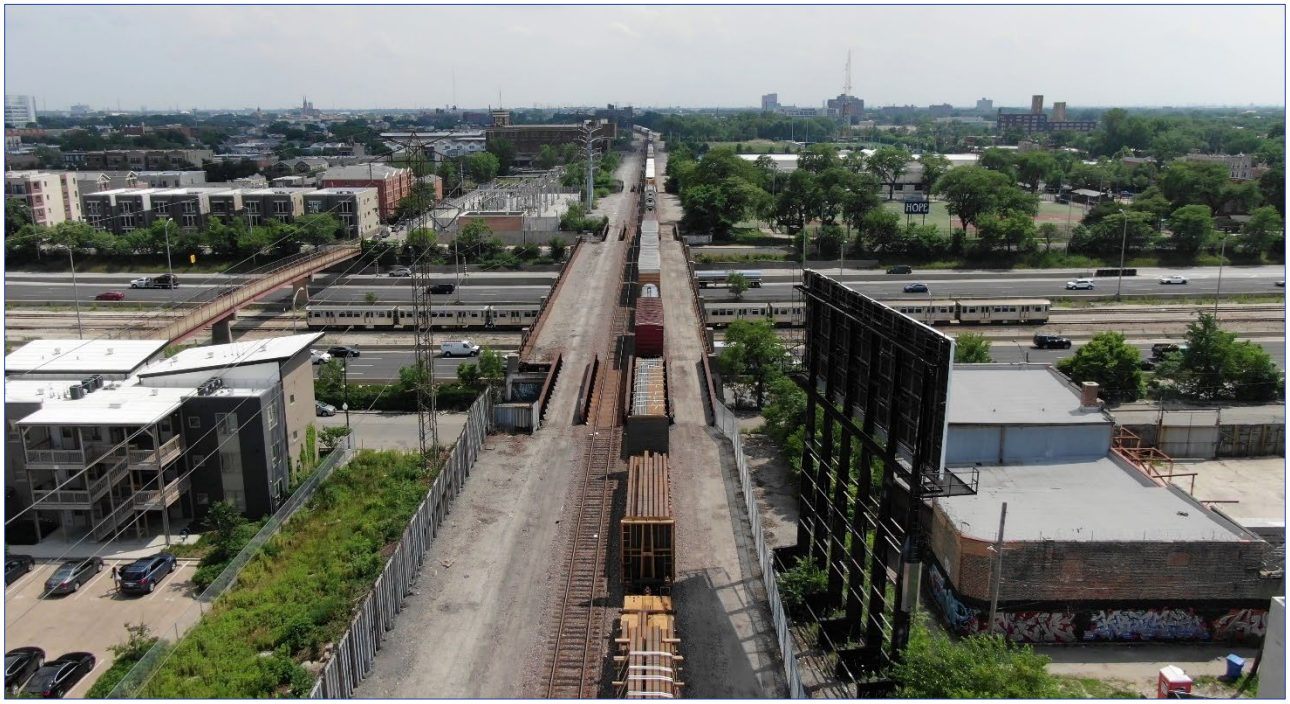
U.S. Department of Transportation
Federal Railroad Administration
Fiscal Year 2022 Multimodal Project
Discretionary Grant (MPDG) Opportunity

CREATE
KEEPING THE GO IN CHICAGO



GRANT APPLICATION NARRATIVE

CHICAGO REGION ENVIRONMENTAL AND TRANSPORTATION EFFICIENCY (CREATE) PROGRAM

CREATE WA1: THE OGDEN JUNCTION PROJECT

Submitted for the FY 2022 INFRA Program by:

Illinois Department of Transportation

COVER TABLE

Basic Project Information		
What is the Project Name?		WA1 – The Ogden Junction Project
Who is the Project Sponsor?		Illinois Department of Transportation
Was an application for U.S. DOT discretionary grant funding for this project submitted previously?		Yes. The project was submitted for funding under FRA's FY 2021 CRISI grant program.
A project will be evaluated for eligibility for consideration for all three programs, unless the applicant wishes to opt-out of being evaluated for one or more of the grant programs.		**X** Opt-out of Mega? __ Opt-out of INFRA? **X** Opt-out of Rural?
Project Costs		
MPDG Request Amount		$ 70,000,000
Estimated Other Federal funding (excl. MPDG)		$ 0
Estimated Other Federal funding (excl. MPDG) further detail		N/A
Estimated non-Federal funding		$ 99,955,432
Future Eligible Project cost (*Sum of previous three rows)*		$169,955,432
Previously incurred project costs (*if applicable)*		$ 6,687,756
Total Project Cost (Sum of 'previous incurred' and 'future eligible')		$176,643,188
INFRA: Amount of Future Eligible Costs by Project Type		3) A freight intermodal, freight rail, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility and that is a surface transportation infrastructure project necessary to facilitate direct intermodal interchange, transfer, or access into or out of the facility: $169,955,432
Mega: Amount of Future Eligible Costs by Project Type		N/A – Opting out of Mega
Rural: Amount of Future Eligible Costs by Project Type		N/A – Opting out of Rural
Project Location		
State(s) in which project is located		Illinois
INFRA: Small or Large project		Large

Urbanized Area in which project is located, if applicable		Chicago, IL
Population of Urbanized Area *(According to 2010 Census)*		8,608,208
Is the project located (entirely or partially) in Area of Persistent Poverty or Historically Disadvantaged Community?		The project footprint is entirely located within 11 census tracts that are designated as Historically Disadvantaged Communities: 8371, 8367, 8378, 8374, 2808, 2827, 8433, 8429, 2916, 8412and 8368. Of these, all except tracts 2916 and 8412 are also designated as Areas of Persistent Poverty.
Is the project located (entirely or partially) in Federal or USDOT designated areas		Yes. The project is in three opportunity zones - 17031843300, 17031842900 and 1703128090 - and in eleven Empowerment Zones - 231600, 270300, 231700, 270200, 270100, 280600, 271900, 282700, 290110, 284300, and 311100.
Is the project currently programmed in the: TIP; STIP; MPO LRTP; State LRTP; State Freight Plan		Yes. CMAP eTIP: 01-05-0011 WA1 is an element within the "CREATE Western Avenue Corridor from Kedzie Interlocking to Thornton Junction"

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ONLINE REPOSITORY

This application narrative and all attachments can also be accessed online. Selected reference materials are linked from within this narrative to files in the above webspace.

Weblink: https://www.createprogram.org/resources/grants/mpdg2022

POINT OF CONTACT

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1. PROJECT DESCRIPTION

1.1 Project background and users

The route that will be improved by this project was constructed in 1856, by the Chicago & North Western Railway. It is a 1.9-mile-long elevated, multi-track, high-density freight rail corridor running through central Chicago, from a junction point at Kedzie in the north to connections south in the vicinity of 16th Street.

