, Inc.

Name	Qualifications	Primary Responsibilities
Vincent J. Mosca	Principal Ecologist; BS Biophysical Environmental Studies; CWS Lake and McHenry County, QWRS Kane County; 25 years' experience	Wetlands Delineation and Analysis
Jeffrey L. Mengler, PWS	Senior Project Scientist, Ecologist; BS and MS Biological Sciences; Professional Wetland Scientist, CWS Lake and McHenry County, QWRS Kane County; 30 years' experience	Wetlands Delineation and Analysis
Steven J. Rauch	Environmental Services Manager; BA Environmental Studies; CWS Lake and McHenry County, QWRS Kane County; 16 years' experience	Wetlands Delineation and Analysis

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Chapter 14
List of Recipients

In order to facilitate review and comment, the following agencies, local officials, and public libraries were notified of the availability of this document. All agencies and organizations on this list will receive web links to download the Draft EIS from the CTA website.

Agencies, organizations, and libraries that received hard copies of the Draft EIS to make available to the public are identified with an asterisk (*).

Participating agencies are federal, state, or local agencies, or federally recognized Indian tribal governmental units that may have an interest in the proposed project and have accepted an invitation to be a participating agency, or in the case of a federal agency, has not declined the invitation. Participating agencies are identified in **bold** text. All federal, state, local, and regional agencies and tribes are potential participating agencies; all others on the list are not eligible to be participating agencies.

The Federal Highway Administration is a cooperating agency.

Federal Agencies

Advisory Council on Historic Preservation
Transportation Security Administration
U.S. Department of Energy
U.S. Department of the Interior, Office of Environmental Policy and Compliance*
U.S. Department of Health and Human Services
U.S. Department of Housing and Urban Development
U.S. Department of Transportation
- **Federal Highway Administration**
- **Federal Railroad Administration**

U.S. Environmental Protection Agency
U.S. Federal Emergency Management Agency
U.S. Fish and Wildlife Service

Tribes

Citizen Potawatomi Nation
Forest County Potawatomi Nation
Ho-Chunk Nation
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians
Potawatomi Nation-Hannahville Indian Community
Prairie Band of Potawatomi Nation
Sac and Fox Nation of Mississippi in Iowa
Sac and Fox Nation of Missouri
Sac and Fox Nation of Oklahoma

State Agencies

Illinois Commerce Commission
Illinois Department of Commerce and Economic Opportunity
Illinois Department of Employment Security
Illinois Department of Natural Resources
Illinois Department of Revenue
Illinois Department of Transportation
Illinois Environmental Protection Agency
Illinois Historic Preservation Agency
Illinois Secretary of State
Illinois State Archaeological Survey
Illinois State Museum
Illinois State Police
Illinois State Police District Chicago
Illinois Tollway
Landmarks Illinois

Local and Regional Agencies

Chicago Bureau of Convention and Tourism
Chicago Historical Society
Chicago Housing Authority
Chicago Metropolitan Agency for Planning
Chicago Park District
City of Chicago Department of Aviation
City of Chicago Department of Budget and Management
City of Chicago Department of Business Affairs and Consumer Protection
City of Chicago Department of Community Development
City of Chicago Department of Fleet and Facility Management
City of Chicago Department of Planning and Development Historic Preservation Division
City of Chicago Department of Streets and Sanitation Bureau of Street Operations
City of Chicago Department of Transportation
City of Chicago Office of the Mayor
City of Chicago Police Department
Cook County Board of Commissioners
Cook County Department of Revenue
Cook County Highway Department
Cook County Recorder of Deeds & Registrar of Titles
Cook County Sheriff's Office
Metra
Metropolitan Planning Council
Metropolitan Water Reclamation District of Greater Chicago
Pace
Preservation Chicago
Village of Calumet Park

Community Groups

Agape Community Center
Chicago Neighborhood Initiatives
Developing Communities Project, Inc.
Far South Community Development Corporation
Friends of the Parks

Golden Gate Homeowners Association
Greater Roseland Chamber of Commerce
Neighborhood Housing Services of Chicago
People for Community Recovery
Red Line Extension Coalition
Ridge Historical Society
Roseland Business Development Council
Roseland Manor
Rosemoor Community Association
St. Anthony of Padua Parish

Local Libraries

Altgeld Public Library*
Calumet Park Public Library*
Pullman Public Library*
West Pullman Public Library*
Woodson Regional Public Library*
Harold Washington Library Center*

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Glossary

The following terms are used in this Draft Environmental Impact Statement.

