

TIGER IV 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

March 19, 2012

Table of Contents

1.0	Executive Summary.....	1
2.0	Program and Project Description.....	3
2.1	CREATE Program Overview	3
2.2	CREATE Projects Targeted for TIGER IV Funds	4
2.2.1	Beltway Corridor.....	12
2.2.2	Western Avenue Corridor.....	12
2.3	CREATE Project Parties.....	12
2.4	Transportation Challenges Addressed by CREATE	13
2.4.1	Intercity Passenger Rail Operations.....	14
2.4.2	Commuter Rail	14
2.4.3	Freight Rail Congestion.....	14
2.4.4	Highway Traffic Congestion	16
3.0	CREATE Accomplishments	16
3.1	A Project of National and Regional Significance	16
4.0	CREATE Alignment with Selection Criteria.....	17
4.1	State of Good Repair Benefits.....	20
4.1.1	Upgrade of Projects Critical to Future Economic Stability.....	20
4.1.2	Asset Management, Maintenance and Operations	20
4.1.3	Freight Diversion from Truck to Rail.....	21
4.2	Economic Competitiveness Benefits	21
4.2.1	Exports.....	22
4.2.2	Nonwage Materials	23
4.2.3	CREATE Contribution to Economically Disadvantaged Populations.....	23
4.3	Livability Benefits.....	24
4.3.1	Community Livability	24
4.3.2	Transit Reliability.....	24
4.3.3	Motorist Delay Reduction	24
4.4	Sustainability Benefits	24
4.4.1	Reduction in Oil Consumption and Emissions	25
4.5	Safety	25
4.6	Job Creation and Economic Stimulus.....	25
4.7	Secondary Criteria Benefits.....	26
4.7.1	Innovation.....	27
4.7.2	Partnerships and Management Practices	27
4.7.3	National and Regional Support	28
5.0	Project Readiness and NEPA Status	28
5.1	Schedule	28
5.2	Environmental Approvals.....	28
5.3	Legislative Approvals/Broad Project Support	28
5.4	State and Local Planning.....	28
5.5	Technical Feasibility	28
5.6	Financial Feasibility	29
5.7	Federal Wage Rate Certification	29
5.8	Material Changes from Pre-Application	29

6.0 Contact Information	29
-------------------------------	----

List of Tables

2.1	CREATE Projects for TIGER IV Funding	7
2.2	CREATE Projects Scope and Benefits for TIGER IV Funding	8
4.1	Primary Selection Criteria Benefit-Cost Summary	19
4.2	Secondary Criteria Benefits Summary	20
4.3	Full CREATE Program Operational Benefits	22
4.4	Passenger Rail Routes Benefited by CREATE Package of Projects	24

List of Figures

2.1	CREATE Projects Targeted for TIGER IV Funding.....	6
2.2	Midwest High-Speed Rail Hub	13
2.3	Metra Commuter Rail Network.....	14
2.4	CREATE Partners Rail Network.....	15
4.1	Job Creation by Quarter.....	25

1.0 Executive Summary

Thank you for the opportunity to submit this application on behalf of the CREATE Partners for TIGER IV Grant funds to support a package of five projects (“the Package”) from the CREATE Program. The Package includes four freight rail projects and a group of viaduct improvements. The freight rail projects would upgrade signalization on two stretches of track, create a new connection to enable trains to follow a new route, and build a new connection between two key freight rail corridors. The group of 11 viaduct improvements includes a combination of roadway, sidewalk, and curb/gutter drainage reconstruction under existing viaducts in the City of Chicago where the existing streets are in a poor condition, in an area that is subject to increased freight rail traffic due to CREATE. Exemptions are not being sought for small projects under \$10 million as we are requesting the package be considered as a single project. Each of the projects has independent utility and any funding CREATE receives will be used to maximum benefit.

While this Tiger IV application requests \$36.8 million, or 61 percent, of the cost of the five specific projects, the request actually represents only about 10 percent of the cost of all the freight corridor projects to be funded and built by the CREATE Partners. The state of Illinois, AAR, and the City of Chicago have committed to cover the remaining 90% of the costs in order to complete three CREATE corridors, as described below.

In March 2012, two of the CREATE Partners (the state of Illinois and AAR) agreed to a major commitment of funding for CREATE (Commitment). This Commitment is the largest single funding advancement for the CREATE program in its history. Together with fellow CREATE partner the City of Chicago, as well as funds previously set aside by the Illinois Commerce Commission, the total funding now available represents \$333.4 million, or approximately 90 percent, of a \$370.2 million package that will complete 13 railroad corridor projects, a set of railroad viaduct improvements, and provide funding for a high-priority grade separation.

The primary objective of this Commitment is to allow the CREATE Partners to complete all hard infrastructure components of the Beltway, Western Avenue, and East-West Corridors. The completion of these infrastructure projects along entire corridors will maximize the benefits for not only corridor operations, but also passenger and commuter rail lines that are expected to experience fewer delays at intersections where they cross these corridors. And by completing corridors in their entirety rather than piecemeal, benefits will exceed those that would accrue only from completing individual projects.

However, there is a \$36.8 million gap (Gap) between the Commitment and the total cost of the projects referenced above. The award of Tiger IV funding will fill the Gap and allow all corridors to be finished. The Commitment and the Tiger IV award will allow CREATE to move its future funding focus to the mega-projects within CREATE, such as the 75th Street Corridor Improvement Project, the other rail-to-rail flyovers, and the remaining unfunded grade separation projects. Finding funding for these mega-projects will be challenging, but very important to the overall success of the CREATE program.

Section 2.0 provides Program and Project descriptions, and a discussion of the Chicago region's role in passenger travel and freight trade; Section 3.0 describes CREATE accomplishments; Section 4.0 presents the expected benefits of the Package of CREATE projects for which funding is being requested; and Section 5.0 presents the projects' readiness and NEPA status. The Package strongly contributes to

each of the Primary and Secondary Selection Criteria outlined in the Final Notice dated January 31, 2012, including the following performance measures:

- **Long-Term Outcomes:**

- **State of Good Repair** – All railroad improvements will be maintained by railroads at their expense. Avoidance of 6.6 billion in truck VMT will result in a \$388 million reduction in highway maintenance costs over 30 years (all benefits presented in the text of the application are at a three percent discount rate).
- **Economic Competitiveness** – Increased capacity of freight rail at a lower cost than shipping via truck will result in logistics cost savings of \$629 million.
- **Livability** – 6.6 billion truck VMT avoided will result in 117 million vehicle-hours saved due to reduced congestion, with an impact of \$971 million over 30 years. Viaduct improvements will enhance community character at 11 locations in Chicago. Increased freight speeds and improved fluidity on the CREATE corridors will allow freight trains to clear interlockings more quickly, reducing the potential for freight conflict with Amtrak and Metra and improving reliability. Post-construction measurement will be conducted by the CREATE partners to confirm the delay reductions and other benefits calculated in this application have been achieved.
- **Sustainability** – Reduced diesel consumption of 639 million gallons due to diversion of freight from truck to rail and increased system efficiency will result in benefits of \$223 million.
- **Safety** – Estimated avoidance of 8 fatal and 210 injury truck crashes due to avoidance of truck VMT will result in benefits of \$29 million over 30 years. Reduction in worker injuries will also result from switch automation.
- **Job Creation and Economic Stimulus:** This Package can be expected to provide 555 employment years of direct and indirect employment.

- **Benefit-Cost Analysis:** The benefit-cost ratio for the Package of projects presented herein is between 12.6:1 (seven percent discount rate) and 29.7:1 (three percent discount rate) – see Table 4.1.

