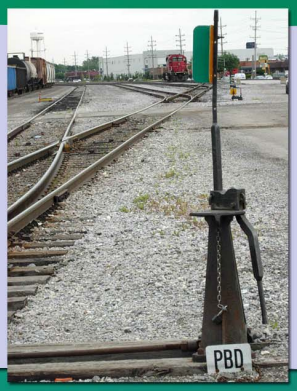
TIGER Grant Application for CREATE Package of Projects



Submitted by:

Illinois Department of Transportation

CREATE Partners include:

Association of American Railroads
Chicago Department of Transportation
Illinois Department of Transportation
United States Department of Transportation

C R E A T E
KEEPING THE GO IN CHICAGO

September 15, 2009

Table of Contents

List of Tables

List of Figures

1.0 Introduction

Table 1.1 TIGER Grant Request Summary

Project							TIGER Grant Request (millions)
CREATE Package of Projects							$300
Component Projects in the Package:							
Project Number	Project Type	City	County	State	Congressional District(s)	Urban/ Rural	Grant Request
B1	Rail	Franklin Park	Cook	IL	Quigley (IL-5)	Urban	$16.1
B2	Rail	Melrose Park, Bellwood, Berkeley	Cook	IL	Gutierrez (IL-4), Roskam (IL-6), Davis (IL-7), and Biggert (IL-13),	Urban	$50.3
B4/B5	Rail	Westchester, Bellwood, Broadview, LaGrange, LaGrange Park	Cook	IL	Lipinski (IL-3), Gutierrez (IL-4), Quigley (IL-5), and Davis (IL-7)	Urban	$14.9
B9/EW1	Rail	Summit, Bedford Park	Cook	IL	Lipinski (IL-3)	Urban	$51.6
B15	Rail	Blue Island, Riverdale, Dolton	Cook	IL	Jackson (IL-2)	Urban	$11.3
EW3	Rail	Chicago	Cook	IL	Rush (IL-1)	Urban	$7.6
GS3a	Highway-Rail Grade Crossing Separation	Chicago	Cook	IL	Lipinski (IL-3)	Urban	$0.8
GS14	Highway-Rail Grade Crossing Separation	Bridgeview	Cook	IL	Lipinski (IL-3)	Urban	$20.3
WA1	Rail	Chicago	Cook	IL	Davis (IL-7)	Urban	$16.8
WA2	Rail	Chicago	Cook	IL	Rush (IL-1), Lipinski (IL-3), Gutierrez (IL-4), and Davis (IL-7)	Urban	$30.3
WA3	Rail	Chicago	Cook	IL	Lipinski (IL-3), Gutierrez (IL-4), and Davis (IL-7)	Urban	$6.9
WA4	Rail	Chicago	Cook	IL	Gutierrez (IL-4) and Davis (IL-7)	Urban	$28.9
WA7*	Rail	Chicago	Cook	IL	Gutierrez (IL-4)	Urban	$6.4
WA10	Rail	Blue Island	Cook	IL	Rush (IL-1)	Urban	$6.8
WA11	Rail	Dolton and Riverdale	Cook	IL	Jackson (IL-2)	Urban	$26.0
Viaducts	Highway	Chicago	Cook	IL	Rush-(IL-1), Lipinski (IL-3), Quigley (IL-5), and Davis (IL-7)	Urban	$5.0

* Shown in Final Feasibility Plan as the C5 project, May be renamed to WA7 if proposed CREATE changes are approved.

The CREATE Partners request funding to complete a package of 16 Projects in the CREATE Program. Exemptions are not being sought for small projects under $20 million because we are requesting the package be considered as a single

project. Section 3.0 provides Program and Project descriptions. Section 4.0 describes the Chicago region's role in freight trade. Section 5.0 details the transportation network and issues. Section 6.0 describes CREATE accomplishments. Section 7.0 presents the expected benefits of the CREATE Projects.

2.0 Executive Summary

Thank you for the opportunity to submit this application for TIGER Grant funds to support a package of projects ("the Package") from the CREATE Program. The Package strongly contributes to each of the Primary and Secondary Selection Criteria outlined in the Final Notice dated June 17, 2009:

- Long-Term Outcomes:
  - State of Good Repair – All railroad improvements will be maintained by railroads at their expense. Annual truck VMT reduced by 15.1 million due to shipment diversion to rail. Existing highway maintenance costs reduced by $1.1 million per year.
  - Economic Competitiveness – Reduced train hours in the Chicago region of 17,684 hours/year, leading to reduced shipment delays and resulting in logistics cost savings of $265.0 million/year, boosting national and regional competitiveness.
  - Livability – Reduced rail transit delay of 57,631 passenger hours per year for savings of $1.4 million per year, and reduced motorist delay of 344,499 hours annually for savings of $8.5 million per year.
  - Sustainability – Reduced diesel consumption of 2.9 million gallons per year due to increased locomotive operating efficiency and diversion of freight from truck to rail. Emissions from locomotives and vehicles reduced substantially, resulting in a combined cost savings of $2.5 million per year.
  - Safety – Highway-rail grade separation eliminates crashes; switch automation reduces worker injuries.
- Benefit-Cost Analysis: The benefit-cost ratio for the package of projects is between 5.90:1 (seven percent discount rate) and 8.93:1 (three percent discount rate) – see Table 7.1.
- Job Creation and Economic Stimulus: This Package provides direct and indirect employment of 4,473 employment years.
- Quick Start Criteria:
  - Project Schedule – A feasible and sufficiently detailed schedule can be found in Section 3.2.
  - Environmental Approvals – Categorical Exclusions have been received from FHWA for 8 of the 16 projects in the package. Environmental is underway on 3 others.
  - Legislative Approvals – No specific legislative approvals are required to progress the package. Letters of support received from Mayor Daley of Chicago and Governor Quinn of Illinois as well as other local leaders.
  - State and Local Planning – All projects in the package are in the region's TIP. CREATE is a "central element of the strategic regional freight system" in the RTP, 2030 RTP for NE IL.
  - Technical Feasibility – Six projects in package have completed preliminary design; four more are underway.
  - Financial Feasibility – This package of projects will be fully funded via TIGER grant funds, committed private funds, and State of Illinois "Illinois Jobs Now" funds with stable revenue sources. All projects have ample contingency reserves built into cost estimates.
- Secondary Selection Criteria:
  - Innovation – This Package of projects continues the innovative tradition of CREATE. It lays the groundwork for Positive Train Control on several routes. It will be supported by the innovative Common Operational Picture technology, now under development.

– **Partnership and Management Practices – A strong coalition of private and public railroads and four government agencies** has been working on CREATE since 2003. CREATE Partnerships and Management Practices are detailed in Section 7.6.3 and linked web materials.

In addition, the Package of projects fully meets all these priority criteria:

- Requested TIGER funding of $300 million fills out a **total financing package of $450.7 million**.
- The Package **will be completed by Feb 17, 2012** as per the definition at 74 CFR 28761, 2nd column.
- The Package **significantly impacts desirable long-term national/regional benefits** (see below.)
- The Package **quickly creates/preserves jobs in economically distressed areas**, with all projects in the Package located in economically distressed areas. See Figure 3.2 and Section 7.2.2.
- The Package continues the use of **innovative strategies** on CREATE, see Section 7.6.2.
- The Package will benefit from strong, **established public-private collaboration** – See Section 7.6.3. Many other public, nonprofit, and private organizations support CREATE.
- The package **significantly improves long-term efficiency in the movement of people and goods**, and makes the region more attractive for existing and potential employers. See Section 7.2.
- The application includes **commitments of financial support** from the State of Illinois and private railroads (see Table 3.1).
- The application is **supported by the Chicago Metropolitan Agency for Planning, Environmental Law and Policy Center, and Chicago Metropolis 2020** whose missions include many nontransportation issues. See Table 7.2.
- The package will result in **more livable communities throughout the region** – see Section 7.3.

The required wage rate certification letter can be found at Wage Rate Certification Letter.

3.0 Program and Project Description

3.1 CREATE Program Overview

The Chicago Region Environmental and Transportation Efficiency Program (CREATE) is a public-private partnership, including the U.S. DOT, Illinois Department of Transportation (IDOT), Chicago Department of Transportation (CDOT), Metra, Amtrak, and the Association of American Railroads (AAR) representing: BNSF Railway (BNSF), Canadian National (CN), Canadian Pacific (CP), CSX, Norfolk Southern (NS), Union Pacific (UP), and switching railroads Belt Railway Company of Chicago (BRC) and Indiana Harbor Belt Railroad (IHB). CREATE encompasses improvements along five rail corridors: 1) East-West Corridor (NS/BRC); 2) Western Avenue Corridor (BNSF/UP/CSX/NS); 3) Beltway Corridor (CSX/IHB); 4) Central Corridor (connecting CN- Wisconsin Central with Eastern Class I Railroads) and 5) Passenger Express Corridors (Metra SWS/Heritage). The CREATE Program is aimed at addressing existing and future congestion issues on the rail system, which bring adverse effects to the national economy and the transportation system. CREATE's mission is to complete all the necessary improvements included in the 78 projects that comprise the CREATE Program to achieve national and regional benefits. Overall, CREATE Program goals are to:

- Improve safety and operations at proposed grade-separation locations and;
- Eliminate or reduce many points of direct conflict between rail corridors and the roadway network;
- Eliminate points of conflict between rail corridors, especially points of passenger/freight conflict;
- Reduce fuel consumption by and emissions from locomotives and waiting autos and trucks;
- Reduce traffic congestion on the region's highways;

- Modernize and increase the capacity of rail facilities to more efficiently handle today's rail traffic and meet future demands;
- Connect the rail corridors more effectively to foster the efficient flow of goods and people within and through the region, as well as to and from other parts of the U.S., including international traffic through the major ports;
- Reroute freight and intercity passenger operations from the St. Charles Air Line rail route; and
- Improve the efficiency and reliability of the corridors to better serve national security.

