1.0 PURPOSE AND NEED

This chapter describes the purpose of and need for the Grand Crossing Rail Project. The following sections provide an overview of the project and its relationship to the Chicago Region Environmental and Transportation Efficiency (CREATE) Program, identify and describe the project study area, and detail the specific transportation needs that the Grand Crossing Rail Project will address. The chapter also discusses the overall planning context for the project, including a history of the project, and its relationship to regional planning efforts.

1.1 PROJECT OVERVIEW

1.1.1 The CREATE Program

The CREATE Program is a joint effort of the Illinois Department of Transportation (IDOT), the Federal Highway Administration (FHWA), the Chicago Department of Transportation (CDOT), and the Association of American Railroads (AAR) to restructure, modernize, and expand freight and passenger rail facilities and highway grade separations in the Chicago metropolitan area. A project of national and regional significance, CREATE will invest billions in critically needed capital improvements to increase the efficiency of the region's rail infrastructure. CREATE will reduce train and automobile delays throughout the Chicago area by focusing rail traffic on four rail corridors that will be improved to handle passenger and freight traffic more efficiently.

The work includes 70 projects identified through a preliminary screening process as described in the CREATE Program Final Feasibility Plan (August 2005, amended 2009 and 2011). These projects include:

- 25 new roadway overpasses or underpasses at locations where traffic (automobile, pedestrian, bicycle, bus) currently crosses railroad tracks at grade level
- 6 new rail overpasses or underpasses to separate passenger and freight train tracks
- 37 freight rail projects, including extensive upgrades of tracks, switches, and signal systems
- Viaduct improvement projects – improvements to existing viaducts in Chicago
- Safety improvements to existing railroad grade crossings throughout the region
- Common Operational Picture – integration of information from dispatch systems of all major railroads in the region into a single display
1.1.2 CREATE Program Goals

The overall goals of the CREATE Program are to improve freight and passenger rail operations, and to improve highway operations in the Chicago metropolitan area while reducing the environmental impacts of rail operations on the general public. The CREATE Program includes the development of four freight and passenger rail transportation corridors in the Chicago metropolitan area, and also includes rail-highway grade separation projects (over- or under-passes to grade-separate railroads and highways) on existing rail lines outside the four corridors.

Chicago area freight and passenger rail traffic suffers from congestion, low operating speeds and delays due to traffic demands that exceed the capacity of the Chicago Rail System. The development of the four rail corridors includes the upgrading of existing track structure, the double-tracking or triple-tracking of certain lines, the construction of rail-highway grade separations and rail-rail flyovers, the installation of new or improved signaling, and various other additions and improvements. These improvements will significantly improve freight and passenger rail operations.

In addition, the CREATE Program proposes re-routing existing Metra service in order to assist Metra in increasing their capacity and ability to adequately serve the region. Many stations do not have the capacity to handle additional trains, which limits the ability for Metra to expand their services. Other stations, conversely, are underutilized and represent a potential solution. The CREATE Program includes the installation of connections that will shift service to the under-utilized stations thereby enabling Metra to expand their system. The Program also benefits some Amtrak intercity trains.

Additionally, there are many rail-highway at-grade intersections throughout the Chicago metropolitan area that cause vehicular delays and congestion, and contribute to air pollution in the region. The construction of the rail-highway grade separations will improve traffic operations and air quality in the Chicago metropolitan area.

1.1.3 Grand Crossing Rail Project Overview

One of the projects identified in the CREATE Program Final Feasibility Plan is the Grand Crossing Rail Project, which is examining potential rail improvements to alleviate rail congestion on Chicago's South Side. Every day, six Amtrak trains on the Illini, Saluki, and City of New Orleans lines pass through the Grand Crossing study area, coming from Champaign, Carbondale, Memphis, and New Orleans. The route they currently travel is congested and does not provide direct access into Union Station, the city's main intercity passenger terminal. This causes congestion and delays for both rail passengers and freight operators, who share the same track.

Figure 1-1 shows the overall CREATE Program study area and the location of the Grand Crossing Rail Project, indicated on the map as project P4.
Figure 1-1: CREATE Program Study Area and the Grand Crossing Rail Project
1.2 PURPOSE OF THE PROPOSED PROJECT

1.2.1 Purpose of the Grand Crossing Rail Project

The purpose of the Grand Crossing Rail Project is to provide a new, more direct route to Chicago’s Union Station for Amtrak’s City of New Orleans, Illini, and Saluki trains, as well as to provide sufficient mainline capacity to accommodate both passenger and freight traffic along the project corridor.