- **Project Readiness and NEPA Status**

- **Project Schedule** – Feasible and sufficiently detailed schedules for each project can be found at [Project Information](#).
- **Environmental Approvals** – Categorical Exclusions have been received from FHWA for all five of the projects in the Package. Project B9 is undergoing a reevaluation due to design changes, and its CE is expected by May 31, 2012. A summary is located at [Environmental Summary](#).
- **Legislative Approvals** – No specific legislative approvals are required to progress the Package. Letters of support have been received from the Village of Summit, Illinois as well as from the State of Illinois, and Cook County (the county where all of the Projects are located). Also, Letters of Support have been received from Senator Mark Kirk, and the Illinois Delegation, which includes Congressmen Davis, Gutierrez, Jackson, Jr., Lipinski and Rush, whose Districts contain the Projects. See Table 2.1

- **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 which can be found at [Go To 2040 Plan](#).
 - **Technical Feasibility** – Preliminary engineering has been completed for all the rail projects in the Package and is anticipated to be complete by March 2012 for the Viaducts.
 - **Financial Feasibility** – With funding from TIGER IV grant funds, State of Illinois “Illinois Jobs Now” funds from stable revenue sources, the railroads, and the City of Chicago, these projects would be fully funded. All projects have 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 4.7.2 and linked web materials.

In addition, the Package of projects fully meets the priority criteria shown below:

- Requested TIGER funding of \$36.8 million fills out a **total financing package of \$60.6 million**.
- Funds **will be obligated by September 30, 2013** as per the January 31, 2012 NOFA (CREATE expects to obligate funds by June 1, 2012, assuming grant award by May 15, 2012).
- 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.
- The Package continues the use of **innovative strategies** on CREATE, see Section 4.7.1.
- The Package will benefit from strong, **established public-private collaboration** – See Section 4.7.2. Many other public, nonprofit, and private organizations support CREATE. See Section 4.7.3.
- The Package **significantly improves long-term efficiency in the movement of people and goods**, making the region more attractive for employers. See Sections 4.2 and 4.3.
- The application includes **commitments of financial support** from the State of Illinois, Association of American Railroads, and the City of Chicago (see Table 2.1).
- The application is **supported by the Chicago Metropolitan Agency for Planning, Metropolitan Planning Council, Environmental Law and Policy Center, Respiratory Health Association, and Metropolis Strategies**, whose missions include many nontransportation issues. See Table 4.2.
- The Package will result in **more livable communities throughout the region** – see Section 4.3.
- Construction is anticipated to be complete for all five projects funded by the TIGER I discretionary grant by November 2012 (See [CREATE TIGER Status](#) for details).
- The Package will move two CREATE corridors closer to completion yielding substantial near-term benefits. See Sections 2.2.1 and 2.2.2

The required wage rate certification letter can be found at [Wage Rate Certification Letter](#).

2.0 Program and Project Description

■ 2.1 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 four rail corridors: 1) East-West Corridor (NS/BRC); 2) Western Avenue Corridor (BNSF/UP/CSX/NS); 3) Beltway Corridor (CSX/IHB); and 4) 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 70 projects that comprise the CREATE Program to achieve national and regional benefits. A description of the evolution of the CREATE Program is available at [Program Evolution](#) and CREATE operational goals can be found at [Program Goals](#). CREATE goals are to:

- Improve safety and operations at proposed grade-separation locations;
- 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 70 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 36 rail projects;
- Viaduct Improvement Program;
- Grade crossing safety enhancements; and
- Rail operations visibility improvements (Common Operational Picture) – see Section 4.7.1.

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 result in additional capacity and improved connections within and through the Chicago metropolitan area rail network. 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 crossing related crashes. The CREATE Program Final Feasibility Plan is available at [Final Feasibility Study](#).

■ 2.2 CREATE Projects Targeted for TIGER IV Funds

Five component CREATE projects (including four rail projects and a series of viaduct improvement projects) have been identified for TIGER IV discretionary grant consideration as shown in Figure 2.1 and described in Table 2.1. These are the CREATE projects that are next in regional priority and for which construction can be initiated most quickly. Table 2.1 shows the sources of funding in place for each project and the percentage non-Federal funding that has been committed. For all of these projects Federal funding would be obligated by June 1, 2012, assuming grant award by May 15, 2012. All of the projects were previously submitted in IDOT's TIGER III application. Projects are listed in priority order. Table 2.2 provides the scope and benefits of each project proposed for TIGER IV funding. Drawings and maps showing project locations, as well as detailed budgets, timelines, and environmental documentation are located at [Project Information](#). A summary of environmental review status for all projects is located at [Environmental Status Summary](#).

Figure 2.1 CREATE Projects Targeted for TIGER IV Funding



Note: Does not include Viaduct Improvement Program locations, Safety Improvement Program or Common Operational Picture

10/20/2011

Note: The four rail projects targeted for TIGER IV funding are shown in orange. Please see [Viaducts Information](#) for locations of Viaduct projects.

Table 2.1 CREATE Grant Funds and Sources/Uses

Project											TIGER IV Grant Request (millions)	
CREATE Package of Projects											\$36.8	
Component Projects in the Package:												
Project Number	Project Type	City	Cty.	State	Congressional District(s)	Urban /Rural	Total Project Cost (millions)	IDOT Funds (millions)	CDOT Funds (millions)	Freight Railroad Funds (millions)	Percent Non-Federal Funds	Grant Request (millions)
WA3-segment C	Rail	Chicago	Cook	IL	Gutierrez (IL-4) Davis (IL-7)	Urban	7.3	1.5		1.5	41%	4.30
WA2-segment B	Rail	Chicago	Cook	IL	Gutierrez (IL-4) Davis (IL-7)	Urban	10.4	2.13		2.13	41%	6.14
B16	Rail	South Holland	Cook	IL	Jackson (IL-2)	Urban	9.3	1.91		1.91	41%	5.48
B9*	Rail	Summit	Cook	IL	Lipinski (IL-3)	Urban	28.6	5.86		5.86	41%	16.88
Viaducts	Highway	Chicago	Cook	IL	Rush (IL-1) Jackson (IL-2) Gutierrez (IL-4) Davis (IL-7)	Urban	5.0	0	1.0		20%	4.0
TOTAL							60.6	11.4	1.0	11.4	39%	36.8

* B9 is environmentally linked to project EW1. However both projects have independent utility and only funds for B9 are requested in this grant application.

Note: Letters of Support from Senator Kirk and the Illinois Delegation are located at: [Senator Kirk Letter](#) and [Illinois Congressional Delegation Letter](#). Congressmen listed above have signed the Illinois Delegation Letter of Support. Detailed budgets for each project are located in the project web links within the Project Reports at [Project Information](#). The share of non-Federal funds does not include the \$2.73 million of private railroad funds already expended to advance the design and construction of these projects to this point. Each project has independent utility and any funds received will be used for maximum benefit.

Table 2.2 presents the benefits anticipated from each project including specific performance measures.