The 78 Projects in the CREATE Program include:

- Grade separation of six railroad crossings (rail-rail flyovers);
- Grade separation of 25 highway-rail crossings;
- Extensive upgrades of tracks, switches, and signal systems via more than 40 rail projects;
- Viaduct Improvement Program;
- Grade crossing safety enhancements; and
- Rail operations visibility improvements (Common Operational Picture) – see Section 7.6.2.

The CREATE Program is designed to address systemic issues in the areas of freight movement, freight/passenger rail conflict and highway/rail conflict. Through focused investment along four rail corridors, the Program will construct additional capacity and improve connections within and through the Chicago metropolitan area rail network. Along the passenger corridor, the complete CREATE Program will separate passenger and freight operations at six congested rail/rail at-grade crossings where slower moving freight yard operations conflict with passenger train operations. Construction of 25 grade separations at locations of significant rail/highway conflict will reduce traffic congestion and eliminate the possibility of crashes. The CREATE Program Final Feasibility Plan is available at Final Feasibility Plan.

3.2 CREATE Projects Targeted for ARRA Funds

The CREATE Package of projects proposed for ARRA funding have either cleared environmental and preliminary design or are expected to do so in the near future. These are the projects for which construction can be initiated most quickly. Sixteen component CREATE projects have been identified for ARRA grant consideration and are grouped by the corridor with which they are associated in Tables 3.1 and 3.2. Table 3.1 shows the sources of funding already in place for each project, the percentage non-Federal funding, and the date by which TIGER funds would be obligated. Table 3.2 provides a brief description of the scope of each project proposed for ARRA funding. Detailed descriptions of scope, benefits, and environmental status of each project are provided at Project Descriptions and Benefits drawings and maps showing project locations are located at Engineering Maps and Drawings.

During the construction of the Package of Projects, a total of 4,473 direct and indirect job years are estimated to be created, as shown in Figure 3.2. The distribution of jobs created by quarter is shown in Figure 3.2. Job estimates were developed based on one job year (including direct, indirect and induced jobs) being created for each $92,000 of investment.[1]

The proposed projects will move two CREATE Corridors to near-completion, yielding substantial near-term benefits (See Figure 3.1 for Program map and project locations).

[1] Executive Office of the President Council of Economic Advisers, "Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009", May 2009.

3.2.1 Beltway Corridor

- Five rail projects are proposed for funding in this application: (B1, B2, B4/B5, B9/EW1, and B15);
- One rail project is already under construction (B6);
- Two rail projects already are operationally complete (B8 and B3); and
- With receipt of TIGER funds, only three rail projects on this corridor will remain (B12, B13, B16), one of which (B12) is funded and near construction.

3.2.2 Western Avenue Corridor

- Six rail projects are proposed for funding in this application: (WA1, WA2, WA3, WA7, WA10, and WA11). Work proposed for WA2 and WA3 involves segments of these projects with independent utility.
- One rail project already is under construction (WA3 – other segments).
- One rail project has been completed (WA5).
- With receipt of TIGER funds, all projects on this corridor will be funded and moving to completion.

Table 3.1 CREATE Projects for ARRA Funding

	Millions of Dollars						
Project	TOTAL Project Cost	Railroad Contribution (private)	IDOT Funds	Other Federal Funds	TIGER Grant Requested	Percent Non-Federal Funds	Date TIGER Funds Obligated
B1	$20.2	$0.2	$3.9		$16.1	20%	Sep-10
B2	$81.2	$29.8		$1.1	$50.3	37%	Mar-10
B4/B5	$35.2	$18.0		$2.3	$14.9	51%	Mar-10
B9/EW1	$64.7	$0.5	$12.6		$51.6	20%	Nov-10
B15	$14.2	$0.3	$2.6		$11.3	20%	Jan-11
EW3	$9.5	$0.2	$1.7		$7.6	20%	Aug-10
GS3a	$1.0		$0.2		$0.8	20%	Mar-10
GS14	$26.4		$6.1		$20.3	23%	Apr-10
WA 1	$33.6	$16.6		$0.2	$16.8	49%	Oct-10
WA 2	$40.1	$2.0		$7.8	$30.3	5%	Mar-10
WA 3	$33.0	$5.2		$20.9	$6.9	16%	Mar-10
WA 4	$37.4	$0.3	$7.2	$1.0	$28.9	20%	Feb-11
WA7	$8.0		$1.6		$6.4	20%	Jan-11
WA10	$8.5	$0.5	$1.2		$6.8	20%	Mar-10
WA11	$32.7	$0.6	$6.1		$26.0	20%	Nov-10
Viaducts	$5.0				$5.0	0%	Mar-10
TOTAL	$450.7	$74.2	$43.2	$33.3	$300.0	39%	

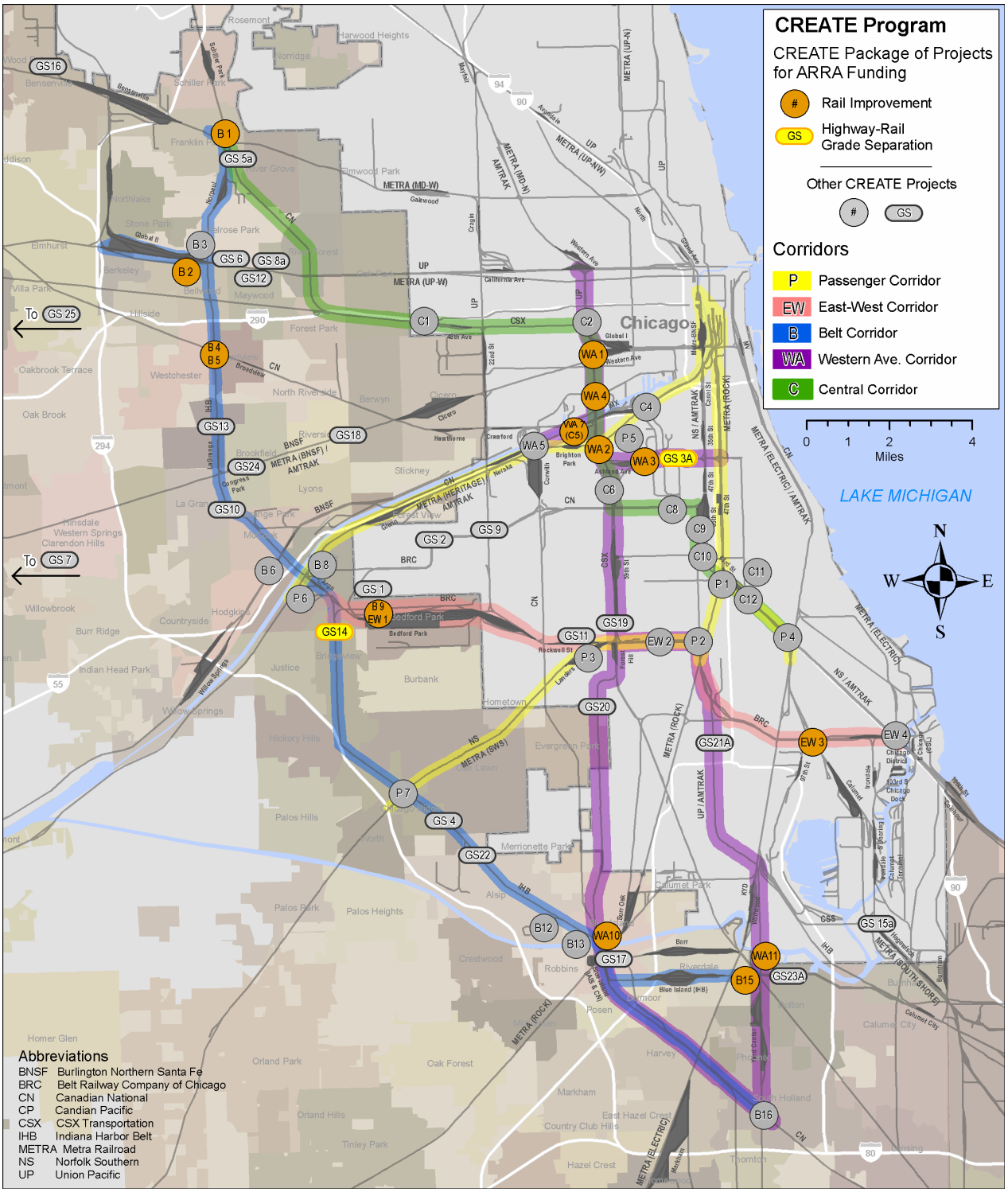
Table 3.2 CREATE Package Project Descriptions