Figure 1: The Project corridor from 1897

Today, this segment provides critical connectivity for regional and national freight traffic and facilitates east-west multimodal travel through viaducts hosting local streets, highways and transit lines. It hosts operations of three Class I railroads: Union Pacific Railroad (UP), Norfolk Southern Railway (NS) and CSX Transportation (CSX). It carries between 20 to 30 heavy "through" trains daily, transporting a variety of regional, transcontinental and international freight cargoes. This corridor is called Ogden Junction, named after the proximity of Ogden Avenue at the intersection of three freight railroad mainlines on the southern end of the project area. The corridor is at the center of the Chicago Terminal, a high-capacity network of rail lines carrying more than 180,000 freight trains and almost 300,000 passenger trains annually. It provides critical connectivity within the Terminal for through trains and local connectivity for major freight facilities at the southern end: Union Pacific's Global 1 Intermodal Terminal and the Ashland Avenue Yard. The corridor does not carry Metra, but the agency's commuter rail traffic is impacted on the north end by slow speeds and delays of freight trains that enter and exit from the Metra UP-W route hosted on UP's Geneva Subdivision. A video of operations on the project corridor is available here.

1.2 Transportation challenge and the no-build scenario

Operated at FRA Class I speeds, the track on this segment is in declining condition and the configuration lacks the capacity to efficiently manage current demand. Medium and long-term demand is expected to rise slowly but steadily for use of this rail corridor asset. There are limited connections between tracks and switches are manually thrown. The segment is controlled by verbal dispatch between the railroads. All this restricts average speeds to under 10 miles per hour. Trains must halt for personnel to manually line switches and receive authority to proceed from the dispatcher. This limits capacity by slowing the movement of trains on the project segment and impacts the efficiency of all the adjacent connecting lines. The most urgent problem facing this infrastructure is 18 aging bridges carrying the rail corridor over surface streets that are at the end of their useful lives. The railroads estimate one or more of these viaducts will decline to the point of unacceptable operational risk by 2028.

Each of the viaducts are of similar age and poor condition. Without the proposed investment, a scenario of rolling major closures for repair and maintenance of these structures will soon unfold. Each such outage will temporarily force the segment out of service, rerouting trains around the segment. Reroutes would cascade across less and less optimal routes within the Chicago Terminal, with each "next best" route being filled sequentially to capacity as the trains are reallocated. Upon reaching the point of saturation of the capacity on alternative routes in the Terminal, more than four of those rerouted trains per day are expected to detour as far as Kansas City to avoid Chicago. Having a segment carrying close to 10,000 trains per year unexpectedly and repeatedly reroute in this manner to address bridge conditions, within such a complex and high-density regional operation, is unsustainable. The Chicago Terminal has overall capacity constraints and must maintain predictable fluidity as the linchpin of the national rail network. In the absence of the proposed project, one or more of the segment viaducts are expected to be fully taken out of service for safety reasons before 2030, which would halt through freight train operations on the entirety of the segment. This scenario of permanent closure of the corridor would impose significant costs on the public and the railroads, resulting in serious regional and national impacts on the environment, commerce, supply chain fluidity and capacity, and safety.

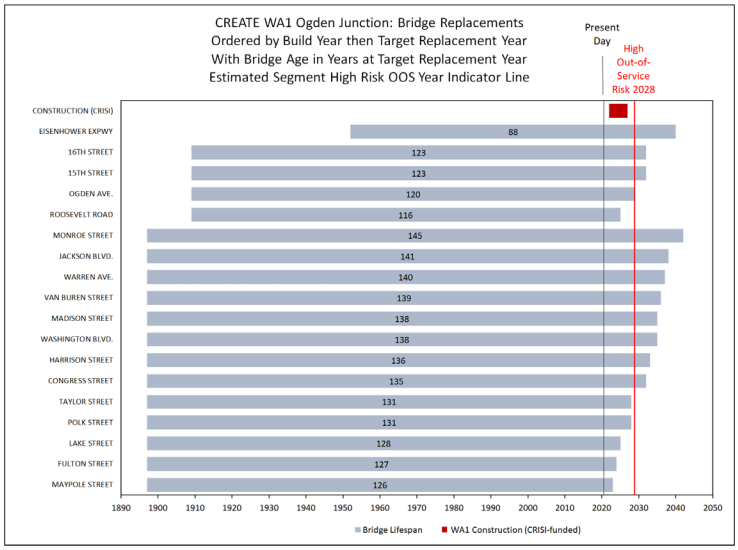


Figure 2: Viaducts nearing end of life on the project segment

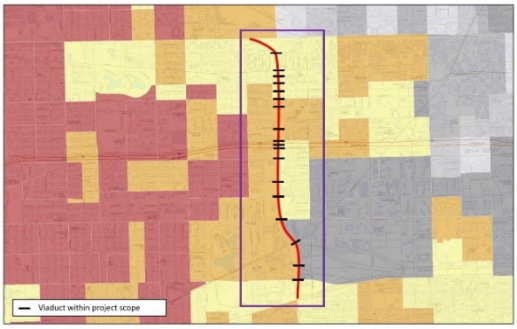
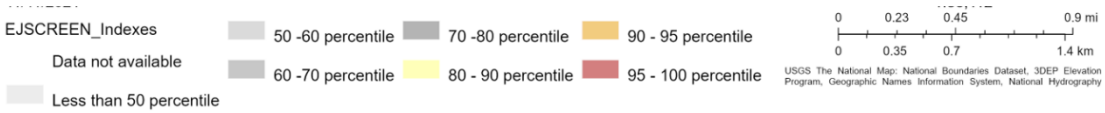


Figure 3: Project-area tracts predominantly Black populations

Figure 4: Project-area tracts predominantly low-income populations



This rail corridor bisects neighborhoods that are low income and heavily minority, with some of the poorest and predominantly Black and Latino neighborhoods in the metro region lying immediately west. The viaducts provide the critical community connectivity across the railroad corridor for people walking, bicycling, taking transit, and driving both commercial and passenger vehicles. These viaducts are at the end of their lifespans with clear signs of extreme age and wear. They are also unwelcoming due to these physical conditions. Many of the built surfaces are in obvious decline and

some have drainage elements requiring repair. In some cases, the sidewalks under the viaducts do not fully meet today's accessibility standards and structural piers encroach on sidewalk space.

Figure 5: Conditions at the Congress Parkway viaduct

Figure 6: Conditions at the Van Buren Street viaduct

Figure 7: Conditions at the Fulton Street viaduct

Figure 8: Conditions at the 15th Street viaduct

Figure 9: Conditions at the Madison St. viaduct

Figure 10: Conditions at the Ogden St. viaduct

1.3 Proposed project description

The term "phase" references the Illinois Department of Transportation (IDOT) and CREATE terminology for stages of completion of a project. This framework is used by the CREATE partners, encompassing concept through completion of construction and delivery of the assets. This is a discrete project with fully independent utility upon completion; the scope reflects all work necessary to complete the project. The FHWA-approved CREATE manuals (available at this link) define these stages of project development in detail. This project will be fully compliant with current Buy America domestic content requirements.