Table 2.2 CREATE Projects Scope and Benefits for TIGER IV Funding

Project WA3	
Project Description	Project Benefits
<p>The portion of the project for which TIGER IV funding is requested is the 2.5 mile segment of NS tracks between 16th Street and Archer Ave. in Chicago. Within this segment the project will:</p> <ul style="list-style-type: none"> • Install connection tracks from CSX to NS, between the two NS tracks, to the BNSF lead track, including replacement/installation of 6 power operated switches. • Install Traffic Control System (TCS) signaled connections with renewed rail to increase speeds and allow a smoother transition between the railroads at 22nd Street. <p>The complete project WA3 improvements are:</p> <ul style="list-style-type: none"> • Replace/install 29 power operated switches and bidirectional TCS along 6 miles of Norfolk Southern main tracks; • Construct a two-mile controlled siding track; • Extend by one mile the switching lead track to the Ashland Avenue Yard; • Install connection tracks from CSX to NS, between the two NS tracks, to the BNSF lead track; and • Install signaled connections with renewed rail to increase speeds and allow a smoother transition between the railroads at 22nd Street. 	<p>This TIGER IV application is for the final segment of the WA3 project. Upon completion of this final segment, speeds will increase and smoother transitions will be enabled between the railroads at 22nd street. Project WA3 allows BNSF, CSX, NS and UP trains to use multiple signaled routes through the project area. Trains presently average 5 mph through this area. Signals and power switches will increase speed to 25 mph through all routes.</p> <p>The replacement of hand-thrown switches also significantly reduces delays. A train experiences 15 to 30 minutes of delay for every switch the conductor is required to hand operate. Trains experience delays not only as a result of operating their own switches but also waiting for other trains to navigate the project limits with manual switches. Currently, on the segment seeking TIGER IV funding, trains spend up to one hour traversing the limits of this project. With the completion of this project trains are expected to pass through this segment in as little as 6 minutes.</p> <p>Currently 25 freight trains pass through the WA3 segment daily. In addition, 24 trains cross this corridor including 8 CN trains, 6 Metra Heritage Corridor trains and 10 Amtrak trains to and from St. Louis, and can experience freight conflict. On the St. Louis corridor, at this location Amtrak trains experience monthly more than three and a half hours of delay due to cross traffic and Metra Heritage Corridor trains experience up to 20 minutes in delay per month that could be mitigated by this project.</p>

Table 2.2 CREATE Projects Scope and Benefits for TIGER IV Funding (continued)

Project WA2	
Project Description	Project Benefits
<p>The portion of the project for which TIGER IV funding is requested is the 2.5 mile segment between 16th Street and Archer Ave. Proposed improvements include:</p> <ul style="list-style-type: none"> • A new bidirectional computerized Traffic Control System (TCS) on the CSX rail line along the CREATE Western Avenue Corridor; • Upgrading of 10 hand thrown switches to power switches within this segment. <p>The complete Project WA2 improvements are:</p> <ul style="list-style-type: none"> • A new bidirectional computerized Traffic Control System (TCS) on a 7-mile segment of the CSX rail line along the CREATE Western Avenue Corridor; • 28 hand-thrown switches upgraded to power switches; • At the CSX 59th Street Yard, signals and switches upgraded to improve flexibility in mainline operations; • One of the CSX mainlines upgraded between 51st Street and 71st Street from the existing 10 mph maximum speed to allow 25 mph operations; • A new eastward connection to the Belt Railway from a CSX main line; and • Reconstruction of bridges at 35th Street and 36th Street to accommodate the proposed increase in speed. 	<p>The segment for which TIGER IV funding is sought will complete 6 out of 7 miles of the entire WA2 project. Three and a half miles of WA2 are complete. After this segment is completed, new computerized signaling will alleviate a number of issues on the segment of the WA2 corridor proposed for funding via TIGER IV. The segment for which funding is requested has limited operational flexibility due to an inefficient signal and switching system and high train volumes making many different types of movements. These conditions result in low operating speeds, limited operational flexibility, congestion, and delay. Currently, most trains spend at least 45 minutes traversing the limits of this segment. With the completion of this project, trains are expected to pass through this segment in as little as 6 minutes.</p> <p>Currently, 35 freight trains daily pass through this corridor. An additional 24 trains cross the corridor and face potential conflict and delays, including 16 passenger trains – 10 Amtrak trains on the Chicago-to-St. Louis line and 6 Metra Heritage Corridor trains.</p> <p>On the St. Louis corridor, at this location Amtrak trains experience monthly more than three and a half hours of delay due to cross traffic and Metra Heritage Corridor trains experience up to 20 minutes in delay per month that could be mitigated by this project.</p> <p>Operations are significantly hindered by multiple hand-thrown switches, which require trains to stop to allow the conductors to exit the train, manually align the switch, and walk back to the train to resume movement. Dispatchers tend to dispatch trains through the corridor based on switch alignment, which reduces the speed, capacity, and fluidity of the corridor. Trains experience 15 to 30 minutes of delay for every switch the conductor is required to hand operate. Trains experience delays not only due to operating their own switches but also waiting for other trains to navigate the project limits with manual switches.</p> <p>The signal system upgrades will provide greater visibility to the train dispatcher, enabling him or her to know exact locations of trains. This enhances the dispatcher's ability to route more trains through the territory, expanding overall capacity. Operations into and out of the four intermodal yards, each of which handles five or more intermodal trains per day, will be improved.</p> <p>Together with CREATE Project WA1, this signalization project at the connection between CSX and UP will enable quicker interchanges of trains between CSX and UP.</p>

Table 2.2 CREATE Projects Scope and Benefits for TIGER IV Funding (continued)

Project B16	
Project Description	Project Benefits
<p>Project B16 will connect the CREATE Western Avenue and Beltway Corridors.</p> <ul style="list-style-type: none"> Between Union Pacific (UP) Villa Grove Subdivision (near 168th Street) and CN Elsdon Subdivision (near State Street), in South Holland, IL, this project will install a new interlocked connection in the southwest quadrant of the current crossing at Thornton Junction. 	<p>Currently the UP and CN cross each other, but due to a lack of a connection in the southwest quadrant, northbound trains cannot switch from one line to the other. This improvement will allow northbound trains to switch between the lines and will allow them a shorter and more direct alternative to reach the major freight yards Clearing Yard and Bedford Park Yard, so that they do not have to take a route through the City of Chicago. This location currently handles 80 freight trains per day (CN, CSX, UP). Amtrak Cardinal service to Indianapolis (2 daily trains) traverses this interlocking and will benefit if freight trains can exit the corridor using the new connection, allowing increased capacity for Amtrak trains to move north into the city. Currently Amtrak trains experience average delay in the project area of 3.7 minutes per trip, which will be alleviated by moving freight trains more quickly through this location. The funding requested will allow completion of the entire project.</p>
Project B9/EW1	
Project Description	Project Benefits
<p>Projects B9 and EW1 are environmentally linked but have independent utility. The project for which funding is requested is B9 only.</p> <p>Project B9 will add capacity on the Beltway corridor and improve connections between the Passenger Corridor (possible future high speed route) and the Beltway corridor, and between the Beltway and east-west corridors.</p> <ul style="list-style-type: none"> Upgrade current connection between the CN and the IHB to enable speed increases from 10 MPH to 25 MPH. Extend the B&O siding to create a 3½ mile long signal-controlled siding track. Provide new double track connection and crossovers between the BRC and IHB/CSX line at Archer and 63rd in Summit, Illinois. Upgrade mainline crossovers to accommodate higher speeds, from 10 mph to 25 mph. A <i>crossover</i> is a pair of switches that connects two parallel rail tracks, allowing a train on one track to cross over to the other. Add crossovers to the control point at 71st Street to allow access into and out of a signal-controlled siding track. Project B9 proposes Argo Yard improvements necessary to create yard capacity lost as a result of installing the new main line crossovers. Yard work will include realignment of switching lead tracks, installation of three new yard tracks, and creation of new industry lead track to avoid switching within the control point. 	<p>Upgrading the connection between the CN and IHB at Canal will allow speeds to increase from 10 mph to 25 mph. This will allow freight traffic on the CN route to exit at faster speed clearing up the passenger route (potential future high speed route)</p> <p>Extending the B&O siding provides an additional track to accommodate traffic moving to and from the CN route opening up main line capacity on the IHB mains.</p> <p>Project B9's new double-track connection will allow speeds of 25 mph and provide increased flexibility for dispatchers. Installation of additional yard tracks in Argo Yard will reduce the amount of time switching cars destined for local industry occupy the main tracks. Project B9 is located near Argo Corn Products, the largest industrial facility in the region, which handles up to 200 cars per day from three carriers (IHB, BRC, and CN). Once complete, Project B9 will allow access to the new main tracks around Clearing Yard (Project EW1) on the new East-West Corridor.</p> <p>Increased freight speeds and improved fluidity on the IHB will allow trains to clear Canal Interlocking more quickly, reducing the potential for freight conflict with Amtrak and Metra and improving reliability. Daily, 76 freight trains pass through this location. Metra operates 6 daily trains and Amtrak operates 10 daily trains on the Heritage Corridor which crosses the Indiana Harbor Belt Railway on the north end of the project limits. Monthly at this location, Amtrak trains experience an average of 6.5 hours of delay and Metra experiences up to 30 minutes of delay due to cross traffic. The funding requested will allow completion of the entire B9 project.</p>