Project	Project Description
B1	Install four sets of crossovers and associated signaling, connecting Metra main tracks with CPR tracks to allow parallel moves to the Beltway Corridor from Metra-Milwaukee West line.
B2	Construct additional track on UP Geneva Subdivision, including construction of a bridge. Upgrade connection track to IHB to 25 mph. Includes associated signal work.
B4/B5	Install TCS (traffic control system) on three tracks between CP LaGrange and CP Hill; upgrade running track to main track, increasing speed to 25 mph. Create new CP Broadview.
B9/EW1	Create double track connection between BRC and IHB/CSX at Argo. Upgrade mainline crossovers to accommodate higher speeds, from 10 mph to 25 mph. Construct two new seven-mile main tracks around the south side of Clearing Yard. Make yard improvements necessary to create yard capacity lost as a result of the new main lines.
B15	Install TCS signaling between CP Harvey and CP Dolton. Upgrade hand-thrown switches to power switches.
EW3	Realign Pullman Junction and add crossovers to connect BRC and NS mains from Pullman Junction to 80th St. to the E-W Corridor.
GS3a	Install improved signalization at at-grade crossing of NS at Morgan Street.
GS14	Construct a grade separation of four CSX and IHB rail tracks and 71st Street in the Village of Bridgeview.
WA 1	Install new bidirectional computerized TCS signaling on a two-mile segment of the UP. Upgrade hand-thrown switches to power switches.
WA 2	Install new bidirectional computerized TCS signaling on a seven-mile segment of the CSX. Upgrade hand-thrown switches to power-operated switches.
WA 3	Replace/install six power operated switches, and install connection tracks from CSX to NS to the BNSF lead track.
WA 4	Construct two miles of new BNSF trackage, providing a direct connection between the BNSF Chicago and Chillicothe Subdivision lines; upgrade nine bridges.
WA7	Build new northwest and southwest connections at Brighton Park from the CN's Joliet Subdivision to CSX's Blue Island Subdivision.
WA10	Install crossovers between the CSX Blue Island Subdivision and the CN Elsdon Subdivision and new signals at Blue Island Junction to facilitate bidirectional movements.
WA11	Upgrade and reconfigure the CSX/UP/IHB Dolton Interlocking in Dolton, Illinois. Construct new third main line.
Viaduct Prog.	Reconstruct, rehabilitate, and restore the roadway and sidewalks under multiple rail viaducts in the City of Chicago.

Source: CREATE.

Note: Detailed descriptions of scope, benefits, and environmental status of each project are provided at CREATE Project Descriptions and Benefits.

Figure 3.1 CREATE Projects Targeted for ARRA Funding



Note: See Viaduct Improvement Program for map of Viaduct Improvement Program projects.

Figure 3.2 CREATE Construction Schedule and Employment Distribution by Quarter

Project	2009				2010				2011				2012		Total Job Years	Jobs/ Const. Period
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
B1	E	E	D	D	D	D	D	C	C	C	C	C	C			
B1 Jobs					3.1	3.1	3.1	13.8	13.8	13.8	13.8	13.8	13.8		207	92
B2	E	D	D	C	C	C	C	C	C							
B2 Jobs					139	139	139	139	139						871	697
B4/B5		E	E	D	C	C	C	C	C	C						
B4/B5 Jobs					40.1	40.1	40.1	40.1	40.1	40.1					361	241
B9/EW1	E	E	E	D	D	D	C	C	C	C	C	C	C			
B9/EW1 Jobs					12.0	12.0	30.9	30.9	30.9	30.9	30.9	30.9	30.9		540	240
B15			E	E	E	E	D	D	C	C	C					
B15 Jobs					2.2	2.2	2.2	2.2	26.1	26.1	26.1				152	87
EW3			E	E	E	D	C	C	C	C	C	C				
EW3 Jobs					1.9	1.9	5.8	5.8	5.8	5.8	5.8	5.8			77	39
GS3a					E	E	D	C	C	C	C	C				
GS3a Jobs					0.2	0.2	0.2	1.0	1.0	1.0	1.0	1.0			11	5
GS14					D	D	D	D	C	C	C	C	C			
GS 14 Jobs					2.7	2.7	2.7	2.7	19.1	19.1	19.1	19.1	19.1		239	106
WA1	E	E	D	D	D	D	D	C	C	C	C	C				
WA1Jobs					3.0	3.0	3.0	33.9	33.9	33.9	33.9	33.9			357	178
WA2	E	D	C	C	C	C	C	C	C	C	C	C				
WA2 Jobs					30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6			489	245
WA3	D	D	D	D	C	C	C	C	C	C						
WA3 Jobs					36.1	36.1	36.1	36.1	36.1	36.1					325	217
WA4	E	D	D	D	D	D	D	D	C	C	C	C	C			
WA4 Jobs					2.1	2.1	2.1	2.1	31.3	31.3	31.3	31.3	31.3		371	165
WA7					E	E	E	E	D	D	C	C				
WA7 Jobs					0.6	0.6	0.6	0.6	0.6	0.6	17.1	17.1			76	38
WA10		E	E	D	C	C										
WA10 Jobs					87.0	87.0									87	174
WA11			E	E	E	D	D	D	C	C	C	C				
WA11 Jobs					3.2	3.2	3.2	3.2	28.9	28.9	28.9	28.9			257	128
Viaducts					E	D	C	C	C	C						
Viaduct Jobs					1.8	1.8	8.2	8.2	8.2	8.2					54	36
	Jobs/Q				366	366	308	350	446	306	238	212	95		4,473	

PRELIMINARY ENGINEERING

DESIGN

CONSTRUCTION

Detailed construction schedules for all of the projects can be found at Construction Schedule.

3.3 Evolution of CREATE

The CREATE Program represents a response to the need for improved freight and passenger mobility through the Chicago region due to continually increasing demands on the region's rail network. These demands became particularly evident following a major snowstorm in 1999. Interstate highways and freight rail yards were impassable, creating a ripple effect across the North American rail network for many weeks. The Mayor of Chicago, Richard M. Daley, challenged the rail carriers to develop a coordinated plan to keep freight movement fluid while at the same time addressing some longstanding regional concerns. Over the next four years, Illinois DOT and Chicago DOT worked with the passenger and freight railroads to identify the needs of the region's stakeholders, which later resulted in what is now known as the CREATE program.

In early 1999, the Association of American Railroads (AAR) created the Chicago Planning Group (CPG), with participation from all key railroads in the region, to study and provide solutions to rail congestion issues in the region. A study performed by CPG recommended:

- Improvements to signal systems;
- Expansion of main track and connection capacity;
- Elimination of key passenger-freight conflicts; and
- Separation of key highway-rail grade crossings most impacted by rail operations.

Several groups were created over the next several years to deal with rail issues in the region:

- The CPG created the Chicago Transportation Coordination Office (CTCO). Their initial charge was to develop noninfrastructure solutions to railroad operating problems. They also coordinated with public agencies and assisted with capital planning. The results included coordination and communication improvements between railroads, and development of an emergency operations process.
- A Freight Transportation Working Group was created by civic groups to research regional freight issues and make recommendations to planners and leaders.
- Under the initiative of Mayor Daley, the Chicago Rail Task Force was created, consisting of representatives from the freight railroads and Chicago DOT. The CREATE Partners decided to pursue capital improvements only after it was demonstrated that all noninfrastructure approaches, including crewing and recrewing locations, dispatching protocols, and coordinating efforts among and between railroads, had been fully implemented and no further benefits could be derived.

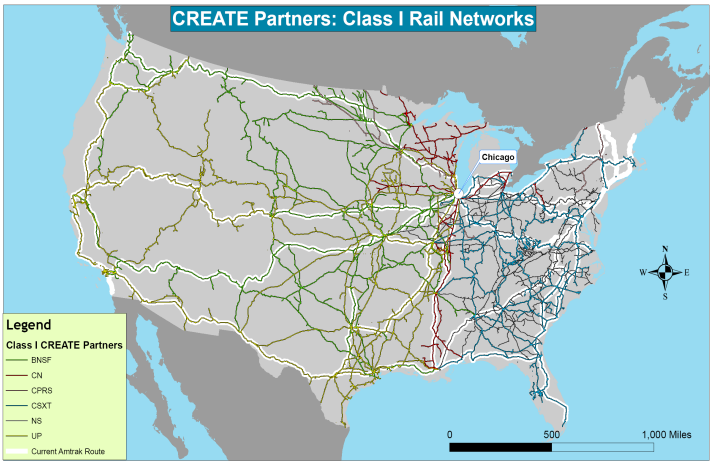
In 2002, the railroads used the Berkeley Rail Traffic Controller simulation model to systematically assess rail operations in the region and test and prioritize proposed improvements. The model was comprehensive, covering 893 miles of main and terminal track in the region, 119 interlockings, 4,698 control points, and nearly 3,000 freight and passenger trains. It modeled operations based on actual data from a 96-hour period in mid-November 1999. The model also was "owner neutral," defining the largest chokepoints and delay zones regardless of the infrastructure owner. One of the clear findings from the model was the profound impact of the region's extensive commuter rail service on freight rail operations. Neither commuter service nor freight operations could continue to grow without significant infrastructure improvements. After a long collaborative process among the public and private partners, the final CREATE plan was issued in August 2003.