95th Street Terminal Improvement Project - The 95th Street Terminal is currently the southern terminus (end) of CTA's Red Line. CTA is in the process of rehabilitating the current 95th Street Terminal, which dates from 1969, with an expanded modern facility. The project will bring substantial improvements to a station that serves thousands of customers each day and is a vital part of the South Side.

Aerial Track Structure - The location of a train track structure above the surface of the ground. Can be constructed of concrete and/or steel.

Affected Environment - The physical, biological, social, and economic setting potentially affected by one or more of the alternatives under consideration.

Alternative - One of a number of specific transportation improvement proposals or options.

Alternatives Analysis - Process of assessing the different transportation improvement proposals or options and documenting alternate concepts based on scenario and functional definitions.

Americans with Disabilities Act (ADA) - Federal regulation establishing legal requirements for accessibility for those with disabilities including wheelchair users.

Area of Potential Impact (API)/Area of Potential Effects (APE) - The geographic area within which the project may cause adverse or beneficial impacts or effects.

At-Grade - The location of a structure or transit guideway at the same level as the ground surface.

Block Group - A census block group is a geographical unit used by the United States Census Bureau. Census block groups fall in size between the census tract and the census block. Census blocks are the smallest geographical units for which the Census Bureau publishes sample data.

Bus Rapid Transit (BRT) - BRT is a bus service that provides faster, more efficient, and more reliable service than an ordinary bus line. Often these changes are achieved by making improvements to existing street and traffic infrastructure. High-capacity, uniquely identified buses are typically used.

Chicago Metropolitan Agency for Planning (CMAP) - The metropolitan planning organization for the Chicago region. CMAP has prepared the *GO TO 2040 Comprehensive Regional Plan*, which provides strategies for the regional transportation network.

Chicago Transit Authority (CTA) - The CTA is an independent governmental agency created by state legislation. It operates the nation's second-largest public transportation system and covers the City of Chicago and 35 surrounding suburbs. CTA is the local lead agency on the Red Line Extension Project.

Community Character - An attribute of a geographic area with identifiable characteristics that make it unique.

Community Cohesion - An attribute of a geographic area, where segmentation or division of the area would reduce its desirability to current and future residents.

Community Resources - Locations that serve as focal points or provide community services. These may include landmarks, parks, or community centers.

Construction Staging - A physical location used for the storage of construction-related equipment and materials such as vehicles and stockpiles.

Cumulative Effect - The incremental environmental impact or effect of the project when added to the impacts of other separate past, present, and reasonably foreseeable future actions.

Deck - The surface of a bridge or elevated rail track section.

> **Closed-deck structure** - Tracks that have a solid deck beneath them. Closed-deck structures allow for more effective noise barriers but require more active snow clearance and drainage maintenance.

Displacement - An impact from a project that results in homes or businesses needing to be relocated.

> **Affected Parcel** - A partial or a full parcel that would need to be acquired because of the project.
>
> **Building Displacement** - A structure that would need to be removed (the land occupied by the structure would also be counted as an affected parcel).
>
> **Easement** - Displacement of a publically owned parcel that would include a roadway. CTA would require a use agreement with the public entity.

Effect (as related to historic/cultural) - Refers to alterations in the character or use of historic properties by the alternatives. Used instead of "impacts" (referred to elsewhere in the Draft EIS) because of the unique requirements and terminology for assessing historic resource impacts.

Elevated Track Structure - The location of a structure above the surface of the ground.

Environmental Impact Statement (EIS) - An EIS is a document that evaluates the economic, social, and environmental effects of a major proposed project. The National Environmental Policy Act (NEPA) requires an EIS to be prepared when federal funds are being sought to fund all or part of a project.

Environmental Justice (EJ) - Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to transportation planning and decision-making processes, per Executive Order 12898.