1 & 2. Preliminary Design and Environmental Studies ("Phase I"), design and ROW

Task 1.1 & 2.1 Preliminary Design and Environmental Studies and design

Preliminary design concluded with completion of the FHWA categorical exclusion approval in 2009 and acceptance of the Phase I Project report in 2010. All project design engineering and documentation is complete. Signal design is complete but will be refreshed prior to construction due to rapidly changing signal technology. The full plan set, all specifications, and detailed estimate

(PS&E) package with the track/civil, bridge and signal designs is close to completion. Stakeholder consultation will determine sequencing of viaduct work and the traffic management plans to minimize construction impacts on all users of the infrastructure.

Task 2.3 Right-of-way acquisition

A small amount of property acquisition was required to relocate a city alley near Maypole Ave. in Chicago. A vacant lot parcel of 1,890 square feet was acquired in fee by UP in early 2021. No other land acquisition is necessary to carry out the project and this is now complete.

3. Construction ("Phase III")

Task 3.1 Railroad track construction and rehabilitation

The track subgrade will be renewed between milepost (MP) 0.68 and 2.69 where new track is to be built and existing track is to be shifted. 10,308 track feet of new track will be constructed using136-pound new continuous welded rail. 31,000 track feet will be shifted with 30% timber crosstie renewal and ballast renewal. Additional track will be constructed between Taylor and 15th. New turnouts and crossovers will be constructed, including five power turnouts, fourteen power crossovers, three hand-throw turnouts and two hand-throw crossovers. A net gain of nineteen power turnouts and/or crossovers in the corridor will enable a wholly automated path controlled by the dispatcher for through trains. New friction management equipment will be installed.

Task 3.2 Signal and communications work

3.2.1 Union Pacific Signal Work

The corridor will be upgraded from manual traffic control by radio dispatch and train orders to a centralized traffic control (CTC) system. Solid-state control points will be installed, at CPY001 (Taylor Street), CPY002 (Ogden Avenue) and CPY930 (16th Street), as part of an Alstom ElectroLogIXS interlocking control system. The ElectroLogIXS system is a proven solution that has been in Class I railroad service broadly for over a decade. The new CTC will begin at MP 1.8 and continue through to integrate the NS and the CSX mainlines. This update of the train control and communications system will provide railroad dispatchers with real-time remote visibility and control of traffic on the corridor, automated safety logic, enabling the automated routing and direct dispatcher to dispatcher handoff of trains.

3.2.2 Norfolk Southern Signal Work

An interface shelter and repeater shelter will be installed at the UP's 16th Street control point (CP) and changes will be made at NS CP Cermak to signalize the NS mainlines between Cermak and 16th Street. A 2-track AEI scanner at UW-5.08 will be relocated.

3.2.3 CSX Transportation Signal Work

Work will occur at the CSX CP at 22nd Street to signalize the CSX mainlines between CP 22nd Street and 16th Street.

Task 3.3 Bridge (viaduct) replacements and rehabilitation

The viaducts in this section are described from north to south. Because the track is elevated, the access road adjacent to the railroad tracks will be preserved, to facilitate movement of railroad vehicles for maintenance and security. Procurement will incorporate local hiring and training and maximize participation by disadvantaged business enterprises (DBEs). All replaced viaducts will feature sacrificial beams to protect the structures from over-height vehicle impacts and includes brush and vegetation removal. For the replaced viaducts north of Ogden Avenue, the proposed concrete abutments will be supported on driven steel piles behind the existing masonry abutments, as requested by the community to maintain the historical appearance of the original abutments. The

existing high-pressure sodium vapor lights under the viaducts will be replaced with modern, energy-efficient LED fixtures, consuming less than half the energy while providing greater illumination. The sequencing of the viaduct work will be planned to minimize impacts to in consultation with the community, including City of Chicago Aldermen and IDOT and CDOT requirements.

3.3.1 Replace UPRR structure over Fulton St. at Rockwell Sub MP 0.68

The existing three-span railroad bridge over Fulton Street will be replaced with a like design. The piers will be concrete founded on drilled micropiles. Fulton St. will remain at existing profile, be repaved and the sidewalks replaced under the bridge.

3.3.2 Replace UPRR structure over Lake Street at Rockwell Sub MP 0.83

A new three-span through-plate girder and beam span railroad bridge will replace the existing three-span railroad bridge carrying the rail corridor over Lake Street and under the Chicago Transit Authority (CTA) Green Line heavy rail transit line. The piers will be concrete founded on drilled micropiles. Lake Street will remain at the existing profile, will be repaved, and the sidewalks replaced under the bridge.

3.3.3 Remove UPRR structure over Maypole Avenue at Rockwell Sub

The existing single span through-plate girder railroad bridge will be removed. The opening will be filled to close Maypole Avenue and the railroad track replaced. The roadway will be modified to become a cul-de-sac on either side of the tracks.

3.3.4 Replace UPRR structure over W. Washington Blvd. at Rockwell Sub MP 0.93

A new single-span through plate girder railroad bridge will replace the existing single-span railroad bridge over Washington Boulevard.

3.3.5 Replace UPRR structure over W. Warren Boulevard at Rockwell Sub MP 0.99

A new single-span through plate girder railroad bridge will replace the existing single-span railroad bridge over Warren Boulevard.

3.3.6 Replace UPRR structure over W. Madison Street at Rockwell Sub MP 1.06

A new single-span through-plate girder railroad bridge will replace the existing three-span railroad bridge. The street will be repaved, and the sidewalks replaced under the bridge. The elimination of piers in the new bridge design will enable widening of the pedestrian sidewalks.

3.3.7 Replace UPRR structure over Monroe Street at Rockwell Sub MP 1.12

A new single-span through-plate girder railroad bridge will replace the existing single-span railroad bridge. The concrete abutments will be supported on driven steel piles behind the existing masonry abutments.

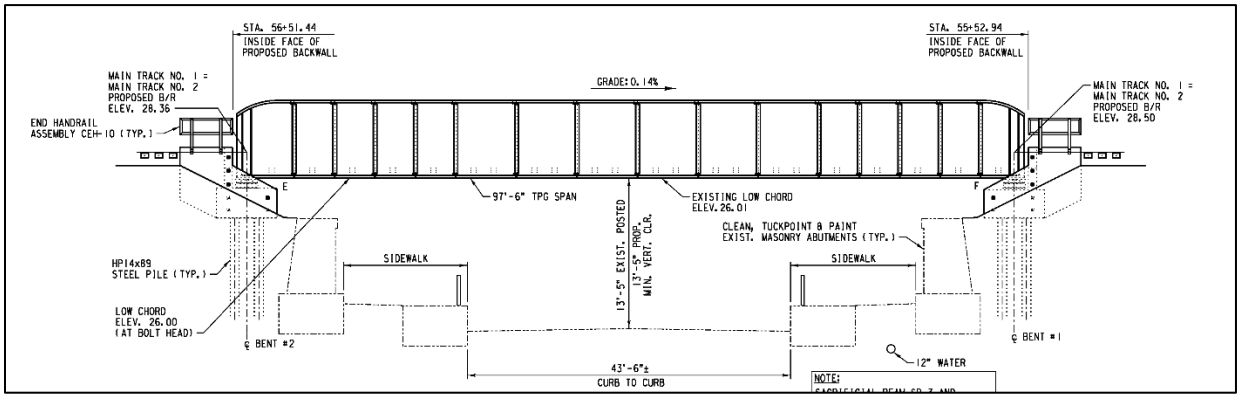


Figure 11: Illustration of potential for sidewalk widening with pier removal at Madison

3.3.8 Replace UPRR structure over W. Jackson Boulevard at MP 1.31

A new single-span through-plate girder railroad bridge will replace the existing single-span railroad bridge.