4.0 Chicago Region's Role in National and International Trade and Impacts of Congestion

One quarter of the nation's rail traffic travels through the Chicago region[2] where six of the seven Class I railroads converge. Additionally, large networks of commuter and intercity passenger rail meet in Chicago. Each day, nearly 1,300 trains – 800 passenger and 500 freight – are handled in the region, with a staggering 40,000[3] railcars per day. Nowhere else in North America does such a quantity of rail traffic converge in a single region, creating a level of freight congestion that impacts the movement of goods nationally. Figure 4.1 demonstrates Chicago's critical location at the nexus of the North American railroad network. Six of the seven largest rail carriers access the region: the eastern railroads, Norfolk Southern (NS) and CSX; the western railroads, BNSF Railway (BNSF) and Union Pacific (UP); and the two Canadian railroads, Canadian Pacific (CPR) and Canadian National (CN).

The seeds for Chicago's position as the preeminent freight rail hub in North America were sown over 150 years ago when railroads from the east and the west constructed lines to tap the city's strategic location at the foot of Lake Michigan. However, the rail lines built more than a century ago were not configured for the volumes and types of freight being carried currently, and Chicago has become the largest U.S. rail freight chokepoint. 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.[4]

Figure 4.1 CREATE Partners Rail Network



This congestion affects all types of rail traffic, from merchandise trains handling individual carloads containing many different kinds of goods, to unit trains carrying 100 or more carloads of coal, grain, and other bulk products, to trains carrying containers and trailers full of manufactured goods. Commonly known as intermodal traffic, goods moving in containers and on trailers allow ready movement by truck, railway, or container ship. The availability of inexpensive and quality intermodal service has greatly facilitated the massive growth in imports and exports over the past 20 years, with rail serving as the link between ports and inland markets, where final delivery/pick-up is performed by truck. In recent years, intermodal rail traffic has experienced the greatest growth of all types of rail traffic, a trend that is expected to continue even with slackening demand in international traffic. At present, nearly half of all U.S. rail intermodal traffic flows through the Chicago region.[5] Delays in rail freight traffic threaten the economic vitality of businesses that rely on these and other important types of rail shipments throughout the nation and region.

---

[2] Association of American Railroads 2006 Rail Waybill Sample, based on traffic analysis by ALK Associates.

[3] Ibid.

[4] CREATE rail simulation model run in 2002.

[5] Association of American Railroads 2006 Rail Waybill Sample, based on traffic analysis by ALK Associates.

Robust growth in traffic is expected to continue through 2035. Freight trade with the Chicago region, is forecast to increase 23 percent between 2002 and 2015 and 89 percent between 2002 and 2035, according to U.S. DOT[6]. While the current recession has dampened demand from the recent peak years of 2006 to 2007, intermodal traffic through Chicago still exceeds levels last seen in 2003. Once economic growth resumes, traffic volumes will begin to rise, and with it, the system will be further stressed, impacting the cost of shipping goods throughout much of the nation. With Chicago being the primary interchange between the east and the west, the rail lines traversing the region will bear more than their share of future growth as shown at: Rail Volume Forecast.

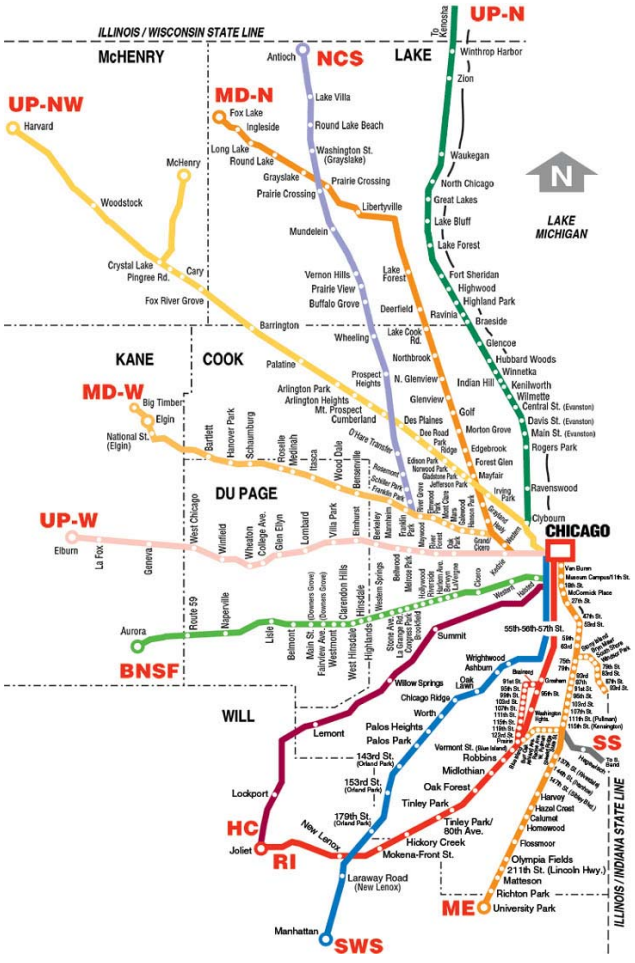
5.0 Chicago Region Transportation Network/ Issues

5.1 Passenger Rail

Chicago is a major hub for both Metra commuter rail service and Amtrak intercity passenger service. Regional services, operated by Metra and the Northern Indiana Commuter Transportation District (NICTD), are exceeded in ridership only by the Long Island Railroad in North America. In 2008, Metra operated over 700 weekday trains on a network of 546 route miles with 239 stations and a daily volume of 324,000 unlinked trips throughout the Chicago metropolitan region. Demand has been rising steadily in recent years, with 2008 volume reaching a record for Metra's 25 year history of 87 million annual passengers. This represented an increase of 4.2 percent over 2007, and 54 percent since 1983, Metra's first year of operation.

Paralleling the growth in ridership has been an increase in trains operated. In the six years since CREATE was announced in 2003, daily Metra trains have increased from approximately 650 scheduled trains to more than 700. These trains operate over 11 radial lines into the City of Chicago, as shown in Figure 5.1. Nine Metra lines – all except the Rock Island (RI) and Metra Electric (ME) – operate on tracks owned or managed by freight railroads and must coordinate operations with freight carriers. Metra's radial lines cross freight rail lines, including the heavily traveled Indiana Harbor Belt Railroad (IHB) and the Belt Railway of Chicago (BRC) at grade in several locations, which is a frequent cause for delays to both passenger and freight trains. The demand for commuter rail service combined with increasing freight volumes and congestion make operating timely and reliable commuter and freight rail service over largely the same rail network increasingly challenging.

Figure 5.1 Metra Rail Network



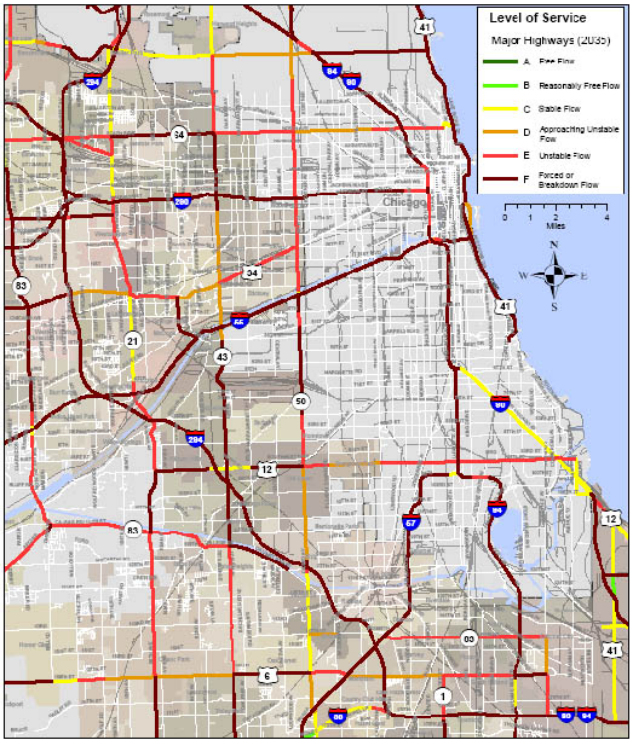
[6] Freight Analysis Framework 2

Chicago also is the National Railroad Passenger Corporation's (Amtrak) primary intercity rail hub outside the Northeast Corridor. As with its commuter and freight counterparts, intercity passenger volumes through Chicago have grown considerably in recent years, as have weekday train volumes, which increased from roughly 48 in 2003 to a current level of 56. All of Amtrak's long-distance and regional services serving the Midwest terminate at downtown Chicago's Union Station. In Illinois, Amtrak service operates almost entirely on freight-owned track and has been increasingly affected by conflict with freight operations resulting from growing rail traffic.

Demand for Amtrak service has been growing dramatically. Nationally, ridership in Federal Fiscal Year 2008 increased to 28.7 million, marking the sixth straight year of gains and setting a new record for the most passengers using Amtrak since the beginning of operations in 1971. More than 3.1 million passengers traveled through Chicago's Union Station in FY 2008, a 42 percent increase in volume just since FY 2003.

In 2007, the frequency of Amtrak trains operated under a contract with the Illinois Department of Transportation was doubled on three routes to downstate Illinois. The result was explosive growth in ridership on the affected routes, which exceeded one million riders in FY 2008. This was a 15 percent increase over the previous year, and a 63 percent increase over FY 2006, the last year prior to the implementation of the new services. Expanding demand for passenger service places additional burdens on Chicago's rail network, particularly once a vastly improved Midwest rail regional network focusing around a Chicago-based hub moves towards reality. The Chicago Hub is one of 10 high-speed rail corridors designated by the Federal Railroad Administration, and plans call for operating new services over track shared with freight railroads at speeds of up to 110 miles per hour. Successful operation clearly will depend on relieving congestion at key freight-passenger chokepoints, particularly along the heavily trafficked main lines leading into Chicago's Union Station.