Federal Transit Administration (FTA) - FTA is a division of the U.S. Department of Transportation that funds transit planning and programs. FTA is the federal lead agency on the RLE Project.

Fixing America's Surface Transportation (FAST) Act - A funding and authorization bill to govern the United States federal surface transportation spending. Congress passed the FAST Act on December 3, 2015, and President Barack Obama signed it into law on December 4, 2015. The $305-billion, 5-year (FY 2016–FY 2020) provides a steady and predictable funding source over the next five years and an increase of approximately $1 billion per year to the transit program. A number of provisions are provided in the law to assist transit service providers in expediting project delivery, enhancing transit agency partnerships, and targeting investments for state of good repair and bus fleet improvements.

Greenhouse Gas (GHG) - A gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. The primary greenhouse gases in the Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Ground-borne Vibration - A technical term used to describe mostly man-made vibrations of the ground. Examples include vibrations caused by trains, buses on rough roads, and construction activities.

Ground-borne Noise - A technical term used to describe mostly man-made noise of the ground. Examples include noise caused by trains, buses on rough roads, and construction activities. Ground-borne noise often sounds like a rumbling.

Hazardous Material - Substances that could harm human health or the environment, including petroleum products, polynuclear aromatic hydrocarbons, pesticides, organic compounds, heavy metals, asbestos-containing materials, lead-based paint, or other compounds.

Headway - The elapsed time between trains passing a fixed point in the same direction over the same track. Refers to train frequency, for example, a 15-minute headway means a train comes every 15 minutes.

Heavy Rail - A railway powered by electricity or diesel fuel with the capacity for a heavy volume of traffic (number of trains and passenger capacity). It is characterized by high speed and rapid-acceleration passenger rail cars operating singly or in multi-car trains on fixed rails, separate rights-of-way from which some other vehicular and foot traffic are excluded, sophisticated signaling, and high-platform loading.

Historic District - A group of buildings, properties, structures, or sites that have been designated either federally or by the City as historically or architecturally significant. Districts vary greatly in size: some have hundreds of structures while others have just a few.

Impact - An impact is a change in the condition or function of an environmental resource that occurs as a result of the proposed alternative. An impact can be adverse (negative) or beneficial (positive).

> **Adverse Impact** - An adverse impact is a negative consequence of the proposed alternative (opposite of a benefit).

Construction Impact - Construction impacts are related to the construction phase of the proposed alternative.

Cumulative Impact - The environmental impact or effect of the project when added to the impacts of other separate past, present, and reasonably foreseeable future actions.

***De Minimis* Impact** - A term from Latin, meaning "about minimal things." A de minimis impact finding is defined in 23 Code of Federal Regulations § 774.17 for historic resources, parks, recreation areas, and wildlife/waterfowl refuges in determinations of use of such resources for environmental analysis.

Indirect Impact - Also known as a secondary impact, indirect impacts are those caused by the project or plan but that are separated from direct impacts by time and/or distance.

Permanent Impact - Permanent impacts are related to the operation (long-term) of the proposed alternative.

Lead Agency - The agency or agencies responsible for preparing the Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA). FTA and CTA are the lead agencies for the RLE Project.

Level of Service (LOS) - A rating that uses a set of characteristics that indicate the quality and quantity of transportation service. Often LOS is defined by the amount of delay at a traffic signal.

Locally Preferred Alternative - The Union Pacific Railroad (UPRR) Rail Alternative was selected by the Chicago Transit Board as the LPA on August 12, 2009, indicating that it is the alternative that best meets the purpose and need of the project while addressing potential impacts and other potential constraints.

Median Household Income - Median household income is a statistical measurement of a set of household income data. The Median household income for a set of data splits the income distribution into two equal groups, half having income above that amount and half having income below that amount. Median household income is typically presented for a defined geographic area.

Mitigation - Action or measure taken to minimize, reduce, eliminate, or rectify the adverse impacts of a project, practice, action, or activity.

Mixed-use - Refers to a mixture of different types of uses in the same structure or location, for example, a building with commercial units on the ground floor and residential units above.

Mobility - The movement of people or goods, including transportation options, travel patterns, access to jobs, and access for emergency service providers.