3.3.9 Replace UPRR structure over W. Van Buren St. at Rockwell Sub MP 1.41

A new single-span through-plate girder railroad bridge replaces the existing single-span railroad span. The existing concrete pier between Van Buren Street and the Eisenhower Expressway will remain in place and support the other side of the proposed span.

3.3.10 Improve UPRR structure over Eisenhower Expwy (I-290) at Rockwell Sub MP 1.42

Steel deck modifications will be made to the existing bridge, allowing for the realignment of the freight rail tracks. The deck will be treated with new waterproofing.

3.3.11 Replace UPRR structure over W. Congress Parkway at Rockwell Sub MP 1.48

A new single-span through-plate girder railroad bridge will replace the existing bridge over Congress Parkway. The concrete piers between Congress Parkway and the Eisenhower Expressway will remain in place and support the other side of the replaced span.

3.3.12 Replace UPRR structure over Harrison Street at Rockwell Sub MP 1.56

A new single-span through-plate girder railroad bridge will replace this bridge.

3.3.13 Replace UPRR structure over W. Polk Street at Rockwell Sub MP 1.75

A new single-span through-plate girder railroad bridge will replace the existing bridge.

3.3.14 Replace UPRR structure over W. Taylor Street at MP 1.87

A new single-span through-plate girder railroad bridge will replace the existing railroad bridge. The proposed bridge carries three tracks at this location.

3.3.15 Improve UPRR structure over Roosevelt Road at Rockwell Sub MP 2.06

Steel repairs will prepare the bridge to accommodate the realigned freight railroad tracks. The bases for the existing steel bent columns will be replaced and repairs made to the existing steel bent elements. The sidewalks will be repaired in the areas of the column bases.

3.3.16 Replace UPRR/CSX/NS structure over Ogden Avenue

A new three-span beam span railroad bridge will replace the existing six-span railroad bridge. The new bridge will carry six freight railroad tracks. The concrete piers will be supported on driven steel piles. Sidewalks beneath the bridge will be replaced, and the roadway resurfaced. Piers encroaching on the sidewalk will be eliminated, allowing more space for pedestrians.

3.3.17 Remove CSX/NS structure over 15th Street

The existing four-span beam span railroad bridge at this location will be removed and the opening filled. The roadway will become a cul-de-sac on the east side of the railroad and a curb end treatment on the west side. The water and sewer lines under the railroad will be modified and replaced in steel or concrete encasement for burial in the fill. Streetlights will be added at the cul-de-sacs and landscaping performed.

3.3.18 Replace CSX/NS structure over 16th Street

Two-span beam span railroad bridges will replace the four-span railroad bridge, carrying four tracks. The concrete abutments will be supported on driven steel piles. The concrete piers will be supported on drilled micropiles. Sidewalks will be replaced, and the roadway resurfaced.

3.3.19 Project Closeout and Final Performance Report

A final grant project performance report will be submitted within 90 days of the end of the grant's period of performance, describing the cumulative activities of the project, including a description of the achievements of the construction project objectives and milestones. Performance measurement activities, to be agreed upon, will continue following closeout.

3.3.20 Community Engagement Tasks

Community engagement by CREATE partners is an ongoing feature of the relationship between the operating railroads, state, local units of government and the residents within project vicinities. This will occur before and through construction and beyond and is underway in anticipation of the project. Specific tasks will include community briefings to inform residents and secure feedback before, during and after construction. Neighborhood enhancements will be prioritized based on community priorities. Engagement will include measures to attract participation in economic opportunities associated with the project, and to create training and employment opportunities for local workers and businesses.

Build scenario benefits & beneficiaries

The project build scenario will see this heavy-haul rail corridor and all the structures brought to a state of good repair with an improved level of operational capacity in terms of speed and fluidity, increasing freight mobility for the nation and region. The design of all track elements is to AREMA and railroad standards to accommodate projected long-term traffic loads of freight trains in heavy haul service transporting railcars of up to 286,000-lbs gross weight using modern six-axle road locomotive motive power. The structures are designed for Cooper E80 live loading. This corridor does not carry passenger trains or hazmat at levels that would require positive train control. The FRA operating track class designation will rise from 1 (up to 10 mph) to 2 (up to 25 mph). The railroads using the corridor will benefit operationally from the continued availability of the most efficient routing option. This will extend to the entire Terminal, as scarce capacity on alternative routings will be preserved, enhancing the resilience of the Terminal in the face of future disruptions, such as through demand surges or extreme weather events. Rail customers will benefit from avoidance of increased delay that imposes logistics costs, particularly inventory-related costs. When shippers face longer transport times, or uncertainty in delivery timelines, they will raise their inventory levels to ensure uninterrupted manufacturing operations or customer service. This can result in higher pricing of goods. Preserving the optimal routing option over the corridor improves safety by avoiding unnecessary out-of-route freight rail mileage. Dangerous trespassing and train theft incidents will be greatly reduced. This project will protect and preserve a key STRACNET route over which large amounts of military equipment and material would have to pass in the case of a major overseas conflict.

CREATE program context

The Ogden Junction Project is part of the Western Avenue Corridor, a sub-program of projects within CREATE. The Western Avenue Corridor consists of eight rail projects distributed along Western Avenue from Garfield Park at the Ogden Junction Project in the north, south across the Ship Canal to the South Side and Marquette Park. Four of these projects have been completed and one is under construction. Of the remaining three, Ogden Junction is the farthest along, has nearly finished Phase II engineering that will bring it to readiness for construction. The remaining two, includingWA11 at Dolton, are fully funded, finishing final design incorporating Illinois Commerce Commission changes and will start construction in 2023. WA7 near Brighton Park finished Phase I but Phase II design is on hold due to changes in business activity on the proposed connecting route.

These projects complement one another but Ogden Junction has full independent utility. The benefits case presented in this application is specific to the Ogden Junction Project.

The local community will benefit from opportunities to secure good-paying, project employment. These project opportunities can – and have - led to railroad employment in meaningful positions that provide career development, including a wide array of union jobs with many rail employers in the Chicago area. The improvements to the viaducts will maintain critical east-west connectivity between neighborhoods, enhancing the experience for motorized and non-motorized road and sidewalk users, facilitate connections to transit, improving aesthetics of the infrastructure, and supporting community efforts to bring development, jobs and housing to the neighborhood. Air quality gains in the region will be preserved because significant additional emissions from rerouted and delayed trains will be avoided, emissions that will occur in the absence of the Project.