Figure 5.2 Roadway Level of Service 2035



5.2 Roadway Congestion

Chicago's roadways are known to experience some of the greatest traffic congestion in the nation. According to the *2007 Urban Mobility Report,*[7] the Chicago region experiences the third-highest level of congestion nationally. In the Chicago region, drivers need to add 50 to 100 percent more time to a planned trip by car to ensure they arrive on time, given the high levels of traffic congestion, according to the report.

The level of service (LOS) is a measure used to describe congestion on highways. Levels of service are ranked from LOS A (free flowing traffic) to LOS F (gridlock) representing travel flow of all vehicles on the roadway. Based on traffic increases forecasted by U.S. DOT in the Freight Analysis Framework 2, Figure 5.2 shows very high levels of anticipated congestion in 2035, with many of the region's interstate and state highways anticipated to be operating at LOS E or F.

Congestion affects not only passenger car drivers but also truck movement, which is critical to economic competitiveness. Twelve of the highway-rail grade separation projects in the full CREATE Program are on designated truck routes and will significantly reduce truck congestion. According to the March 2009 *Freight Performance Measures Analysis of 30 Freight Bottlenecks* by the American Transportation Research Institute (ATRI), two of the top three bottlenecks in the nation for

[7] Texas Transportation Institute, 2007 Urban Mobility Report, p. 13.

trucks are located in Cook County, IL (I-80 at I-94 split and I-90 at I-94 interchange) and a third location in the top 30 is in DuPage County (I-290 at I-355 Interchange). For national bottleneck rankings, see Truck Bottlenecks.

5.3 Highway-Rail Grade Separations

Given the extent of the rail and highway networks in Chicago, many locations exist where these two systems intersect at grade, causing extensive wait times for motor vehicles and raising the potential for property-damage and injury causing incidents. In the six-county Northeastern Illinois region, 1,567 public at-grade crossings exist. Freight trains can be in excess of 7,000 feet long and can take several minutes to cross a highway, depending on their speed. When trains travel at slow speeds or come to a stop when crossing a roadway, they can cause significant delays for vehicles. Some Northeastern Illinois grade crossings are blocked by lowered gates as much as 5 hours or more per day. At some crossings more than 100 trains per day cross a roadway location. Collectively, motorists experience as much as 200 hours of delay daily at some highway-rail grade crossings.[8] This Package of projects addresses two such crossings, while the entire CREATE Program includes 25 highway-rail grade separations.

The negative impacts of highway-rail grade crossings include traffic congestion, auto emissions, and crashes. Traffic congestion results when traffic backs up as a train passes. This is a significant issue in a number of communities in greater Chicago, particularly those in which freight rail yards are located. Air quality impacts result when vehicles sit with their engines idling while waiting for trains to pass.

Safety also is an issue given the risk of a vehicle being on the tracks when a train is approaching. Metra trains travel at speeds as high as 79 miles per hour in some locations, leaving little time to react and the potential of an extremely severe crash. The risk and severity of crashes with freight trains also is an issue given their heavy weights and inability to stop quickly. An additional safety issue is that of access by emergency vehicles. When a train blocks a crossing, emergency response vehicles may find that the shortest route to reach an incident or a hospital is inaccessible.

6.0 CREATE Accomplishments

Since its announcement in 2003, CREATE has made considerable progress in securing initial funding and progressing the Program.

6.1 A Project of National and Regional Significance

In the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), CREATE was one of 24 projects funded under the Projects of National and Regional Significance Program (PNRS). PNRS was developed to provide funding for high-cost ($500 million or more) surface transportation system improvements of national or regional importance. PNRS authorized $1.78 billion over five years (FY 2005 to FY 2009) for 24 projects, of which $100 million was authorized for CREATE. As shown in Table 6.1, PNRS funding for SAFETEA-LU was released beginning in FY 2007. A total of $90.6 million has been allocated, which is 9.4 percent less than expected due to Federal obligation limitations under SAFETEA-LU.

[8] ICC Motorist Delay Analysis Worksheet, September 20, 2002 (Revised 10/28/08).

Table 6.1 Projects of National and Regional Significance Funding for CREATE

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
TOTAL	$10,000,000	$20,000,000	$25,000,000	$25,000,000	$19,975,000	$99,975,000
Actual/Projected	$8,550,000	$17,226,000	$23,017,897	$23,100,000	$18,720,000	$90,613,897
Obligation Limitation Reduction	14.5%	13.9%	7.9%	7.6%	6.3%	9.4%

Note: FFY 2005 and FFY 2006 amounts are estimated as they were provided as a combined amount. FFY 2009 total includes FFY 2008 rescission of $25,000.

CREATE received the last of its SAFETEA-LU funding in May 2009, and based on project schedules, expects to obligate all PNRS funding received by the end of 2009. CREATE expects to be one of the first group of PNRS projects to obligate all funds available under SAFETEA-LU, and is well positioned to ramp up efforts if funding is provided through the ARRA. To date, CREATE has received the following funds totaling $509.2 million:

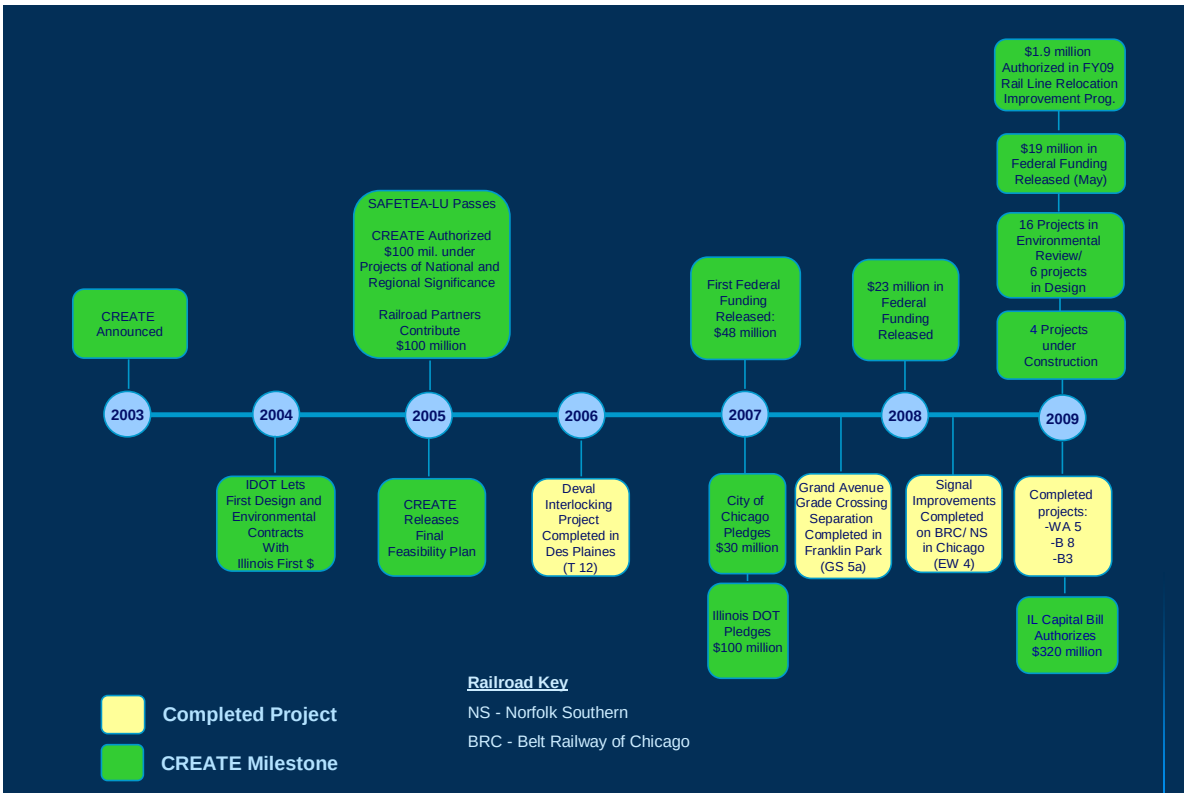
- $90.6 million Federal allocation via the SAFETEA-LU Projects of National and Regional Significance Program;
- $286.5 million in funds for CREATE projects received directly by project sponsors other than CREATE partners from other Federal, state and local sources;
- $1.9 million from the FY 09 Rail Line Relocation and Improvement Program;
- $116 million from the railroad partners;
- $10 million from the Illinois Department of Transportation; and
- $4.2 million from the Chicago Department of Transportation.

With this funding, 6 projects have been completed, 3 are under construction, 9 have been advanced to the design phase, and 25 projects are undergoing environmental review. A key CREATE strategy has been to build a backlog of projects a that have completed environmental review and preliminary design so they are ready to advance to the final design and construction phases.

In July 2009, Illinois Governor Patrick Quinn approved the "Illinois Jobs Now" program, including funds to provide $320 million in state funds for CREATE. This program also authorized over $100 million in funding for two individual CREATE grade crossing projects (GS15a and GS25). These funds will be released over the course of the multiyear program to fund CREATE projects. This grant application includes $43.2 million from the Illinois Jobs Now program as part of the non-Federal match for TIGER funding.