Moving Ahead for Progress in the 21st Century Act (MAP-21) - A funding and authorization bill to govern the United States federal surface transportation spending. Congress passed MAP-21 on June 29, 2012, and President Barack Obama signed it on July 6, 2012. The $105-billion, 2-year bill did not substantially alter total funding from the previous authorization, but it did include many major reforms.

National Environmental Policy Act of 1969 (NEPA) - Requires all agencies to examine and disclose the environmental impacts of their actions, incorporate environmental information into project decisions, and use public participation in the planning and implementation of all actions.

National Historic Preservation Act of 1966 (NHPA) - Established a national framework for historic preservation, requiring the federal government to establish a national system for identifying, evaluating, protecting, and rehabilitating historic places.

National Register of Historic Places (NRHP) - The national list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, or culture. It is maintained by the Secretary of the Interior under authority of Section 101(2)(1)(a) of the National Historic Preservation Act, as amended.

NEPA Preferred Alternative - An alternative determined by FTA and the project sponsor (in this case, CTA) to best accomplish the purpose and need of a proposed action while fulfilling statutory requirements and responsibilities, with consideration to economic, environmental, technical, and other factors. In August 2014, based on the technical analysis and public input received, CTA announced the NEPA Preferred Alternative for the RLE Project—the UPRR Rail Alternative. The NEPA Preferred Alternative is the RLE Project alternative that is studied in the Draft EIS. CTA intends to move forward with the NEPA Preferred Alternative into the next stage of project development.

New Starts - FTA's primary grant program for funding major transit capital investments, including rapid rail, light rail, bus rapid transit, commuter rail, and ferries.

No Build Alternative - The No Build Alternative refers to an alternative under which no action would be taken (no infrastructure would be built and no new management or operational practices would be instituted). The No Build Alternative includes all projects currently included in the fiscally constrained portion of the CMAP Fiscal Year 2010–2015 Transportation Improvement Program (TIP), including renovation of the 95th Street Terminal.

Noise Barrier - An exterior structure located next to the tracks that is designed to protect surrounding residents and community members from noise impacts related to the proposed project. Noise barriers are an effective method of mitigating roadway, railway, and industrial noise sources.

Noise-Sensitive Receiver - Noise-sensitive receivers are residences and/or other land uses that would be negatively affected by noise from the proposed project, such as tracts of land set aside for serenity and quiet, hospitals, hotels, churches, museums, parks, and cemeteries.

Nonattainment Area - Nonattainment areas are metropolitan areas that do not meet national ambient air quality standards (NAAQS), ranked by the severity of their problem as marginal, moderate, serious, severe, or extreme. In accordance with the Clean Air Act Amendments of 1990, these areas must take specific emission reduction measures.

Option - One of the several possibilities for an alternative. The UPRR Alternative has two options: the East Option and the West Option, each along the same general alignment but slightly different.

Peak/Off-Peak - Peak is the AM or PM time period when the largest volume of riders occurs. Off-Peak is the remainder of the day when travel activity is generally lower.

Photo Simulation - A computer-generated image that shows how an alternative, station, or feature could look after construction.

Platform - An area at a station used to get on or off trains.

Public Participation Plan (PPP) - A Public Participation Plan includes public outreach goals, key issues, a detailed stakeholder database, communications protocols, public input tracking protocols, a proposed schedule for interfacing with the public, and recommendations for how meetings should be conducted at various stages of the study.

Purpose and Need - Identifies the reasons a proposed project is needed and reflects the project objectives discussed with the public during the scoping process.

Railroad Ties - Rectangular supports for railroad tracks. Railroad ties are traditionally made of wood.

Record of Decision (ROD) - A document prepared by FTA that presents the basis for selecting and approving a specific transportation proposal that has been evaluated through the various environmental and engineering studies. Typically, the ROD identifies the alternative selected in the Final EIS, the alternatives considered, measures to minimize harm, monitoring or enforcement programs, and an itemized list of commitments and mitigation measures.

Red Ahead Program - A comprehensive initiative for maintaining, modernizing, and expanding Chicago's most traveled rail line. The program includes major improvement projects on the Red and Purple Lines between Linden terminal in the north and the proposed 130th Street terminal on the south. The improvement projects include the Red and Purple Modernization project, the Red Line Extension Project, and the Red Line South Reconstruction Project. In addition, the Red Ahead Program encompasses several individual projects, including the renovation of several stations along the Red Line including Wilson Station, Clark and Division Stations, and the 95th Street Terminal.