Currently, Amtrak trains to and from New Orleans and Carbondale take a circuitous route that includes a time-consuming backup maneuver to pull into and out of Union Station (Figure 1-2). Northbound trains enter the Chicago area from the south on the Canadian National (CN) Chicago Subdivision through Markham Yard. The trains travel northward on the CN tracks through the Grand Crossing area near 75th Street, then continue on the CN line towards Lake Michigan, following the lake northward just west of Lake Shore Drive. After crossing under McCormick Place, trains connect to the St. Charles Airline and travel west towards the Chicago River, passing through the congested 16th Street interlocking, crossing the Metra Rock Island District tracks at grade just east of the river.

West of the Chicago River, Amtrak (and Burlington Northern Santa Fe (BNSF)) tracks run north-south between the river and Canal Street. These tracks carry passenger trains from Metra routes and other Amtrak routes directly into Union Station, which is located less than a mile to the north. However, the existing rail infrastructure lacks a direct connection between the east-west St. Charles Airline and the tracks that lead into and out of Union Station. Instead, Amtrak’s City of New Orleans, Illini, and Saluki trains must access the station by crossing over the Amtrak tracks to the BNSF line west of the Amtrak tracks, then connecting to the Amtrak tracks through the BNSF wye and backing into Union Station (Figure 1-2). This backup maneuver, combined with congestion through the 16th Street interlocking, adds approximately 19 minutes to the scheduled trip time each way.

This inefficient routing not only adds additional time to the Amtrak schedule, but also contributes to delays for Metra and freight traffic competing for limited capacity along these lines, particularly in the vicinity of the 16th Street interlocking and BNSF wye south of Union Station.

1.3 PROJECT STUDY AREA

The study area for the Grand Crossing Rail Project focuses on portions of the CN and NS lines shown in Figure 1-1, plus a quarter-mile buffer on either side. The study area includes the portion of the CN Chicago Subdivision from its junction with the Union Pacific Railway (UP) line near E. 115th Street at the southern end to its connection with the NS line near E. 75th Street at Grand Crossing. It also includes the portion of the NS from Grand Crossing north to Pershing Road.

This study area is consistent with the logical termini established for the project during the CREATE Program preliminary screening process, as documented in the CREATE Program Final Feasibility Plan. During the preliminary screening process, all of the CREATE Program component projects were tested through a screening process to determine if they had logical
Figure 1-2: Existing Illini-Saluki-City of New Orleans Route
termini and independent utility, and whether they restricted the consideration of alternatives for other reasonably foreseeable transportation improvements. The result of this process was a list of stand-alone component projects and linked component projects that will be subsequently evaluated through the appropriate level of environmental analysis.

1.3.1 Study Area Setting
The Grand Crossing Rail Project study area is located on the South Side of Chicago and includes portions of 13 community areas:

- Avalon Park
- Burnside
- Chatham
- Englewood
- Fuller Park
- Greater Grand Crossing
- New City
- Pullman
- Riverdale
- Roseland
- South Shore
- West Pullman
- Woodlawn

The area is predominantly residential in character with a mix of industrial and neighborhood retail uses throughout the study area. The study area includes the Chicago State University campus, as well as numerous local parks and schools. The distance from Grand Crossing to the Loop is approximately 10 miles.

1.3.2 Existing Rail Corridors and Related Transportation Facilities
The existing rail infrastructure is a prominent presence in these communities. In addition to several Amtrak routes, Metra’s Rock Island District, SouthWest Service, and Electric District trains all pass through the study area, as do the Northern Indiana Commuter Transportation District (NICTD) South Shore Passenger Line Service and the NS and CN freight railroads. As such, the corridor includes numerous vehicle and pedestrian underpasses, dead-end streets, and rail viaduct structures.