The CREATE Program has made significant progress since its announcement in 2003 with the funds received to date. Figure 6.1 shows the timing of the release of funds and CREATE project completion. Projects of National and Regional Significance funding was received beginning in 2007 (for FY 2005, FY 2006, and FY 2007).

Figure 6.1 CREATE Timeline



Each project for which ARRA funding is requested has independent utility and will provide immediate benefits to the nation and the region by itself. CREATE seeks ARRA funds to keep the program moving forward until the next Transportation Authorization is passed by Congress once the current bill expires on September 30, 2009. Based on recent announcements, a transportation bill could be delayed up to 18 months. If CREATE does not receive ARRA funds, the program will be hampered in its ability to advance projects and costs will increase.

7.0 Benefit/Cost Analysis of CREATE Projects Targeted for ARRA Funds

The CREATE Program was developed to benefit numerous constituencies in the Chicago region and the nation. The 78 distinct CREATE projects will benefit a broad range of transportation system users, including:

- U.S. businesses that ship or receive products or materials via rail:
  - Consumer goods;
  - Energy;
  - Chemicals;
  - Minerals;
  - Aggregates;
  - Motor vehicles;

  - Grain and agricultural products; and
  - Forest products.
- Seaports nationwide that move container or bulk traffic by rail to or through the Chicago region (26 percent of Los Angeles/Long Beach intermodal units, 21 percent of Oakland intermodal units, 47 percent of Portland intermodal units and 54 percent of Seattle/Tacoma intermodal units go to, from, or through Chicago);
- U.S. consumers;
- Amtrak riders traveling to, from, or through Chicago;
- Metra rail commuters in the greater Chicago region;
- Motorists and motor carriers in the Chicago region;
- Rail carriers operating in the Chicago region and their employees and facilities nationwide;
- Future freight rail and intermodal customers worldwide; and
- Local residents impacted by noise and air pollution from current numbers of idling trains.

A comprehensive Benefit-Cost Analysis (BCA), compliant with all requirements in the June 17, 2009 announcement, was performed for the Package of CREATE projects included in this application. This BCA includes:

- Logistics cost savings and truck ton-mile reductions from the University of Illinois Regional Economics Applications Laboratory (REAL);
- Highway travel time reductions from the Illinois Commerce Commission;
- Freight rail transit time reductions from the RTC simulation model of the Chicago region's rail network;
- Grade crossing crash data from the Federal Railroad Administration; and
- Other benefits and costs from sources, including the National Highway Traffic Safety Administration (NHTSA), U.S. Environmental Protection Agency (USEPA), and the Association of American Railroads (AAR).

The BCA shows that the Package of CREATE Projects applied for here has a benefit cost ratio between 5.90:1 (seven percent discount rate) and 8.93:1 (three percent discount rate). Further details of the study can be found below. A separate spreadsheet detailing the benefit-cost calculations was submitted with this application via e-mail and can be accessed at BCA Summary.

Table 7.1 Primary Selection Criteria Benefit-Cost Summary

Category	Annual Value (Millions of Dollars)	20-Year NPV (Millions of Dollars – 7% Discount Rate)	20-Year NPV (Millions of Dollars – 3% Discount Rate)
BENEFITS			
State of Good Repair			
Reduced maintenance costs from truck VMT avoided	1.1	10.9	17.3
Economic Competitiveness			
Logistics Cost Savings	265.0	2,741.8	4,323.6
Livability			
Transit (Metra Commuter Rail and Amtrak Intercity Rail) and Motorist Travel Time Savings	9.9	102.4	161.6
Sustainability			
Benefit from Reduced fuel consumption and emissions	2.5	25.8	40.8

Category	Annual Value (Millions of Dollars)	20-Year NPV (Millions of Dollars – 7% Discount Rate)	20-Year NPV (Millions of Dollars – 3% Discount Rate)
Safety			
Eliminates potential of crashes at at-grade crossing	.0002	.003	.004
COSTS			
Construction Costs (total)	450.7		
Maintenance Costs	4.0	37.7	58.3
BENEFIT/COST RATIO			
Benefit/Cost Ratio based on 20 year NPV at seven percent discount rate		5.90:1	
Benefit/Cost Ratio based on 20-year NPV at three percent discount rate			8.93:1

Notes: Maintenance costs for the 13 rail projects will be borne entirely by the private railroad owners. The value of jobs created has not been included in the benefit-cost calculations.

Table 7.2 Secondary Criteria Benefits Summary

Category	Summary
Innovation	Common Operational Picture for railroad operations; projects set the stage for construction of positive train control (PTC); CREATE development of multiple customized new policies, Potential ITS solution for Project GS3a.
Partnership	
Jurisdictional/Stakeholder Collaboration	39 percent non-Federal match; CREATE is a partnership involving 14 private and public stakeholder organizations.
Amount of private debt and equity	$74.2 million in private railroad contributions secured for projects in TIGER application.
Collaboration among neighboring or regional jurisdictions	Letters of support for the TIGER application include the City of Chicago, State of Illinois, and Metropolitan Mayors Caucus.
Disciplinary Integration	Community-based organizations with broad livability goals support CREATE, including Chicago Metropolitan Agency for Planning, Regional Transportation Authority, Environmental Law and Policy Center, and Chicago Metropolis 2020.
Construction Employment	Construction of the 16 projects for which ARRA funding is requested will generate 4,473 job years.

7.1 State of Good Repair Benefits

The CREATE package of projects fully satisfies the stated criteria for state of good repair.

7.1.1 Inclusion in State and Regional Plans

As of September 18, 2009, all projects in this Package will be in the regional Transportation Improvement Program (TIP). The TIP is available at: CMAP TIP.

7.1.2 Upgrade of Projects Critical to Future Economic Stability

As described in Section 4.0, the Chicago rail hub is central to the nation's economic competitiveness and growth. CREATE seeks to rehabilitate and upgrade the existing rail network to preserve and optimize the current system. The projects proposed would repair antiquated rail infrastructure, bringing it up to the standards required for modern day operations. For example, significant trackage that currently employs hand-thrown switches is proposed for upgrade to powered switches. Signal upgrades and the addition of increased track capacity through new connections and additional mainline track will increase freight operating speeds and reduce conflict with passenger operations on the existing network. These improvements will build on the significant investment already made in constructing and maintaining these lines and enhance operations through this system.

7.1.3 Asset Management, Maintenance and Operations

Commitment to CREATE has been demonstrated by the significant investment already made by the CREATE Partners, including $116 million from the private railroads. A long-term commitment by the partner railroads to maintain and operate the CREATE infrastructure is defined via partnership agreements. Further, before receiving construction funds for any rail infrastructure project, the lead railroad for a CREATE project must sign a funding agreement, including the following language:

> *When construction of this project is completed, and so long as state and Federal law shall so require, the COMPANY shall maintain at its expense or, by agreement with others, provide for maintenance of the facilities installed with this improvement.*

As each CREATE Rail Project is completed, it will become an integral part of the Chicago rail network and will be maintained as part of each railroad's system. Maintenance costs of the freight rail infrastructure developed under the CREATE Program will be borne entirely by the private freight railroads. As an example of the commitment to this maintenance, between 1998 and 2008, a total of $1.8 billion in capital maintenance investments was expended by the partner freight railroads and Metra to upgrade the greater Chicago rail network. These combined expenditures, averaging $163 million per year, are in addition to the railroads' contributions to CREATE. The railroads agree to maintain the CREATE Projects at the same level of utility as at construction completion. The costs for the grade crossing separation maintenance are negligible over a 20-year time horizon. Maintenance of the highway-rail grade separation bridge (GS14) and for the remaining public projects will be the responsibility of the respective project owners.

7.1.4 Freight Diversion from Truck to Rail

Modeling results show that CREATE implementation would result in a mode shift from truck to rail within the region as well as nationally. With an investment in CREATE as compared to a no-build scenario, the total costs of commodity flows originating from Census Region 8, in which Chicago is located, would be reduced by .33 percent. Highway flows from the East Coast would be decreased as a result of CREATE improvement in the Region 8 area and shifted to rail. According to the University of Illinois, 15.1 million truck VMT would be taken off the road annually as a result of the Package of CREATE projects in this application, resulting in a reduction in the cost of highway maintenance of $1.1 million per year.

7.2 Economic Competitiveness Benefits

The University of Illinois calculated that the net present value of 20-year logistics cost savings would total $2.7 billion for the Package of projects in this grant application. The cost savings were prorated based on the total cost of the stimulus projects as a proportion of the estimated $3 billion total cost of the CREATE Program, or 15 percent of the total cost.

According to the Berkeley RTC simulation conducted by the CREATE partner railroads, construction of the 78 projects in the complete CREATE Program would significantly increase average speeds and reduce delays along the CREATE Corridors. Table 7.3 shows the number of each type of train in the simulation, average speeds, wait hours, delay hours and elapsed time with and without construction of the complete CREATE Program, during a 96-hour time period. As shown, CREATE forecasts a reduction in elapsed hours of 1,292 train hours over four days, or 323 train hours saved per

day. The simulation model redistributed trains through the network, with more trains on the Beltway and East-West Corridors and fewer trains on the Western Avenue Corridor. For more detail on the modeling process, please see the Chicago Rail Improvement Study documentation at Rail Improvement Study.