Table 2.2 CREATE Projects Scope and Benefits for TIGER IV Funding (continued)

Viaducts	
Project Description	Project Benefits
<p>The Viaduct Improvement Program which is a component of the overall CREATE Program will address significant roadway, sidewalk, safety and utility deficiencies in 11 locations under rail viaducts. In some project locations, the roadway surface is substandard due to the diversion of water runoff from eroding viaduct abutment walls. This program will resurface, rehabilitate, and restore the roadway and sidewalk. The program will also include utility and drainage improvements associated with various viaduct locations. In some cases ADA-compliant ramps will be constructed. Most of the viaduct project locations are along the CREATE corridors, and are listed below:</p> <ul style="list-style-type: none"> • 600 W. 80th Street • 600 W. 78th Street • 9300 S. St. Lawrence Avenue • 1530 S. Paulina Avenue • 1530 S. Wood Street • 9250 S. Exchange Avenue • 8950 S. Colfax Avenue • 2300 E. 86th Street • 2500 W. 16th Street • 2500 W. 24th Street • 2500 W. 21st Street 	<p>In the City of Chicago, there are approximately 3,800 miles of sidewalks and local streets which feed the arterial roadway system. Chicago's roadway infrastructure serves a diverse constituency, ranging from interstate trucks to local commuters, and its performance influences the local, regional, and national economies. The 11 roadway/sidewalk/curb and gutter projects in the Viaduct Improvement Program will enhance safety and security for motorists and pedestrians, increase personal mobility, reduce congestion, and enhance bus transit operations. Improvement of the transportation and utility infrastructure in these locations will enhance the quality of life within these communities as well as add stability to the housing market to ensure community sustainability.</p>

While this Tiger IV application requests \$36.8 million, or 61 percent, of the cost of the five specific projects, the request actually represents only about 10% of the cost of all the freight corridor projects to be funded and built by the CREATE Partners. The state of Illinois, AAR, and the city of Chicago have committed to cover the remaining 90% of the costs in order to complete three CREATE corridors, as described below.

In March 2012, two of the CREATE Partners (the State of Illinois and AAR) agreed to a major commitment of funding for CREATE (Commitment). This Commitment is the largest single funding advancement for the CREATE program in its history. Together with fellow CREATE partner the City of Chicago, as well as funds previously set aside by the Illinois Commerce Commission, the total funding now available represents \$333.4 million, or approximately 90 percent, of a \$370.2 million package that will complete 13 railroad corridor projects, a set of railroad viaduct improvements, and provide funding for a high-priority grade separation.

The primary objective of this Commitment is to allow the CREATE Partners to complete all hard infrastructure components of the Beltway, Western Avenue, and East-West Corridors. The completion of these infrastructure projects along entire corridors will maximize the benefits for not only corridor operations, but also passenger and commuter rail lines that are expected to experience fewer delays at intersections where they cross these corridors. And by completing corridors in their entirety rather than piecemeal, benefits will exceed those that would accrue only from completing individual projects.

However, there is a \$36.8 million gap (Gap) between the Commitment and the total cost of the projects referenced above. The award of Tiger IV funding will fill the Gap and allow all corridors to be finished. The Commitment and the Tiger IV award will allow CREATE to move its future funding focus to the mega-projects within CREATE, such as the 75th Street Corridor Improvement Project, the other rail-to-rail flyovers, and the remaining unfunded grade separation projects. Finding funding for these mega-projects will be challenging, but very important to the overall success of the CREATE program.

2.2.1 Beltway Corridor

- Two Beltway rail projects are proposed for funding in this application.
- Four Beltway rail projects already are operationally complete (B3, B6, B8, and B12).
- Four Beltway projects received TIGER I funding and are well underway. B2 will be complete in October 2012, B4/B5 in April 2012, B15 in May 2012, and GS14 in November 2012.
- With receipt of TIGER IV funds for B9 and B16, the entire Beltway corridor will be fully funded.

2.2.2 Western Avenue Corridor

- TIGER IV funding is sought to complete the WA3 project as all other segments are complete.
- A portion of the WA2 project is complete. We are seeking TIGER IV funding to complete the next segment of this project, which has independent utility. Two segments will remain.
- One rail project has been completed (WA5).
- One rail project is under construction (WA10).
- Two rail projects are in final design (WA1, and WA4).
- With receipt of TIGER IV funds for WA2 and WA3, this entire corridor would be fully funded.

■ 2.3 CREATE Project Parties

CREATE is a groundbreaking public-private partnership involving 13 public and private agencies that have been working together for more than nine years to advance a complex set of multimodal infrastructure projects in the Chicago region. This application is submitted by Illinois DOT on behalf of the CREATE Partners, listed below. More information is available on each partner by clicking on the links.

[USDOT](#)
[Illinois DOT](#)
[Chicago DOT](#)
[Amtrak](#)
[Belt Railway of Chicago](#)
[BNSF Railway](#)
[Canadian National](#)

[Canadian Pacific](#)
[CSX Transportation](#)
[Indiana Harbor Belt](#)
[Metra](#)
[Norfolk Southern](#)
[Union Pacific](#)

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, the State of Illinois, City of Chicago and freight railroads will contribute \$23.80 million, providing a non-Federal match of 39 percent, with individual matches between 20 and 41 percent (see Table 2.1).

■ 2.4 Transportation Challenges Addressed by CREATE

Each day, nearly 1,300 trains – 800 passenger and 500 freight – are handled in the Chicago region, with a staggering 40,000 railcars per day. One quarter of the nation's freight rail traffic travels through the Chicago region¹ where six of the seven Class I railroads converge. Nowhere else in North America does such a quantity of rail traffic converge in a single region, creating a level of passenger and freight rail congestion that impacts the movement of people and goods nationally.

2.4.1 Intercity Passenger Rail Operations

Chicago is the National Railroad Passenger Corporation's (Amtrak) primary intercity rail hub outside the Northeast Corridor. 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 2011 was 30.2 million, the largest volume of passengers using Amtrak since the beginning of operations in 1971. 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 1.1 million riders in FY 2009. While Amtrak ridership has decreased the past two years, from FY 2006 to FY 2011 it has increased 43 percent on the three downstate routes. Expanding demand for passenger service places additional burdens on Chicago's rail network, particularly as a vastly improved Midwest regional rail network focusing around a Chicago-based hub moves towards reality.

The Chicago Hub shown in Figure 2.2 is one of 10 high-speed rail corridors designated by the Federal Railroad Administration. Using grants from the American Recovery and Reinvestment Act (ARRA), improvements to this corridor will be made that allow passenger rail service from Chicago to St. Louis to operate at speeds of up to 110 mph. Three of the CREATE projects in this application are on freight tracks that cross the Chicago to St. Louis passenger route and one is on the route to Indianapolis, providing benefits to intercity passenger trains that frequently face delays due to freight conflict.

Figure 2.2 Midwest High-Speed Rail Hub



Source: USDOT.