Figure 1-3 shows the passenger rail lines in the vicinity of the study area, as well as the major freight railroads operating in the area. Several Chicago Transit Authority (CTA) rapid transit (“L”) stations on the Red Line are located just beyond the eastern border of the study area. The area is also served by several CTA bus lines, which provide connections to other L lines. The study area is well connected to the interstate highway network, including the Dan Ryan Expressway (I-94), the Chicago Skyway (I-90), and the Bishop Ford Freeway (I-94).
Figure 1-3: Existing Passenger Service and Freight Ownership
1.4 PLANNING CONTEXT

1.4.1 Project History

CREATE Program

The need for coordinated rail infrastructure improvements in the Chicago region has been recognized for many years. Several studies and initiatives in the early 1990s considered the need for comprehensive freight planning for the region, as well as specific proposals for solving capacity and congestion issues at various locations in the network. In early 1999, the Association of American Railroads created the Chicago Planning Group (CPG), made up of members of each Class I freight railroad servicing the Chicago region, plus the Belt Railway Company, Illinois Harbor Belt Railroad, Amtrak, and Metra, to study and recommend solutions to the congestion that limited rail operations in the region. Later that year, the Chicago Transportation Coordination Office (CTCO) was established by CPG to develop managerial solutions to railroad operating problems in Chicago, work with public agencies on the public impacts of rail service, and assist in continuing the capital planning process. The CTCO focused first on operational problems that could be resolved without capital expenditures, stressing coordination and communication among the railroads.

While such efforts did help to reduce delays, there was still agreement that capital improvements were needed to address the concerns raised. Because of growing concern with the region’s rail capacity needs, former Chicago Mayor Richard M. Daley called on the Federal Surface Transportation Board in 2001 to convene a task force to tackle the problem. The resulting task force drafted the plan now called CREATE.

The CREATE process started with the creation of computer models to measure existing rail bottlenecks in the region. Each railroad then submitted recommendations for improvements, with additional recommendations submitted by the State and City. A working group made up of representatives of all the CREATE partners refined the recommendations into the list of component projects presented in the 2005 CREATE Program Feasibility Plan, which has since been amended once (in 2009) in response to CN’s acquisition of the Elgin, Joliet and Eastern (EJ&E), and later modified (in 2011) to update several of the component projects. A full history of the CREATE Program and its precursor studies can be found in the CREATE Program Final Feasibility Plan Amendment 1 (Modified) (2011).

Grand Crossing Rail Project

The idea for a project to address the congestion and delays caused by circuitous routing of trains on the CN Chicago Subdivision and St. Charles Airline has been considered repeatedly over the years. In 1984, IDOT and CDOT studied alternative routes to eliminate the St. Charles Airline, which even then experienced conflicts between passenger and freight trains. In the mid 1990s, the concept of rerouting these trains to the NS line in the Grand Crossing neighborhood was first introduced, with a new connection between these routes proposed near 73rd Street. In May 1994, the Chicago Department of Planning and Development presented a report to the Chicago Plan Commission requesting negotiations that would result in the abandonment of the St. Charles Airline and a redevelopment plan for the area. However, this plan was put on hold several years later while CN was in the process of acquiring the Illinois Central, which was the main freight user of the line.
During the systems level alternatives development process for the CREATE Program, this concept was resurrected as part of the Central Corridor project. The Central Corridor project was intended to provide a new route between the southern terminus of the CN Waukesha Subdivision (at Madison Street in River Forest) and the CN Chicago Subdivision just south of Grand Crossing. It was conceived in response to three transportation needs:

1. Provide CN with an alternate routing through the Chicago region, thereby eliminating freight from the CN Chicago Subdivision north of Grand Crossing.
2. Provide an alternate routing into Chicago Union Station for Amtrak trains from New Orleans and Carbondale, eliminating the time-consuming backup move required to enter the station.
3. Provide capacity relief to NS in order to accommodate the additional trains that will be routed there from the CN Chicago Subdivision.

With the completion of CN’s acquisition of the EJ&E, CN determined that it no longer required the CREATE Central Corridor. However, elements of the south half of the corridor are still needed in order to satisfy former Central Corridor’s needs 2 and 3. These elements were combined into the Grand Crossing Rail Project.

Consistency with Regional Plans
The CREATE Program is consistent with the Chicago Metropolitan Agency of Planning (CMAP) GO TO 2040 Comprehensive Regional Plan. CMAP is designated by the federal government as the Chicago region’s Metropolitan Planning Organization (MPO), responsible for reviewing and approving projects that use federal transportation dollars.