2. PROJECT LOCATION

Location and freight rail connections,

The Project is in Chicago, Cook County, Illinois, an urbanized area. The northernmost point of the Project is by station Kedzie at the UP Rockwell Subdivision's MP 0.0, just north of West Fulton Street. The project southern limits are just south of West 16th Street, at the interconnection of three railroads called Ogden Junction. The project is bounded by South Rockwell Street to the west and South Western Avenue to the east. The project corridor is centered on longitude 41.8754264665, latitude -87.69157219661. UP's Global 1 intermodal terminal connects to the corridor.

Demographics and jurisdictions

The project occurs within the jurisdiction of the Chicago Metropolitan Agency for Planning (CMAP), the FRA's Region 4, EPA Region 5 and IDOT District 1. The construction footprint is within Illinois' 7th Congressional District. The project footprint is within Historically Disadvantaged Communities: tracts 8371, 8367, 8378, 8374, 2808, 2827, 8433, 8429, 2916, 8412 and 8368. Of these, all except 2916 and 8412 are also Areas of Persistent Poverty. There are three Opportunity Zones on the project alignment: 17031843300 (poverty rate 46%, unemployment rate 24.6%), 17031842900 (poverty rate 42%, unemployment rate 25%) and 17031280900 (poverty rate 47%, unemployment rate 27%). Another 16 such zones lie within less than a mile.

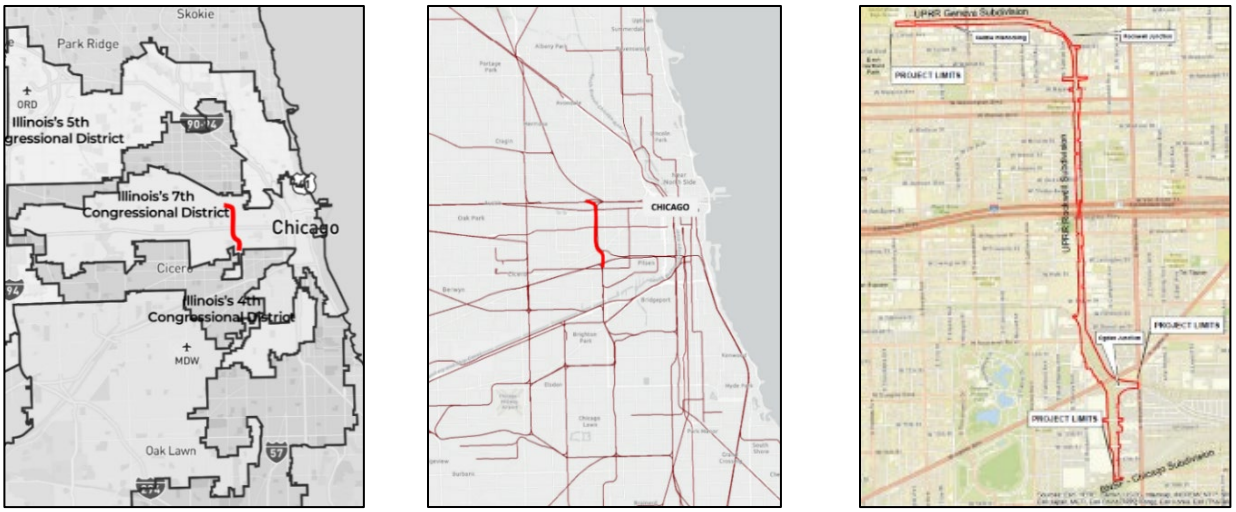


Figure 12: Project location maps

Community transportation connections

The Project corridor is fully grade separated from road traffic, with viaduct structures carrying the railroad over 20 roads. These roads range from local streets to a major interstate highway, I-290. The viaducts provide critical connections enabling community access to mass transit connections offering one-seat rides to a huge swath of the city. The corridor is carried over the CTA Blue Line at the viaduct over I-290, with the viaducts at Van Buren, Congress and Harrison providing east-west access to CTA's Western Station.

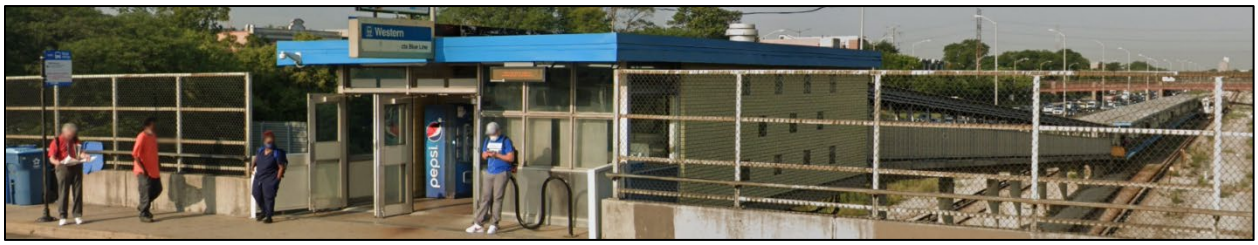


Figure 13: CTA Blue Line Western Station adjacent to the Congress Parkway viaduct

The corridor also runs under the CTA Green Line at the West Lake Street viaduct providing east-west access for users of that transit rail station. The UP's connecting Geneva Subdivision hosts Metra commuter rail service, the UP-West commuter rail line. The viaducts at Lake and Fulton provide community connectivity to nearby Metra stations at Kedzie (UP-W) and Western Avenue (MD-N, MD-W, NCS lines). Several viaducts host CTA east-west bus services. CTA route 20 operates along Madison Street, 126 along Jackson Blvd, 7 along Harrison, 12 along Roosevelt Road, and Routes 18 and 157 along Ogden Ave. One block to the east, Western Avenue, running north-south, hosts routes 18, 49 and the limited stop service X49. Two blocks to the west, California Avenue hosts bus route 94, also providing north-south connectivity. Viaduct streets Lake, Washington, Warren, Jackson, Roosevelt have dedicated cycling lanes or are designated cycling friendly.

Figure 14: CTA Green Line over the Lake St. viaduct looking west to Lake Street Station.

The southern end of the project area features important job and service centers including the Mt. Sinai, St. Anthony and Schwab hospitals, Lagunitas Brewery and the Cinespace Chicago movie studio complex. The immediately adjacent 161-acre Douglass Park provides sports complexes, lakes and green spaces.

3. PROJECT PARTIES

The public and private parties involved in delivering the project or contributing to it include:

IDOT is an agency of the state of Illinois, home to 12.8 million persons. IDOT is a provider of non-federal matching funds and is responsible for oversight of the NEPA environmental process as it relates to the CREATE projects.

The **Cook County Department of Transportation and Highways** is an agency of Cook County, home to 5.1 million persons, and a partner in project planning and coordination and a provider of non-federal matching funds.

CDOT is an agency of the City of Chicago, home to 2.7 million persons, and a partner in project planning and coordination and a provider of non-federal matching funds.

Metra provides commuter rail services in the Chicago region. Metra employs over 2,800 persons, 2,400 of whom are covered by collective bargaining agreements. Metra operates nearly 800 trains per day in the region. Metra is a provider of non-federal matching funds.

Union Pacific Railroad (UP) is a Class I freight railroad, serving 23 states, operating 32,452 route miles of railroad track, with over 32,000 employees and 10,000 customers. 83% of UP's workforce is under collective bargaining agreements. A large part of the project occurs on infrastructure owned and operated by UP. UP is a key partner in project development and management and a provider of non-federal matching funds.