¹ Association of American Railroads 2006 Rail Waybill Sample, based on traffic analysis by ALK Associates.

2.4.2 Commuter Rail

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 2010, Metra operated 702 weekday trains on a network of 488 route miles with 240 stations and a daily volume of 301,200 unlinked passenger trips throughout the Chicago metropolitan region.

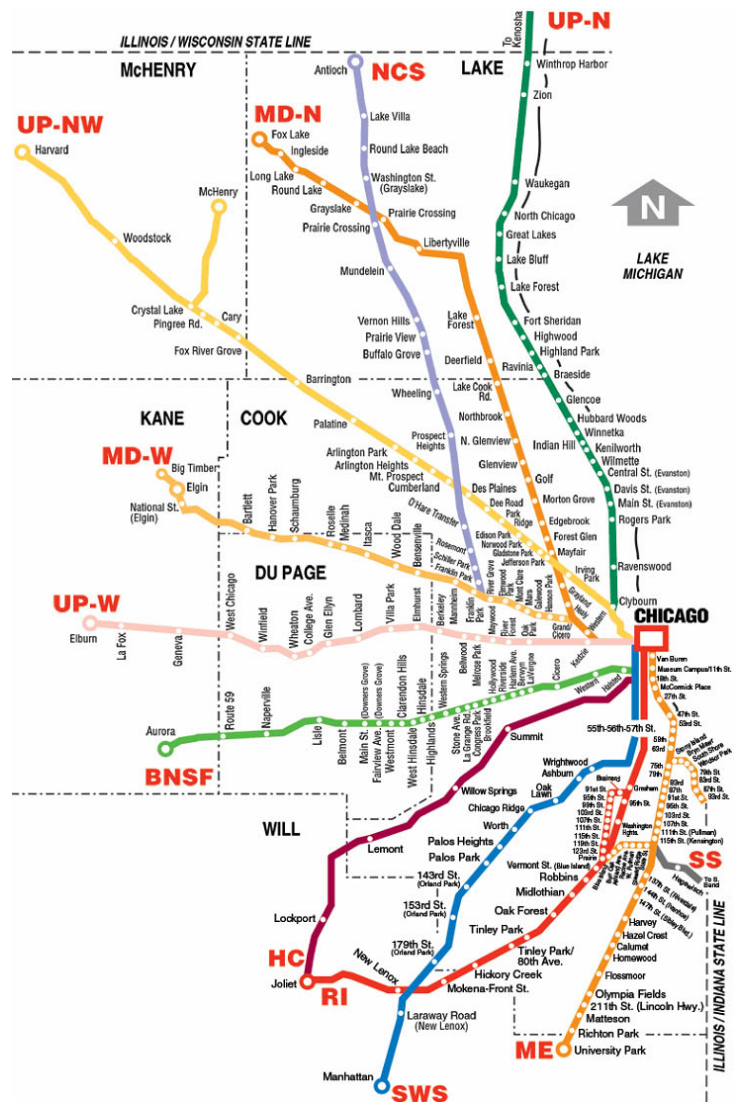
Demand has been rising steadily in recent years, with 2008 volume reaching a record for Metra's 25 year history of 87 million annual passengers. The 82.7million passenger trips reported in 2011 were 1.6 percent higher than 2010. Since 1983, Metra's first year of operation, ridership has increased 46 percent, averaging 1.6 percent growth annually.

Paralleling the overall growth in ridership has been an increase in trains operated. In the seven 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 2.3. Metra operates nine lines – all except the Rock Island (RI) and Metra Electric (ME) – on tracks owned or managed by freight railroads and must coordinate operations with freight carriers. Metra's radial lines cross freight rail lines at grade in several locations, including the heavily traveled Indiana Harbor Belt Railroad (IHB) and the Belt Railway of Chicago (BRC), 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. Please see [Metra letter of support](#).

2.4.3 Freight Rail Congestion

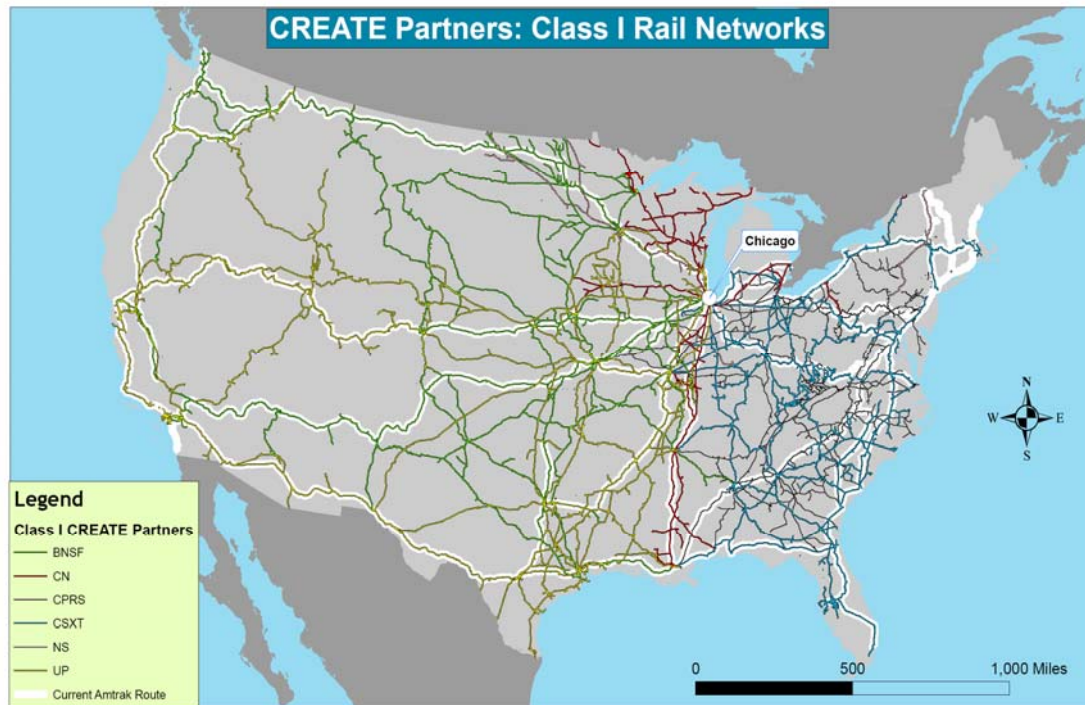
Figure 2.4 demonstrates Chicago's critical location at the nexus of the North American railroad network. Six of the seven largest rail carriers access the region: the eastern railroads, Norfolk Southern (NS) and

Figure 2.3 Metra Commuter Rail Network



CSX; the western railroads, BNSF Railway (BNSF) and Union Pacific (UP); and the two Canadian railroads, Canadian Pacific (CPR) and Canadian National (CN).

Figure 2.4 CREATE Partners Rail Network



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. The average speed of freight trains operating in the region is 15.3 miles per hour.²

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. However increased capacity to handle intermodal

² CREATE simulation 2011.

traffic in Chicago via the CREATE program is critical as this traffic is the most easily shifted to transport by truck. If delays mean intermodal is not competitive with truck trips, shippers are more likely to shift freight to truck, which contributes to congestion, reduced air quality and damage to the nation's roadways. At present, nearly half of all U.S. rail intermodal traffic flows through the Chicago region.³ Delays in rail freight traffic threaten the economic vitality of businesses that rely on these and other important types of rail shipments throughout the region and nation. That is why J.B. Hunt, one of the largest U.S. intermodal logistics companies, is supporting this TIGER IV application. J.B. Hunt explains in its [letter of support](#) why the implementation of the CREATE Program is so important to them and its customers. This application is also supported by the [Pacific Merchant Shipping Association](#), a trade organization representing ocean carriers and marine terminal operators up and down the West Coast, for the same reason, as well as by the Ports of Seattle/Tacoma and Oakland.