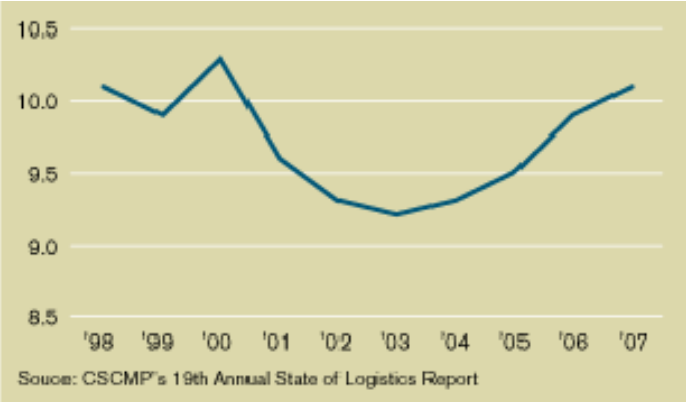
A video of the rail simulation is available at: CREATE Simulation Video.

Table 7.3 Full CREATE Program Operational Benefits

	Average Speeds		Dwell/Wait Hours		Delay Hours		Elapsed Hours	
Train Type	Without CREATE	With CREATE	Without CREATE	With CREATE	Without CREATE	With CREATE	Without CREATE	With CREATE
Premium Intermodal	15.35	18.00	126	96	45	26	385	327
Intermodal	12.57	17.09	150	100	123	58	726	525
Vehicle	14.00	16.51	51	33	30	24	244	210
Double-Stack	15.52	19.37	39	24	30	14	185	130
H.P. Merchandise	10.43	20.13	21	5	19	5	82	41
Merchandise	10.96	15.48	395	231	372	129	1,603	1,105
Loaded Coal	12.57	22.04	29	5	62	9	228	113
Empty Coal	13.81	20.65	19	11	24	11	106	84
Loaded, Other Unit	12.15	19.57	11	4	34	8	100	52
Empty, Other Unit	14.20	16.90	1	1	6	3	22	20
Locals	7.98	9.53	145	121	30	10	308	253
Transfers	8.66	11.77	27	21	49	13	177	130
Yard Moves	6.91	9.32	133	103	74	27	378	281
Work and Light Engines	6.32	16.05	1	0	13	1	32	13
Totals/Averages	11.46	15.57	1,148	755	911	333	4,576	3,284

Benefits to shippers would result from a reduction in the cost of transportation as a proportion of goods production. Logistics costs now exceed 10 percent of total costs, as shown in Figure 7.1. This affects the cost of goods for consumers and the ability of businesses to make a profit. When it takes rail cars 30 hours to cross Chicago, the cost is borne by businesses, shippers, and consumers. Improvements to Chicago rail operations will help to keep the cost of logistics in check, particularly as related to rail shipments. Keeping U.S. transportation costs reasonable is critical to maintaining U.S. economic competitiveness.

Figure 7.1 Logistics Costs as a Percentage of GDP



The University of Illinois Regional Economics Application Laboratory integrated the cost savings resulting from reduced freight rail delay forecast via the CREATE rail simulation model into a multiregional U.S. economic model. The model was developed to study two regions, the Midwest (Illinois, Wisconsin, Indiana, Ohio, and Michigan), and the remainder of the U.S. The model identifies 13 business sectors and the economic impact on each from the efficiency improvements to freight

rail in the CREATE Program. Total logistics cost benefits resulting from CREATE are assumed to be allocated equally with 50 percent going to increased goods and services and 50 percent to wages and salaries, and are estimated at $264.9 million per year as shown in Table 7.4. A detailed description of the modeling approach is available at University of Illinois Model Methodology.

Table 7.4 Annual Logistics Cost Savings (millions of dollars)

	Midwest					
Total	Illinois	Indiana	Michigan	Ohio	Wisconsin	Rest of U.S.
$264.96	$15.0	$7.73	$11.09	$14.09	$6.20	$210.85

Source: Regional Economics Applications Laboratory, University of Illinois.

7.2.1 Nonwage Materials

Of the $450.7 million to construct the Package of 16 projects for which funding is requested, 48.1 percent of the total cost is for construction materials. Of those materials, approximately 98 percent are sourced domestically while the remainder are purchased abroad because no U.S. suppliers exist. Therefore, the value of materials produced in the United States that will be purchased resulting from construction of these CREATE projects is $212.4 million, which will generate significant U.S. nonwage economic activity. These benefits are not included in the benefit-cost analysis. One-hundred percent of materials are in compliance with the Buy America requirements.

7.2.2 CREATE Contribution to Economically Disadvantaged Populations

According to the definition of Economically Distressed Areas in section 301 of the Public Works and Economic Development Act of 1965, 75 percent (12 of 16) of the projects in this application are located in jurisdictions defined as economically distressed. The cities of Blue Island and Summit are economically distressed based on per capita income of less than 80 percent of the national median income. The City of Chicago, in which 8 of the 16 projects in this application are located, and Dolton are economically distressed based on respective average monthly unemployment rates of 1.3 and 3.2 percentage points higher than the national average between June 2007 and May 2009.[9] The rest of the projects also qualify under the alternate method approved for ARRA funding by the FHWA Illinois Division. (See GAO Report 09-926T, p. 8.)

The railroad industry is a major employer with freight and passenger railroads employing 18,600 people in Illinois. Railroad wages are highly competitive, averaging $69,700 annually plus benefits. For most railroad jobs only a high-school diploma is required to apply, and the railroads provide extensive on-the-job training. In the greater Chicago area, 47 percent of the CREATE freight railroad partners' employees are persons of color. CREATE has conducted extensive outreach on employment opportunities, including participating in 15 job fairs in the region attended by hundreds of potential applicants, as described at: CREATE Rail Employment Outreach. Procurement contracts are posted on the CREATE web site and automatically sent to contractors who have expressed an interest.

[9] Source: Illinois Department of Employment Security, data from June 2007 – May 2009, accessed at lmi.ides.state.il.us/laus/lausmenu.htm; Unemployment data from BLS, accessed at http://www.bls.gov/cps/.

7.3 Livability Benefits

7.3.1 Transit Travel Time Savings

CREATE provides significant benefits to intercity and commuter passenger rail users. Benefits to passenger rail users will be realized due to reductions in delay to Amtrak and Metra trains, resulting in travel time savings for riders. Six projects in this application will directly reduce Metra delay resulting from freight train interference. Amtrak operations also will be beneficially impacted by six projects in this application. In addition, four of the projects benefiting Amtrak will impact the Chicago-St. Louis Federally designated high-speed rail corridor. The extent of Project WA3 is such that it benefits two Metra and two Amtrak corridors. The projects listed in Table 7.5 are estimated to reduce Amtrak freight-related delay by 18,092 passenger hours per year, and reduce Metra delay by 39,540 passenger hours per year.

Table 7.5 Passenger Rail Routes Benefited by CREATE Package of Projects

CREATE Project	Metra Route Benefited	Metra Trains Per Day Affected	Amtrak Route Benefited	Amtrak Trains Per Day Affected
B2	UP-W	59		
B9/EW1	Heritage	6	St. Louis (High-Speed Rail Corridor)	10
B15			Indianapolis	2
WA1	UP-W	59		
WA2	Heritage	6	St. Louis (High-Speed Rail Corridor)	10
WA3	Heritage/SWS	6/30	St. Louis (High-Speed Rail Corridor)/ all routes to the East	10/14
WA7	Heritage	6	St. Louis (High-Speed Rail Corridor)	10
WA11			Indianapolis	2

7.3.2 Motorist Delay Reduction

The reduction in delay at grade crossings was estimated for the entire Beltway and Western Avenue Corridors based on the results from the CREATE simulation model. The model results showed that with CREATE the number of trains along the Western Avenue corridor will be reduced by 27 percent and train speeds increased 25 percent. Along the Beltway Corridor, based on the modeled results, the number of trains was assumed to increase six percent and train speeds were assumed to increase 15 percent. The results calculated for the entire corridor were prorated based on the value of stimulus projects along the corridor as compared to the total cost of projects along the corridor.

At the 30 grade crossings along the Beltway Corridor, the CREATE Package of Projects included in this application will result in a daily reduction in motorist delay of 177 hours. Along the Western Avenue Corridor motorists will experience a daily reduction in delay of 736 hours at the 48 crossings. By separating 71st Street from the IHB in Bridgeview, Illinois (CREATE Project GS14), 31 daily hours of motorist delay will be eliminated. The total annual benefit from these projects combined will be a reduction of 344,499 hours of delay.

7.4 Sustainability Benefits

The environmental benefits of CREATE investments make a strong contribution to the sustainability of the region. Rail is a highly energy efficient mode of freight transport, offering significant environmental benefits from the standpoint of fuel consumption and greenhouse gas emissions, as well as other impacts, including land-use. Transporting one ton of freight across the U.S. requires 7 gallons of fuel by rail versus 27 gallons by truck. Each ton-mile of freight moved by rail rather than truck reduces greenhouse gas emissions by two-thirds or more. Improvements made to the nation's rail infrastructure – such as those proposed by CREATE – have the potential to further improve the efficiency of rail operations in the U.S. and to reduce the environmental impact of freight transport.