GO TO 2040 calls for the full funding and implementation of the CREATE Program in order to support the plan’s goal of “creating a more efficient freight network,” one of its 12 high-priority recommendation areas. The plan states that implementation of the CREATE Program should be a top priority to support the efficiency and effectiveness of mobility throughout the region.

1.5 NEED FOR THE PROPOSED IMPROVEMENTS
The CREATE Program was initiated in 2003 in response to capacity issues on the Chicago region’s rail network. Chicago is the busiest rail hub in the United States. Nearly 1,300 trains (500 freight and 760 passenger) pass through the region each day. Six of the seven Class I freight railroads converge in Chicago, which handles one-fourth of the nation’s freight rail traffic. Currently, 37,500 rail cars per day travel through the Chicago hub each year. This number is expected to increase to 67,000 per day by 2020.

The rail lines built more than a century ago were not configured for the volumes and types of freight being carried currently. Consequently, Chicago has become the largest freight rail chokepoint in the U.S. A train that may take as little as 48 hours to travel the 2,200 miles from Los Angeles to Chicago spends an average of 30 hours traversing the Chicago region. Average speeds of freight trains operating in the region typically range from 5 to 12 miles per hour, depending on the route.

Chicago is also Amtrak’s primary intercity rail hub outside the Northeast Corridor (Figure 1-3). Nearly all of Amtrak’s long-distance and intercity passenger rail services in the Midwest terminate at downtown Chicago’s Union Station. In Illinois, Amtrak service – including the City
of New Orleans, Illini, and Saluki services that are the focus of the Grand Crossing Rail Project – operates almost entirely on freight-owned track and has been increasingly affected by conflicts with freight operations due to growing passenger and freight rail traffic. Increasing demand for passenger service places additional burdens on Chicago’s rail network, particularly if proposed plans for a vastly improved Midwest rail regional network focused around a Chicago-based hub are implemented. Ridership is also growing on Metra commuter rail service, further exacerbating capacity and congestion issues on the region’s rail network.

In addition to the operational impacts of inadequate rail capacity, inefficient routing, and the resulting delays, congestion of the region’s rail network results in a range of adverse impacts for adjacent communities. These impacts include noise, safety concerns, reduced air quality, and delays to motorists and pedestrians. These issues also impact the local, regional, and national economy.

The growing demand for both freight and passenger service, coupled with the limitations of the existing infrastructure, drive the need for many CREATE component projects, including the Grand Crossing Rail Project. This project is being undertaken to address three specific needs that, when combined with other CREATE projects, will help address these overall, region-wide capacity and infrastructure issues. The Grand Crossing Rail Project will address the need for:

- Improved Amtrak route efficiency;
- Reduced congestion and delays for freight and passenger service; and
- Adequate capacity for passenger and freight rail traffic in the overall regional rail network.

### 1.5.1 Improve Route Efficiency

As described in section 1.2, Amtrak’s City of New Orleans, Illini, and Saluki trains currently take a circuitous route through Chicago that includes a time-consuming backup maneuver to pull into Union Station. The current trip from Grand Crossing to Union Station takes 38 minutes, including the time spent on the back-up maneuver into Union Station, where train speeds are limited to 10 mph. This extra maneuver, coupled with congestion through the 16th Street interlocking, lengthens Amtrak schedules by adding 19 minutes to each trip and ties up other passenger and freight rail lines in the process.

Removing these six daily trips from the congested 16th Street interlocking and the BNSF wye south of Union Station also could potentially improve scheduled travel times for Amtrak and other intercity passenger, commuter, and freight trains as well.

### 1.5.2 Reduce Congestion and Delays

Today, all of Amtrak’s City of New Orleans, Illini, and Saluki trains pass through the congested 16th Street interlocking, located near S. Clark Street and W. 16th Street along the St. Charles Airline, just east of the Chicago River. At this location, the CN route currently used by Amtrak intersects Metra’s Rock Island District line, which runs hourly during the midday and off-peak periods and more frequently during the morning and evening peak periods. Approximately 60 Metra trains cross through the 16th Street interlocking on a typical weekday. In addition, 5 to 10 freight trains per day traverse the St. Charles Airline. This chokepoint frequently causes
substantial delay along the route, worsening congestion for all passenger and freight trains along the route and affecting Amtrak’s on-time performance.