Robust growth in rail traffic is expected to continue through 2040. Freight rail trade with the Chicago region is forecast to increase 48 percent by weight and 304 percent by value between 2007 and 2040, according to U.S. DOT⁴. As the economic recovery strengthens⁵, traffic volumes will continue 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.

2.4.4 Highway Traffic Congestion

Highway traffic congestion is a major issue in Chicago. According to the American Transportation Research Institute the worst freight bottleneck in the country is located in the Chicago region at the I-290 interchange with I-90/I-94 where traffic speeds average just 29 miles per hour. The more freight can be carried by rail versus truck, the less impact goods movement will have on roadway congestion.

3.0 CREATE Accomplishments

Since its announcement in 2003, CREATE has made considerable progress in securing initial funding and progressing the Program. A timeline of program milestones is available at [Timeline](#).

■ 3.1 A Project of National and Regional Significance

CREATE received the last of its SAFETEA-LU funding in May 2009, and obligated all Projects of National and Regional Significance funding received by the end of 2009.

To date, CREATE has received the following funds totaling \$988.5 million:

- \$100 million – ARRA TIGER;
- \$89.1 million – Illinois Capital Bill, CREATE Program
- \$100 million – Illinois Capital Bill, Two individual grade separation projects
- \$1.9 million – Federal Rail Line Relocation Funds;

³ Association of American Railroads 2006 Rail Waybill Sample, based on traffic analysis by ALK Associates.

⁴ Freight Analysis Framework 3.

⁵ Total intermodal volume rose 4.9 percent to 14.1 million units in 2011 compared with 13.4 million units in 2010, according to IANA's "Intermodal Market Trends & Statistics" report.

- \$100 million – Federal Projects of National and Regional Significance;
- \$170.7 million – Railroad partners;
- \$10 million – IL DOT-IL First;
- \$4.2 million – Chicago DOT;
- \$286.6 million – STP and other sources; and
- \$126 million – ARRA High Speed Rail.

With this funding, 12 projects have been completed, 14 are under construction, four have been advanced to the design phase, and 15 projects are undergoing environmental review. A key CREATE strategy has been to build a pipeline of projects that have completed environmental review and preliminary design so they are ready to advance to the final design and construction phases. The latest simulation showed the investment in CREATE to date has resulted in a 28 percent reduction in freight delay and 33 percent reduction in passenger delay compared to the system if no CREATE projects were built.

In July 2009, Illinois Governor Patrick Quinn approved the “Illinois Jobs Now” program, including \$300 million in state funds for CREATE. This program also authorized over \$100 million in funding for two individual CREATE grade crossing projects: GS15a is under construction and GS25 will be let in April 2012. These funds will be released over the course of the multiyear program to fund CREATE projects. This grant application includes \$11.4 million from the Illinois Jobs Now program as part of the non-Federal match for TIGER IV funding. A letter of commitment to this funding is available at [IDOT Letter](#). Chicago DOT is committing \$1 million in non-Federal match per the [City of Chicago Letter](#). The freight railroads have committed \$11.4 million per the [AAR Letter](#).

Each project for which TIGER IV funding is requested has independent utility and will provide immediate benefits to the nation and the region by itself. CREATE seeks TIGER IV funds to keep the program moving forward until the next Transportation Authorization is passed by Congress, since SAFETEA-LU expired on September 30, 2009 and it is unclear when a new bill will be passed. As a multimodal project involving freight and passenger rail, in addition to highway improvements, this project is not easily funded via existing programs managed by the modal agencies. If CREATE does not receive TIGER IV funds, the program will be hampered in its ability to advance projects and costs will increase.

4.0 CREATE Alignment with Selection Criteria

The CREATE Program was developed to benefit numerous constituencies in the Chicago region and the nation. The 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, from, 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 January 31, 2012 announcement, was performed for the Package of CREATE projects included in this application. This BCA includes:

- Reduced highway maintenance costs from truck VMT avoided;
- Logistics cost savings due to truck ton-miles avoided if capacity is increased sufficiently to handle increased freight rail demand, based on RTC simulation conducted by the railroads;
- Environmental and congestion savings based on truck ton-mile reductions; and
- Safety benefits resulting from truck VMT avoided.

The BCA shows that the Package of CREATE Projects applied for here has a benefit cost ratio between 12.6:1 (seven percent discount rate) and 29.7:1 (three percent discount rate). Such a high benefit-cost ratio reflects the very low cost of the Package of Projects relative to the significant amount of freight that it would allow to be handled by rail and diverted from truck, and those associated impacts. Further details on the benefits can be found below in Tables 4.1 and 4.2. Separate spreadsheets detailing the benefit-cost calculations are being submitted with this application. These spreadsheets can be accessed at [Benefit Cost Analysis Spreadsheets](#) and a narrative description of the process is available at [Benefit Cost Narrative](#).

Table 4.1 Primary Selection Criteria Benefit-Cost Summary

Package			
Category	Annual Value (Millions of Dollars)	30-Year NPV (Millions of Dollars – 7% Discount Rate)	30-Year NPV (Millions of Dollars – 3% Discount Rate)
BENEFITS			
State of Good Repair			
Reduced maintenance costs from truck VMT avoided		131.80	387.80
Economic Competitiveness			
Logistics Cost Savings		214.07	629.34
Livability			
Reduced congestion due to truck VMT avoided		330.05	971.06
Sustainability			
Environmental benefit from reduced fuel consumption and emissions		151.57	222.71
Safety			
Reduced fatal and injury crashes due to avoided truck VMT		10.17	29.94
TOTAL BENEFITS		837.68	2,240.86
COSTS*			
Total Construction Costs (Millions) – one-time cost	60.6		
Maintenance Costs (Millions)	.86	10.10	16.60
BENEFIT/COST RATIO			
Benefit/Cost Ratio based on 30 year NPV at seven percent discount rate		12.6	
Benefit/Cost Ratio based on 30-year NPV at three percent discount rate			29.7

Notes: *Maintenance costs for the 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 4.2 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.
Partnership	
Jurisdictional/Stakeholder Collaboration	CREATE is a partnership involving 13 private and public stakeholder organizations.
Amount of private debt and equity	\$11.4 million contributed by the State of Illinois, \$11.4 million contributed by the CREATE partner railroads, \$1 million contributed by the City of Chicago.
Collaboration among neighboring or regional jurisdictions	Letters of support for the TIGER IV application include the Village of Summit, State of Illinois, and Cook County.
Disciplinary Integration	Community-based organizations with broad livability goals support CREATE, including the Chicago Metropolitan Agency for Planning, Metropolis Strategies, Respiratory Health Association, Metropolitan Planning Council, and Environmental Law and Policy Center

4.1 State of Good Repair Benefits

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

4.1.1 Upgrade of Projects Critical to Future Economic Stability

As described in Section 2.4, 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.

4.1.2 Asset Management, Maintenance and Operations

Commitment to CREATE has been demonstrated by the significant investment already made by the CREATE Partners, including \$170.7 million contributed to date 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 2010, a total of \$3.3 billion in capital and maintenance investments was expended by the partner freight railroads, Amtrak and Metra to upgrade the greater Chicago rail network. These combined expenditures,

averaging \$254 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 construction of the [Viaduct Improvement Program](#) will result in roadway and sidewalk improvements at 11 locations in the City of Chicago, bringing infrastructure up to a state of good repair. The locations specified in the grant application all feature streets, sidewalks, and drainage that have exceeded their useful life and are in very poor condition and in need of replacement. Often the original brick pavement is in place and cannot be paved over due to vertical clearance issues. The bricks themselves cannot be ground down to make space for a new layer of asphalt, so the surface needs to be completely rebuilt. Most of the locations are over 100 years old and failing drainage systems in the street as well as leaking water from the railroad viaduct structures have resulted in standing water conditions that lead to severe freeze-thaw damage to the sidewalks, curbs, and street surface during the winter months.