Norfolk Southern Railway (NS) is a Class I freight railroad operating 19,300 railroad route miles with more than 18,000 employees, 80% of whom are covered by collective bargaining agreements. A portion of the project occurs on infrastructure owned and operated by NS.

CSX Transportation (CSX) is a Class I freight railroad operating over 19,000 route miles of track, employing more than 20,900 persons of which 16,500 are covered by collective bargaining agreements. A portion of the project occurs on infrastructure owned and operated by CSX.

The **Association of American Railroads** (AAR) is a partner with the freight and passenger railroads and agencies participating in CREATE and this project, assisting in the communication, coordination and cooperation between the railroads and agency partners to get all projects through the environmental review, through detailed design and to construction.

Organized rail labor: All railroad field work performed on this project will be by 100% union railroad employees. This includes all track and signal construction. These employees are represented by unions, including the Brotherhood of Maintenance of Way Employees and Brotherhood of Railway Signalman.

Organized labor through contractors: Just under 75% of the spending on this project will be on civil contracted work to replace or rehabilitate viaducts and some associated grading. Historically, CREATE project contractors have been 100% unionized. The work performed by the contractors will be carried out by 100% union workers. These workers, including those representing skilled and semi-skilled laborers, equipment operators and a range of specialty craftspeople, are expected to include members of the Laborers, Steel Workers, Electrical Workers and Heavy Equipment Operators, just to name a few. All contractor employees will be covered by Davis-Bacon Act (23 USC 113) payment of prevailing wage rates. See the provided letter from the Chicago Federation of Labor, documenting support from Chicago-area organized labor for this project. The CFL represents 300 affiliated unions and 500,000 union members across Chicago and Cook County.

Federal oversight: CREATE program Federal oversight is provided by the FHWA Chicago field office. FHWA reviews all CREATE project environmental and engineering documents, project scopes, schedules and budgets to ensure all projects remain eligible for federal finds. FRA is actively engaged in oversight of all CREATE projects involving FHWA and FRA funds as well as other non-federal funding sources.

4. GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDS

This project has been in development since 2005. The total cost is $176.6 million. The future eligible project costs are $170 million. All costs are denominated in year of expenditure (YOE) dollars. The

partners have committed $100 million in non-federal matching funds. The matching funds will be available upon award. The balance of $70 million is the request for federal funding sought from the INFRA program. The grant will enable completion of the entire project.

PROJECT WORK PACKAGES (USES OF FUNDS)	PREVIOUSLY INCURRED COSTS	FUTURE ELIGIBLE PROJECT COSTS			TOTAL PROJECT COSTS	AS % OF TOTAL
		SOURCES OF FUNDS		TOTAL FUTURE ELIGIBLE PROJECT COSTS		
		Non-Federal	Federal			
		Partners: UP, CSX, NS, Metra, IDOT, Cook County & CDOT	MPDG			
Preliminary Design & Environmental ("Phase I")	$ 160,000	$ -	$ -	$ -	$ 160,000	0.1%
Design ("Phase II") and ROW	$ 6,527,756	$ -	$ -	$ -	$ 6,527,756	3.7%
Construction ("Phase III")	$ -	$ 99,955,432	$ 70,000,000	$ 169,955,432	$ 169,955,432	96.2%
TOTALS	$ 6,687,756	**$ 99,955,432**	**$ 70,000,000**	**$169,955,432**	**$176,643,188**	100.0%
As %		58.8%	41.2%	100.0%		

Figure 15: Project sources and uses of funds

The budget includes a 10% "confidence of estimate" contingency on the estimate base costs, prior to inflationary escalation to projected YOEs. A management reserve of 5% is added on the YOE cost estimate to cover risk of a change in scope although none is anticipated. The partners are monitoring cost trends on their other capital projects and feel that these contingencies are sufficient to mitigate budget risk. In the case that project costs exceed the budgeted amount with contingency, the partners commit to absorb the additional costs. The partners have control over their respective sources for the non-federal matching funds offered and these commitments are not contingent, conditional or limited in time. An application seeking $70 million in funding for this project was submitted to the FRA through their FY 2021 Consolidated Rail Infrastructure and Safety Improvements (CRISI) program. $400,000 is allocated in the project budget for community improvements, to be deployed in the vicinity of the project in consultation with community organizations and leadership.

5. PROJECT OUTCOME CRITERIA

5.1 Safety

Avoided at-grade crossing conflicts in the Chicago Terminal

The current routes including the project segment and the diversion routes within the Chicago Terminal contain similar numbers of at-grade crossings, 38 and 39, respectively. Their characteristics differ, in terms of highway traffic demand, and the projections of daily per day in the scenarios. FRA's GradeDec modeling software was used to calculate the impacts of the scenario differential in impacts on these crossings. 71st Street was excluded from this analysis as it is fully funded for near-term grade separation. There were disbenefits created at crossings seeing a reduction in train traffic diverted away and benefits at crossings receiving those diverted trains, in the sense that those net diversion costs are avoided in the build scenario. We estimated the net benefits at be $5.5 million, including avoided costs such as accidents, motorist delay and emissions.

As an example of this dynamic, shown is an adjacent pair of crossings on the West line of the Indiana Harbor Belt railroad. This is just one of the diversion routes that would receive additional trains in the no-build scenario. This triple track rail line already hosts more than 47 daily trains interacting with 10,500 and 13,200 daily cars and trucks on 47th Street and East Avenue, respectively. In the no-build scenario, the diversion would cause this busy crossing to carry up to twenty additional trains per day by the end of the forecast period, several thousand freight trains in a year.

Figure 16: Adjacent IHB crossings that would host more trains in the no-build scenario

Safety benefits outside the Chicago Terminal

Thousands of additional freight trains per year would pass through hundreds of crossings along the reroute path in the no-build scenario, while generating almost 60,000 avoidable train miles over the analysis period. This would generate significant costs that are avoided by carrying out the project. There is a low but inherent level of risk associated with each freight train-mile operated. We calculated the additional train miles in the no-build scenario and their associated safety costs. Performing the project avoids $36 million in accident and incident costs outside of those occurring at-grade crossings.

Benefits from track switch automation

A net of nineteen new power switches will be installed in the project corridor and the number of hand-throw switches will be reduced. This will enable the through trains moving over the project segment to proceed without having to stop for employees to dismount, line switches, and reboard, the current procedure. This reduces train delay, as well as employee exposure to train operations and slip and fall hazards on the right-of-way. Due to the out-of-service scenario used in the BCA this impact is recorded as a disbenefit. If the segment is taken out of service in the no-build scenario, this operation would be eliminated. This calculation does quantify the impacts of this problem, which would be eliminated by the project. 160,000 hours of personnel time will be saved over the forecast period that would have otherwise been spent by train crews halting trains to manually line switches.