On-time performance is a percentage measure of train performance, calculated by taking the total number of trains arriving "on-time" at the end-point of the run divided by the total number of trains operated on the run. A train is considered "on-time" if it arrives at its final destination within an allowed number of minutes of its scheduled arrival time, depending on the number of miles traveled:

- Within 10 minutes for trains traveling 250 miles or less (e.g., Illini and Saluki trains); and
- Within 30 minutes for long-distance trains traveling more than 550 miles (e.g., City of New Orleans trains).

As shown in Table 1-1, on-time performance for Amtrak trains along this route over 12 months (July 2010-June 2011) ranges from 39.6 percent to 70.7 percent for Illini and Saluki trains, and averaged 73.7 percent for City of New Orleans trains. For all six trains, the top two causes of delay were train interference (delays related to other train movements in the area), and track and signal delays (delays related to the railroad infrastructure).

### TABLE 1-1: AMTRAK ON-TIME PERFORMANCE, JULY 2010-JUNE 2011

<table>
<thead>
<tr>
<th>Train Service</th>
<th>Train Number</th>
<th>On-Time Performance, July 2010-June 2011</th>
<th>Primary Cause of Delays, June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of New Orleans</td>
<td>58</td>
<td>72.5%</td>
<td>Train Interference: 46.2% Track and Signals: 31.6%</td>
</tr>
<tr>
<td>City of New Orleans</td>
<td>59</td>
<td>74.9%</td>
<td>Train Interference: 43.7% Track and Signals: 26.0%</td>
</tr>
<tr>
<td>Saluki</td>
<td>390</td>
<td>60.8%</td>
<td>Train Interference: 59.3% Track and Signals: 22.3%</td>
</tr>
<tr>
<td>Saluki</td>
<td>391</td>
<td>42.5%</td>
<td>Train Interference: 56.1% Track and Signals: 29.1%</td>
</tr>
<tr>
<td>Illini</td>
<td>392</td>
<td>39.6%</td>
<td>Train Interference: 59.1% Track and Signals: 33.4%</td>
</tr>
<tr>
<td>Illini</td>
<td>393</td>
<td>70.7%</td>
<td>Train Interference: 33.9% Track and Signals: 39.9%</td>
</tr>
</tbody>
</table>

Source: Amtrak, July 2011

According to Amtrak’s route performance statistics on its website, the majority of train interference delays were due to conflicts with freight trains operating on the CN line, which have priority on the CN-owned trackage. Projected increases in freight operations over the next decade will exacerbate this situation, worsening congestion for all passenger and freight trains that travel along this route.

### 1.5.3 Provide Adequate Capacity

It is critical that the Grand Crossing Rail Project not only improve efficiency and reduce delays along the existing CN route, but that it also provide enough capacity so that existing passenger
and freight rail service in the overall regional rail network is not negatively impacted by improvements to Amtrak’s City of New Orleans-Illini-Saluki lines. Simply moving trains from one line to another – without the appropriate infrastructure improvements to support that move – will reduce available capacity along the new route, potentially affecting rail operations.

There are a limited number of options by which to access Union Station from the south, as well as other choke points throughout the system. For example, shifting Amtrak’s City of New Orleans-Illini-Saluki passenger trains from the CN to the NS corridor will reduce freight capacity along the new route and increase congestion at NS’s Park Manor Yard and 47th Street Intermodal Yard. It could also negatively affect freight and passenger operations at the 21st Street interlocking – located northeast of S. Canal Street and W. Cermak Road at the junction of the CN line carrying Amtrak’s St. Louis trains and Metra’s Heritage Corridor trains to and from the southwest and the north-south NS line – which provides the main south entrance to Union Station. Amtrak, Metra, and NS trains all travel this corridor, which is particularly busy during weekday rush hours (Figure 1-3). The future availability of the existing CN route for Amtrak service is also uncertain. Should this line be made unavailable, the system’s overall capacity would be further limited.

There is a need, therefore, for an infrastructure solution that supports more efficient train routing while also providing sufficient capacity along the new route to accommodate additional trains. This solution would provide an overall net benefit to the rail system.