4.1.3 Freight Diversion from Truck to Rail

The Rail Traffic Control (RTC) simulation modeling results show that implementation of the four rail projects proposed for TIGER IV funding would increase rail capacity in the Chicago terminal significantly to meet forecasted future rail demand. With this investment in CREATE as compared to a no-build scenario, the total number of daily container trains that could be handled in Chicago and would not be diverted to truck would be 42 per day amounting to 933,597 units that would not need to be transported by truck annually. The assumption was made that container trips between points east of Chicago and the major intermodal terminals in Joliet, IL (Union Pacific) and Elwood, IL (BNSF) would be shifted to truck, with the rest of the trip from Chicago to points west carried by rail given the longer distances. Therefore, 732 million truck VMT would be avoided annually once the capacity is available and needed to handle additional rail demand, which would start in 2032 according to the simulation and fully ramp up in 2034. As a result of the package of CREATE projects in this application, the cost of highway maintenance would be reduced \$388 million over 30 years. Please see [Simulation](#) for details on the simulation identifying the number of intermodal rail trips that could be accommodated by the new CREATE projects, and thus truck VMT avoided.

■ 4.2 Economic Competitiveness Benefits

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.

With the four proposed freight rail projects, the Chicago terminal will be able handle increased demand of 42 additional trains per day, according to the RTC simulation run for this TIGER IV application. This means that once the capacity is provided and demand is reached, annually 933,597 intermodal containers could be shipped via rail versus truck for the portion of their trip east of Chicago. Given that the cost of rail intermodal is lower than shipping via truck, the national logistics cost savings of being able to provide a lower cost option to shippers would be significant, totaling \$629 million.

Construction of the four CREATE rail projects proposed in this application would provide immediate operations benefits in terms of reduced freight delay and increased routing options in Chicago. If these CREATE projects are not built, as demand continues to increase and delay grows, the customer base will increasingly be unable to accept the delay through Chicago, and prior to reaching complete saturation will start migrating away from use of rail.

It is critical to note that the five CREATE projects are elements of a package of 70 CREATE projects to benefit the entire Chicago rail network, some of which have already been built. Twelve CREATE projects have been completed and fourteen are funded and under construction. Construction of the four rail

projects in the CREATE TIGER IV application added to the funding already committed by Illinois DOT and the rail industry will complete the Beltway and Western Avenue Corridors and nearly complete the East-West Corridor (with the exception of one freight rail project that is part of the major 75th Street Corridor project).

Table 4.3 presents the benefits that will be realized with full CREATE construction of all the passenger and freight rail projects, compared to the benefits realized with only the rail projects already constructed/funded and under construction as of the summer of 2011, which was determined through a new CREATE simulation completed in the summer of 2011. This data was not used in the BCA analysis but provides a sense of the potential benefits that can be achieved by the full program. Funding of the projects proposed for TIGER IV funding will get Chicago closer to the full rail operations improvements benefiting the nation and region, given the state and railroad commitments described earlier that will enable completion of hard freight rail infrastructure projects on two corridors and near completion of hard freight rail infrastructure projects on the third corridor. Please see study documentation at [CREATE Simulation Modeling](#).

Table 4.3 Full CREATE Program Operational Benefits

	Delay minutes per 100- train miles	
	With Only Projects Completed/Funded as of 2011	With full CREATE Build-Out of All Rail Projects
20 year freight train volumes (2,165)	143.3	76.2

Source: CREATE Program Simulation Modeling, October 2011.

4.2.1 Exports

CREATE is critical to growth in exports, particularly those transported from Midwest destinations to U.S. seaports for transportation via ocean vessel to international destinations. The growth in value of commodities shipped from Chicago to international destinations using a domestic mode of rail or rail intermodal between 2007 and 2040, is forecast to be 182 percent. The total value of these exports was \$15.02 billion in 2007, and is forecast to grow to \$42.35 billion in 2040⁶. Significant amounts of grain from Midwest states travel in containers along the Beltway Corridor – through the location of project B9 – to access eastbound rail to the Eastern seaports for export. Additionally machinery such as that from Caterpillar is one of the top export commodities moving through the CREATE network to reach export destinations. According to the AAR, one third of U.S. exports move by rail to U.S. ports.

According to the [Illinois Soybean Association](#), the dominant mode of transport for Illinois soybeans is rail, and 54 percent of Illinois soybeans are exported to foreign markets. Rail is critical also for transporting soybeans to domestic livestock producing areas including Iowa, Georgia, California and the Plains. The DeLong Co., Inc.'s [letter of support](#) for this TIGER IV application indicates that they are a family-owned agriculture business involved in exporting grain and feed products by container from the Chicago area. In 2011, DeLong exported over 130,000 containers of agricultural products. They own two transload facilities and 14 grain elevators, all of which export farm products from Chicago by intermodal rail. DeLong has invested \$20 million in the last five years to build and upgrade these facilities. Likewise, Corn Products International's [letter of support](#) states that their Argo plant, located in the Chicago metropolitan area, is dependent on rail transportation to receive raw materials and to ship

⁶ Freight Analysis Framework 3.

products it produces to over 20 countries worldwide. The [Grain and Feed Association of Illinois](#) supports this application for the same reasons.

4.2.2 Nonwage Materials

Of the \$60.6 million to construct the Package of five projects for which funding is requested, 48 percent of the total cost is for construction materials. Therefore, the value of materials produced in the United States that will be purchased for construction of these CREATE projects is \$29.1 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.

4.2.3 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, all the projects in this application are located in jurisdictions defined as economically distressed. The City of Chicago, the location of projects WA2, WA3 and the Viaduct Improvement Program, is economically distressed based on unemployment of 1.6 percent above the national average between January 2010 and December 2011. Summit, in which project B9 is located, is economically distressed based on per capita income of less than 80 percent of the national average. South Holland (in Cook County), in which project B16 is located, is economically distressed based on an alternate method used by the State of Illinois.⁷

The railroad industry is a major employer with freight railroads employing 11,719 people in Illinois alone. Railroad wages are highly competitive, averaging \$99,360 annually including 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 and procurement opportunities, including participating in multiple job fairs and several procurement fairs in the region and reaching out to disadvantaged business enterprises (DBEs), as described at [Employment and Procurement Outreach](#). Bid solicitations are posted on the CREATE web site and automatically sent via email to contractors who have expressed an interest.

■ 4.3 Livability Benefits

The project provides benefits that support the six livability principles developed by DOT, HUD and EPA as part of the Partnership for Sustainable Communities, in particular by: providing more transportation choices, enhancing economic competitiveness, and coordinating policies and leveraging investments.

4.3.1 Community Livability

In particular, the Viaduct Improvement Program will enhance community livability by improving the condition of roadways and pedestrian infrastructure under rail viaducts in 11 locations throughout Chicago. These improvements will benefit the character and livability of many neighborhoods throughout

⁷ IL Criteria, source: GAO-09-926T, <http://www.gao.gov/new.items/d09926t.pdf>, page 8: "The state based its classification of economically distressed areas on (1) whether the 2008 year-end unemployment rate was at or above the statewide average, (2) whether the change in the unemployment rate between 2007 and 2008 was at or above the statewide average, or (3) whether the number of unemployed persons for 2008 had grown by 500 or more." The 2011 year-end unemployment rate for Cook County is above the state average.

Chicago by improving drainage, reducing flooding, making sidewalks more appealing and safer, and improving the pavement condition of roadways.