Red Line Extension (RLE) Project - The Chicago Transit Authority (CTA) is proposing to extend the Red Line from the existing 95th Street Terminal to 130th Street, subject to the availability of funding. The proposed 5.3-mile extension would include four new stations near 103rd Street, 111th Street, Michigan Avenue, and 130th Street. Each new station would include bus and parking facilities. This project is one part of the Red Ahead Program to extend and enhance the entire Red Line.

Right-of-Way - In transit usage, the corridor along a railway that is controlled by a transit or transportation agency/authority.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) - A funding and authorization bill that governed the United States federal surface transportation spending. It was signed into law by President George W. Bush on August 10, 2005, and expired on September 30, 2009. The Moving Ahead for Progress in the 21st Century Act (MAP-21) replaced this law on July 6, 2012.

Safety - Safety refers to freedom from harm resulting from unintentional acts or circumstances. With regard to the RLE Project, safety includes all possible incidents within the CTA right-of-way (which includes areas along tracks, in yards, and at stations). Examples include collisions, derailments, fires, property damage, injuries, and fatalities.

Scoping - An early and open process for identifying the extent, variety, and significance of issues related to a proposed action in the EIS. Scoping for RLE was held in the form of public open house meetings in the fall of 2009.

Secondary Station Entrance/Exit - An auxiliary entry/exit in addition to the primary entry and/or exit.

Section 4(f) - Section 4(f) of the Department of Transportation Act of 1966 states that no transportation project should be approved that requires the use of land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless there is no feasible or prudent alternative to the use of such land or the use of such land are found to be *de minimis*.

Section 106 - Section 106 of the National Historic Preservation Act deals with project effects on historic properties. It requires consultation with parties with expertise and interest in historic resources.

Security - Security refers to freedom from harm resulting from intentional acts or circumstances. Intentional danger includes crimes and must be reported if the intentional act meets thresholds for notification as specified in FTA's State Safety Oversight Rule.

Sensitive Receiver Cluster - A group of noise-sensitive receivers determined to be at similar distances from the proposed track locations and where the CTA operating conditions, such as train speed, would be similar.

Shoring - The process of supporting a structure in order to prevent collapse so that construction can proceed.

State Historic Preservation Officer (SHPO) - The official appointed or designated pursuant to Section 101(b)(1) of the National Historic Preservation Act to administer the State historic preservation program. The SHPO consults with state and federal agencies during the Section 106 process review. The SHPO administers the national historic preservation program at the State level, reviews National Register nominations, and maintains file data on historic properties that have been identified but not yet nominated. Agencies seek the view of the SHPO in the identification of historic properties and the assessment of the effects of a project on historic properties.

Substation - A part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions.

Transit Infrastructure - Basic physical elements of the transit system including track, structures, signals, and power.

Transportation Improvement Program (TIP) - A document prepared by metropolitan planning organizations listing projects to be funded with Federal Highway Administration and FTA funds for the next 1- to 3-year period.

Transportation System Management - A "low cost" project alternative that was previously required for FTA analyses.

Transit-Oriented Development (TOD) - TOD is development that takes advantage of the location of the site adjacent to or near a transit station. TOD includes mixed-use developments, such as residential buildings with ground-floor retail that complement and take advantage of adjacent transit stations, activate streetscapes, enhance livability, and encourage economic development.

Travel Time - The time spent traveling from a place of origin to a place of destination.

Uniform Act - The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, mandates that relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance.

Union Pacific Railroad (UPRR) - The UPRR owns and operates tracks and trains that run through the project corridor along Eggleston Avenue.

Viaduct - A bridge-like structure over a street that allows trains to pass over the street and vehicles to pass under the tracks.

Viewshed - An area that is visible to the human eye from a fixed vantage point.

Visual Impact - A change in the appearance of a place as a result of development. Visual impacts can be positive or negative.

Wetland - Land where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.

Yard and Shop - An area in a rail system used for maintenance, storing, or holding trains.