7.4.1 Reduction in Oil Consumption and Emissions

CREATE will reduce the amount of time trains spend idling due to rail congestion and result in diversion of freight from trucks to rail, resulting in a savings of, 2.9 million gallons of diesel fuel per year. This translates into 324,958 barrels of crude oil saved per year.[10]

As discussed earlier, by increasing the speed of trains via CREATE improvements, the amount of time motor vehicles spend waiting at grade crossings will be reduced. CREATE also will reduce the amount of time locomotives spend idling waiting to proceed. Combined, the value of emissions reductions and reduced diesel consumption will result in annual savings of $2.4 million. Monetization of air quality benefits follows methods outlined in the guidance in the Federal Register Notice of June 17, 2009.

7.5 Safety

The CREATE Program will benefit not only the traveling public but also will enhance railroad employee safety. Seven CREATE projects proposed for ARRA funding include upgrading a total of 67 switches or derailers from hand-thrown to power operated, which will reduce the potential of employee injury as described at Rail Employee Safety Benefits. CREATE provides important national security benefits by preserving the functionality of the rail network for potential national defense needs as described at National Security Benefits.

The separation of rail lines from the at-grade highway crossing will eliminate the possibility of any future crashes. Between 1975 and 2009 at the GS14 rail-highway grade crossing separation project location one property-damage crash was reported. In addition, the project is adjacent to Toyota Park, a sports and entertainment venue hosting the MLS Chicago Fire, which opened in 2006 and generates large volumes of traffic before and after events.

7.6 Secondary Criteria Benefits

In addition to direct savings, it is projected that the logistics cost savings lead to indirect benefits shown in Table 7.6, which are not included in the benefit-cost analysis.

[10] Based on nine gallons of diesel being generated by each barrel of crude oil, Energy Information Administration.

Table 7.6 Annual Economic Impacts of Logistics Costs Savings from CREATE

	Output (millions of dollars)	Income (millions of dollars)	Employment (jobs)
Agriculture, Forestry and Fisheries	12.14	3.21	150
Mining	10.51	2.56	50
Construction	13.86	5.55	120
Food and Kindred Products	18.68	2.25	50
Chemicals and Allied Products	21.60	4.18	40
Primary Metals Industries	12.35	2.18	30
Fabricated Metals Industries	9.91	2.59	50
Industrial Machinery and Equipment	9.45	2.08	30
Electric and Other Electric Equipment	13.41	2.91	50
Transportation Equipment	28.05	6.19	70
Other Nondurable Manufacturing	50.05	10.00	210
Other Durable Manufacturing	16.08	4.27	90
Transportation, Services, and Government Enterprises	330.91	124.92	3,330
Total	547.00	172.88	4,240

Source: Regional Economics Applications Laboratory, University of Illinois, 2009.

7.6.1 Construction-Related Employment

As mentioned earlier, construction of the CREATE projects in this application is estimated to generate 4,473 direct, indirect, and induced job-years over the period of construction (January 2010 to February 2012).

7.6.2 Innovation

CREATE incorporates innovative technology advancing the state of the practice in rail operations for improved efficiency and safety, which is described below.

Positive Train Control

The CREATE projects that install signals along corridors that currently are unsignalized, or that upgrade an existing signal system represent major steps toward future installation of Positive Train Control (PTC) in the Chicago area. PTC is a technology that automatically enforces speed limits and permissions to operate over a section of track, thereby reducing the risk of collisions and other incidents that can lead to injuries and property damage. PTC is designed to keep a train within authorized limits on a track and under its maximum speed limit. To accomplish this, sophisticated technology and braking algorithms will automatically bring PTC-equipped passenger and heavy freight trains to a safe stop. This will help prevent train-to-train collisions, overspeed derailments and casualties or injuries to the public and railway workers. Passed October 1, 2008, The Rail Safety Improvement Act of 2008 requires all Class I railroads and passenger railroads to implement a PTC system by December 31, 2015 on all main line track where intercity passenger railroads and commuter railroads operate, as well as on lines carrying toxic-by-inhalation hazardous materials.

Common Operational Picture

Common Operational Picture (COP) is the development of an open interface for integrating information from dispatch systems of all major railroads in the region – tracks, signals, switches, train occupancies, train IDs, etc. – into a single

display. While not one of the projects in this application, COP is included in the Visibility Projects category in the overall CREATE program, and will benefit the operation of the full Chicago Terminal system. The output of this work will be that all of the Chicago railroads participating in the CREATE Program will have a fully integrated overview display system that encompasses the entire Chicago area.

The first phase of the project Common Operational Picture – Monitoring Multiple Railroad Operations with an Integrated Track Display and Common Data Protocol – is underway in Chicago. It involves development of a prototype multirailroad dispatch monitoring system for monitoring train movements for four railroads (BNSF, CSX, IHB and UP). Such a system has maximum effectiveness and value when *all* of the railroads are included; Phase II will add the remaining six rail companies: Amtrak, BRC, CN, CP, Metra, and NS and extend the display region to include the entire Chicago area. In addition, it will transform the network infrastructure of Phase I, which will demonstrate the technological feasibility of Common Operational Picture, into one capable of supporting long-term commercial use. The benefits of COP are:

- Reduced operating costs by providing more efficient operations;
- Improved safety by reducing human and technology failures;
- Enhanced passenger revenue generating capability by attracting more riders through reducing trip times, upgrading customer service quality, increasing reliability, and improving on-time performance; and
- Enhanced public and environmental benefits of passenger and freight rail.

In addition, CREATE has developed numerous innovative management practices described below.

7.6.3 Partnerships and Management Practices

CREATE is a groundbreaking public-private partnership involving 14 public and private agencies that have been working together for more than six years to advance a complex set of multimodal infrastructure projects in the Chicago region. Each of the partners has played a significant role in the advancement of CREATE, with most investing funds in CREATE projects within and outside of the formal CREATE process. As part of this application, state, municipal, and private sources will contribute $117.4 million, providing a non-Federal match of 39 percent.

To ensure the effective management of the CREATE Program, a number of management practices and policies have been put in place governing the roles and responsibilities of IDOT, CDOT, FHWA, and the railroad partners. These ensure the program makes steady progress forward and that proper quality controls are in place. For example, Federal funding for CREATE so far has come from the Projects of National and Regional Significance Program, managed by the Federal Highway Administration. However, with the extensive number of projects involving rail infrastructure, policies to govern the types of projects presented by CREATE were not in place given the historic highway focus of FHWA. Therefore, in the early years of the program, a number of policies needed to be developed specific to the CREATE Program. Now that this work has been done, the Program is organized to advance projects quickly and efficiently. A significant policy developed for CREATE is the Systematic, Project Expediting, Environmental Decision-Making (SPEED) Strategy. The SPEED Strategy:

- Addresses the CREATE Program in total;
- Supports systematic decision-making through an expeditious method of moving low-risk component projects forward; and
- Assesses potential environmental impacts in a proportional, graduated way.

A detailed description of the SPEED strategy is available at SPEED Strategy.

A detailed process has been developed to guide all partners in adhering to policies and procedures for designing CREATE projects. The purpose of preparing Phase I reports for the CREATE projects is to fully document the coordinated efforts of the Illinois Department of Transportation and other involved parties in developing the environmental documents and preliminary (30 percent) design. The Phase I manual also helps ensure financial feasibility of projects by defining contingency reserves for projects depending on their stage of development. This document is accessible at

Phase I Manual. The Phase II Manual provides guidance on topics, including contracting for professional services and DBE utilization plan development. The Phase II manual is available at: Phase II Manual.

The CREATE Noise and Vibration Model was developed for CREATE using FTA procedures (see CREATE Noise and Vibration Assessment Methodology). Portions of the model also are available at Noise and Vibration Model: Detailed descriptions of CREATE staff positions, committees, and additional policies are presented at CREATE Partnerships and Management Practices

7.6.4 National and Regional Support

CREATE is a project of national and regional significance with support from a wide range of stakeholders throughout the country and region, including passenger rail advocates, national businesses and civic and municipal organizations. CREATE's application has been supported throughout the nation, from the Port of Long Beach and the Los Angeles Area Chamber of Commerce to North America's Supercorridor Coalition in Texas. National and international companies such as UPS and Caterpillar also have lent their support to this program. Copies of letters of support for this TIGER application are available at National and Regional Support and more than 35 general CREATE letters of support are accessible at: CREATE Letters of Support.

7.7 Evaluation of Project Performance

The CTCO monitors various rail efficiency metrics on a continuous basis. Once an investment in CREATE is made, project success will be measured in terms of the following factors:

1. Cross-Town Transit Time. The freight railroads continuously track transit time across the Chicago Terminal (the Chicago rail system within the boundaries of the EJ&E railroad) and will track average transit times before and after project construction.
2. Passenger Delay. CTCO tracks the number of passenger trains that experience delay due to freight train interference. Metra and Amtrak will track the hours of delay as a result of freight interference before/after project construction and expect a significant reduction in delay following completion of projects with anticipated passenger benefits.
3. Train Recrews. Due to the low velocity of trains traveling across the Chicago Terminal, and given the Federal hours of service regulations limiting the number of consecutive hours an employee may work, the crew often must be replaced despite a short distance being covered during the shift. The number of times a crew is replaced within the Chicago terminal will be tracked as a measure of CREATE Projects' successful impact on rail operations.

8.0 Contact Information

George Weber
Bureau Chief – Railroads
Illinois Department of Transportation
JRTC – STE 6-600
100 West Randolph
Chicago, IL 60601

(312) 793-4222
George.Weber@Illinois.gov