4.3.2 Transit Reliability

These projects have the potential to provide benefits to intercity and commuter passenger rail users. The four freight rail projects listed in Table 4.4 are adjacent to passenger rail corridors and have the potential to directly reduce Metra and Amtrak delay resulting from freight train interference. Despite Metra and Amtrak being given priority over freight trains, with the volume of both freight and commuter trains, sometimes freight trains cannot clear the path of passenger trains in time, forcing them to stop and wait. Amtrak trains to and from St. Louis suffer as much as 6.5 hours of delay monthly at the interlocking adjacent to project B9, and 3.5 hours monthly at Brighton Park interlocking, adjacent to the location of WA2 and WA3. The 61 monthly Amtrak trains to and from Indianapolis experience 3.8 hours of delay monthly in the vicinity of the B16 project, an average of nearly four minutes per trip. Metra Heritage Corridor trains experience delays of up to 25 minutes per month near the location of B9, and up to 20 minutes per month near the location of WA2 and WA3.

Table 4.4 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
WA3	Heritage	6	Chicago – St. Louis (Potential High-Speed Rail Corridor)	10
WA2	Heritage	6	Chicago – St. Louis (Potential High-Speed Rail Corridor)	10
B16			Chicago – Indianapolis	2
B9	Heritage	6	Chicago – St. Louis (Potential High-Speed Rail Corridor)	10

4.3.3 Motorist Delay Reduction

By avoiding 6.6 billion truck VMT on the highways as a result of the increased freight rail capacity, these four rail projects will provide roadway congestion benefits valued at \$971 million.

4.4 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. A freight train moves a ton of freight an average of 484 miles on a single gallon of fuel. According to a recent independent study produced for the Federal Railroad Administration, railroads on average are four times more fuel-efficient than trucks. Greenhouse gas emissions are directly related to fuel consumption. That means moving freight by rail instead of truck reduces greenhouse gas emissions by 75 percent, on average. 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.

4.4.1 Reduction in Oil Consumption and Emissions

By providing capacity to ship future freight volumes on rail as compared to truck, the proposed CREATE projects will avoid truck fuel consumption by 639 million gallons over 30 years. This will result in sustainability benefits of \$223 million.

■ 4.5 Safety

By avoiding 6.6 billion truck VMT, the four proposed CREATE rail projects will provide significant safety benefits. It is estimated that eight fatal crashes and 210 serious injury crashes could be avoided over the next 30 years at an economic cost of \$29.9 million.

The CREATE Program will benefit not only the traveling public but also will enhance railroad employee safety. Three CREATE projects proposed for TIGER IV funding include upgrading a total of 16 switches 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](#).

■ 4.6 Job Creation and Economic Stimulus

During the construction of the Package of Projects, a total of 555 direct and indirect jobs are estimated to be created. Job estimates were developed based on the assumption that \$ 1 million in investment results in 9 direct, indirect and induced rail jobs and 11 highway jobs. Figure 4.1 shows the distribution of jobs based on the project schedules.

Figure 4.1 Job Creation by Quarter

Project	Cost (dollars)	Total Jobs Created	2012				2013			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WA3	7,300,000	66		21	60	60	60	60		
WA2	10,400,000	94		30	86	86	86	86		
B16	9,300,000	84		27	77	77	77	77		
B9	28,600,000	257			232	232	232	232	103	
Viaducts	5,000,000	55		37	37	37	37	37	37	37
TOTAL	60,600,000	555								

Phase III - Construction

Note: Assumes 9 jobs created/sustained per \$1 million invested in rail and 11 jobs created/sustained for every \$1 million invested in highway projects, based on Illinois DOT data.

■ 4.7 Secondary Criteria Benefits

Secondary criteria benefits are summarized in Table 4.2.

4.7.1 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 not signalized, 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, which will improve the efficiency of overall rail operations.

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 multi-railroad 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.

4.7.2 Partnerships and Management Practices

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](#). A flow chart detailing CREATE processes for Phase II and Phase II is available at [Phase II/III Flowchart](#).

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

4.7.3 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 Seattle/Tacoma to national companies such as Corn Products International. Copies of [letters of support](#) for this TIGER IV application are available at the links below. Letters were received from:

Senator Mark Kirk

[Illinois Delegation](#)

Congressman Lipinski

Congressman Davis

Congressman Gutierrez

Congressman Jackson, Jr.

Congressman Quigley

Congressman Rush

Congressman Shakowsky

[Chicago Mayor](#)

[Illinois Department of](#)

[Transportation Secretary](#)

[Association of American](#)

[Railroads](#)

[Cook County Board President](#)

[Calumet Area Industrial](#)

[Commission](#)

[Chatham Business](#)

[Association](#)

[Chicago Metropolitan Agency
for Planning](#)

[Chicago Southland Economic
Development Association](#)

[Chicagoland Chamber of](#)

[Commerce](#)

[Chrysler](#)

[Corn Products International](#)

[Cosmopolitan Chamber of](#)

[Commerce](#)

[The DeLong Company](#)

[Environmental Law and Policy](#)

[Center](#)

[Ford Motor Company](#)

[GATX](#)

[Grain and Feed Association of](#)

[Illinois](#)

[Illinois Chamber of Commerce](#)

[Illinois Corn Growers](#)

[Association](#)

[Illinois Manufacturers
Association](#)

[Illinois Soybean Association](#)

[J.B. Hunt Transport, Inc.](#)

[Metra](#)

[Metropolis Strategies](#)

[Metropolitan Planning Council](#)

[Pacific Merchant Shipping](#)

[Association](#)

[Port of Oakland](#)

[Port of Seattle/Tacoma](#)

[Respiratory Health](#)

[Association](#)

[Rock Tenn Corporation](#)

[South Suburban Mayors and](#)

[Managers Association](#)

[Village of Summit](#)

5.0 Project Readiness and NEPA Status

■ 5.1 Schedule

All projects in this application will obligate TIGER IV funds by June 1, 2012 based on a grant award date of May 15, 2012. Completion of construction on all projects is anticipated by the second quarter of 2013. Detailed construction schedules for all of the projects can be found at [Project Information](#).

■ 5.2 Environmental Approvals

Four of the five projects in this application have secured Categorical Exclusions. Environmental documentation for each project is located at [Project Information](#) and a summary is located at [Environmental Status Summary](#).

■ 5.3 Legislative Approvals/Broad Project Support

No legislative approvals are required to progress these CREATE projects. CREATE has secured letters of support including the Village of Summit, State of Illinois, City of Chicago, and Cook County.

■ 5.4 State and Local Planning

All projects in this Package are in the regional Transportation Improvement Program (TIP). The TIP is available at [CMAP TIP](#). CREATE is a central element of the strategic regional freight system in the RTP.

■ 5.5 Technical Feasibility

All rail projects in this application have proceeded through preliminary engineering. Geometrics and schematics for each project are available at [Project Information](#).

■ 5.6 Financial Feasibility

The CREATE Program has demonstrated its ability to manage grant funding through its obligation of all PNRs funds and construction of TIGER I projects (TIGER I funds were released by USDOT on July 22, 2010 and construction initiated the week of August 2, 2010). All projects have contingency reserves built into construction cost estimates. Letters noting financial commitment are located at [IDOT Letter](#), [City of Chicago Letter](#), and [AAR Letter](#).

■ 5.7 Federal Wage Rate Certification

IDOT has provided the required wage rate certification letter at [Wage Rate Certification Letter](#).

■ 5.8 Material Changes from Pre-Application

There are no material changes from the TIGER IV pre-application.

6.0 Contact Information

Joe Shacter
Director
Illinois Department of Transportation
JRTC – STE 6-600

100 West Randolph
Chicago, IL 60601
(312) 793-2116
Joseph.Shacter@Illinois.gov