Avoided trespassing, pilferage and associated operational risks

Today, freight trains must halt on the project segment to receive permission from dispatch to proceed, and for train crews to manually line switches. After stopping, trains then proceed at a very slow speed over the corridor, under 10 miles per hour. The traffic on the line includes high value containerized goods, such as retail electronics. Regrettably, this has presented an opportunity for organized thieves who have, with some frequency, targeted trains. In these incidents, trespassers enter the elevated right-of-way, board the halted or slowly moving trains, break into the cars or containers, and unload merchandise to be transferred to vehicles waiting on surface streets. They have done this on halted trains and trains in motion. This activity presents an extreme hazard to the individuals carrying out the robberies, who could be crushed by moving rail equipment or injured while climbing on and off the elevated corridor. It also creates the potential for confrontation between trespassers and railroad employees. Perhaps the greatest hazard is causing unsecured equipment to protrude out of the train clearance envelope. Opened doors can swing outside of standard clearance envelopes, potentially impacting adjacent equipment. Loose merchandise may also fall out of the unsecured car and beyond the train clearance envelope. Freight trains share tracks with Metra commuter trains north and south of the corridor. Much of the rail infrastructure in the Chicago Terminal was designed centuries ago. The tolerances between tracks, wayside equipment and trains can be very tight. Protruding doors, equipment or dislodged merchandise could collide with the bodies of passing trains, including commuter trains, presenting substantial risk of injury to commuters and train crews. In a head-to-head pass, the combined velocity of such a collision might exceed 60 miles per hour. By regulation train crews must halt their train upon detecting any

unsecured railcar doors or protruding or dragging equipment. If this detection occurs, the safety issue is resolved, but at a cost of time and fluidity of operations. Due to limited lines of sight, lighting and environmental conditions, crew may not become immediately aware of a break-in, and this hazardous condition can enter the shared-use territory. The robberies also impose costs on shippers when their goods are pilfered or damaged in transit. By automating the dispatch and track switching procedure, train halts will be mostly eliminated. The average train speed will rise to well over 10 miles per hour. Together the new operating characteristics will eliminate these serious safety risks.

5.2 State of Good Repair

This investment brings the more than a century-old corridor to a state of good repair as a modern, high-capacity and reliable freight rail asset that preserves community connectivity. All the major vulnerabilities on this segment are addressed by this project, only routine maintenance will be required over the analysis period. The maintenance of the rail line and viaduct structures will be performed by the owning railroads out of their regular budgets. Local governments will be responsible for the improved municipal assets running through the viaducts.

Avoided maintenance costs

Railroad track and structure maintenance costs were evaluated over the analysis period as a function of freight train ton-miles. The tonnage of freight carried is the primary driver of maintenance expenditures to address degradation of rail, track material, crossties and structures. In the no-build scenario, trains shift from their current paths to the longer diversion paths, generating more ton-miles and a correspondingly higher level of maintenance costs. The differential in track and structure maintenance costs is a benefit estimated at $36 million over the 30-year forecast period.

Residual value of the improvements

The total project capital cost was allocated over the estimated operating lifespans of the assets to be constructed or improved, determined in consultation with the railroad engineering staff. The residual represents some of the benefits from the project that will continue beyond the 30-year analysis period, estimated to be $1.4 million.

Achievement of a state of good repair

The project corridor is an example of a large legacy infrastructure asset with many elements reaching the end of their useful lives. Thirteen of these viaducts are over 120 years in age. The project brings this heavily used corridor to a state of good repair with a new track configuration and capacity optimized for modern freight rail operations. This includes a centralized traffic control system in place of manual and verbal traffic control, and bridges (viaducts) built to modern standards with modern materials and engineering techniques. Rail lubrication equipment combined with a maintenance plan incorporating regular rail grinding, will maximize the lifespan of the new rail and track structure by reducing friction and maintaining proper rail profile, while reducing the noise from passing trains. In addition, the railroads have numerous Wheel Impact Load Detectors (WILD) to identify defective wheels and flat spots that contribute to wheel/rail interaction noise. When lubrication and WILD's are combined with a rail grinding program, as will be employed in this asset, noise emissions from the wheel-rail interface can be reduced, reducing exposure by rail personnel and the adjacent community. This project provides the foundation for this corridor to provide high-capacity service for up to another century while minimizing impacts on external stakeholders.

5.3 Economic Impacts, Freight Movement and Job Creation

Avoided impacts to supply chain reliability and goods transit time

The benefit-cost analysis is focused on the variable of delay in the Chicago Terminal. Delay – and congestion – are key metrics tracked ever since extreme snow events paralyzed the rail network in

1999. This affected rail traffic across the continent, with delays cascading across the national freight network, impacting thousands of shippers, including manufacturers and exporters. In subsequent years, heavy and repeated snowfalls resulted in severe rail congestion events. These incidents laid bare fundamental limitations in the capacity and resiliency in the Chicago terminal due to legacy track configurations and obsolescence of the infrastructure combined with increased demand and changed operating patterns. This weather-driven crisis was the genesis of the CREATE program. CREATE is designed to foster long-term freight supply chain resilience, including in the face of severe weather events that could increase in magnitude and frequency due to climate change impacts.

Today, the railroads, in partnership with the STB, state, county and local authorities, and other stakeholders, closely monitor and manage delay and capacity across this network. In our modeling, accrual of delay in the Chicago Terminal drove the cascading of trains across different alternate routes in the no-build scenario. When adding trains to a diversion segment tripped an accumulated delay threshold for that piece of infrastructure, the remaining trains for assignment would then be allocated to the next available, though even less optimal, rail path. The physical length of the current paths – the route miles - including the project segment, versus the diversion paths bypassing the project segment is very similar. But the delay characteristics of running up to 30 heavy freight trains per day on one set of paths versus the others are fundamentally different. Many variables come into play, such as total track miles, track configuration and directionality of junctions. The current paths involving the project segment are by far the most efficient way to move these trains through the Terminal with the least network delay and congestion. The interaction with passenger service also differs across paths, and the characteristics of operations at served facilities like yards coming on and off the mainlines vary. All these factors cause disproportionate growth in delay when freight trains are moved onto the diversion paths. Delay in the model represents the time diverted trains spend holding in idle, outside of junctions or crossings, waiting for a slot to open for passage. This incurs many costs. Crew and equipment time is one variable that is impacted, reducing the availability of these resources across the Chicago Terminal. Shippers are directly impacted by delay to their cargoes moving by rail. Increased costs to move a load between a given origin and destination will in part flow down to shippers as the freight operator must recover costs of transport to remain viable. When cargoes take longer to arrive, and especially when variability of freight rail transit time increases, shippers must respond by increasing their inventories to mitigate the risk of stockouts or halts in production lines. This increase in expenses ripples through the supply chain, ultimately some to customers, and reduces competitiveness of U.S. origin goods within the country and externally. In the model the costs of lost time from delays avoided by performing the project – some 4 million hours over the forecast period – keeping these trains on the most efficient route through the Chicago Terminal - was $966 million. Of this monetized value, just under half, $474 million, was attributed to logistics delay cost borne by rail shippers. The balance consists of rail equipment operating and personnel costs, including fuel consumption.

Ability to meet existing or anticipated demand

Demand for freight rail has been flat in recent years. This is in part due to secular declines in coal traffic, offset in part by growth in other categories, such as intermodal. The diversion model was run at a conservative 0.14% growth rate, reflecting the bottom of a range of historical indicators including continental rail traffic levels and physical rail system performance measures of the Terminal as reported to STB. The project segment is critical to the capacity of the Terminal. The model demonstrates this because, even at this extremely conservative level of forecast demand growth, a diversion case created enough unacceptable system delay within the Terminal that roughly four trains per day were forced “off-gateway” on a regional reroute. Higher growth rates were tested which forced higher numbers of diverted trains off-gateway. This speaks to the importance of the

project segment to overall capacity of the Chicago Terminal, which is the most critical node in the national freight rail network.

Community support, economic development and job creation efforts

This project is expected to create 260 full-time equivalent jobs between 2023 and 2028. The CREATE partners are heavily engaged in the region to help residents secure meaningful employment and develop their communities. These efforts seek to leverage opportunities like the Ogden Junction Project, incorporating activities to bring in candidates for project work that can lead to good-paying permanent jobs with the railroads, including union jobs.

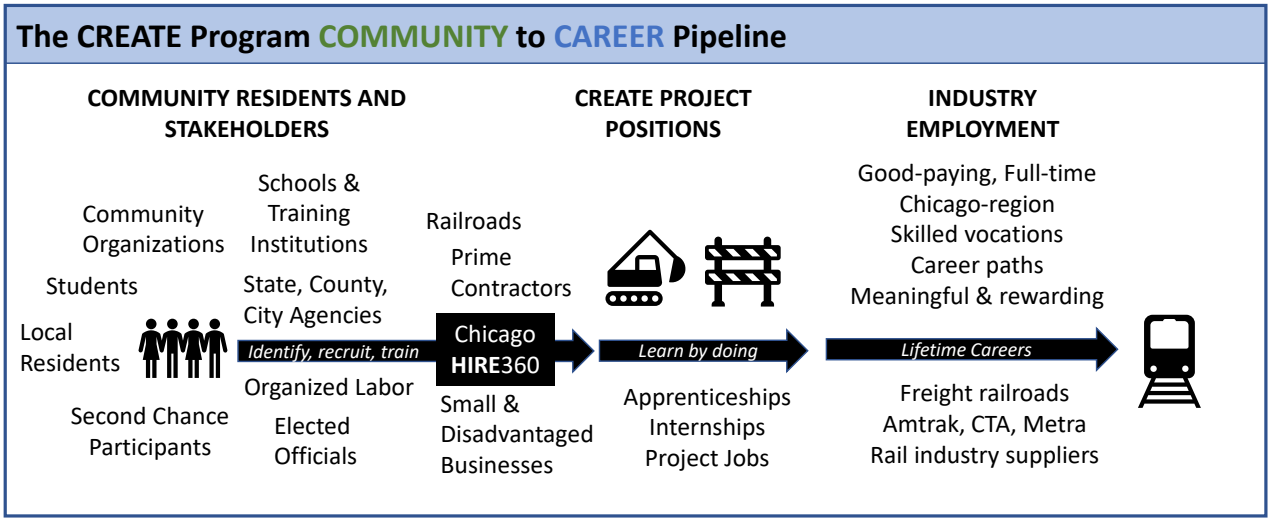


Figure 17: CREATE community to career pipeline

The contracted work element of the project will include outreach to support local hire in the communities around the project area, carried out in partnership with local community groups and elected officials.

The most recent data for the CREATE Program shows that disadvantaged business enterprise (DBE) participation on six completed grade separation projects achieved 19% of project value. CREATE grade separation projects in design are achieving DBE subcontracting goals exceeding 27%. Out of ten recent general rail construction projects, CREATE has achieved DBE participation goals of 23% exceeding a 21% target, representing $37 million in completed awards. Projects of this type under construction typically have goals set between 20% and 30% of

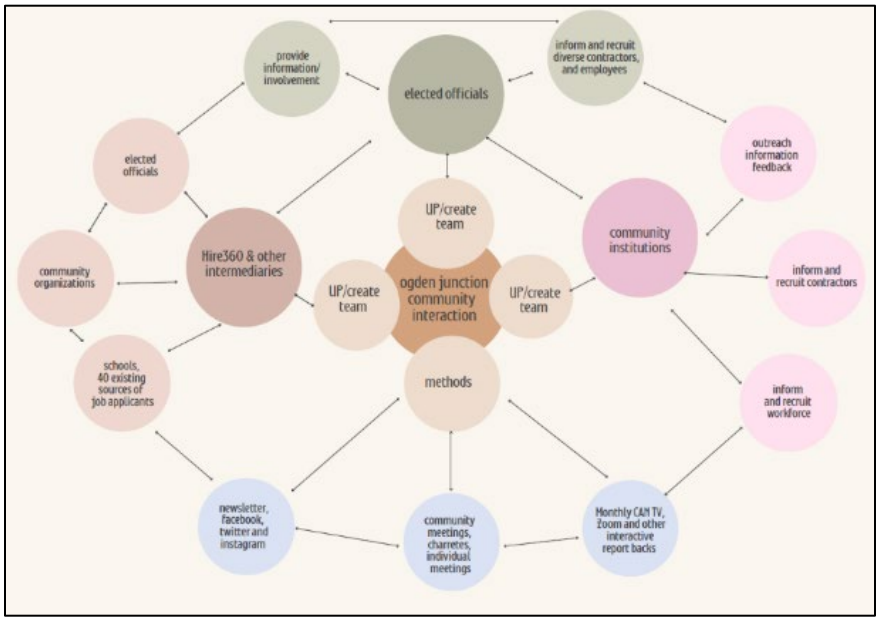


Figure 18: The community outreach network and process

spend. The CREATE partners are performing a procurement analysis for WA1 that will enable setting of project-specific construction DBE and local hiring goals, considering the technical capacity required to carry out the work and the capabilities of the firms in the market in the region. The Partners are working with Chicago HIRE360 on a collaboration to maximize community employment opportunities with this project, CREATE overall, and more generally in the broad rail industry sector in Chicago. HIRE360 is a public-private initiative to strengthen the workforce participation of underrepresented populations in Chicago, with a particular focus on bringing youth into the trades on a path to meaningful careers. The most recent CREATE Program workshop to recruit small and disadvantaged businesses and local workers to take advantage of program contracting and hiring opportunities was hosted in 2021. Another workshop will be held specifically in support of this project in preparation for procurement.

Supplementary analysis – corridor speed differential benefits

We conducted a supplementary analysis of the benefits from the project of increasing the speed on the project segment from an average of 6.5 mph today to 13 mph that is expected after the project. This generates $17 million in benefits from factors including reduced fuel consumption and emissions, crew, rail equipment and lading time. This is a different scenario than summarized in the BCA and not comparable within that model, so is not included in the net benefits or B/C ratio. This alternative view of benefits from increasing the speed limits relative to today's restrictions would be of value to reviewers.

5.4 Climate Change, Resiliency and the Environment

Climate change and emissions benefits

One element of resilience is reducing the burden of human activities on a system most important for the well-being of the global population – the climate. Performance of the project reduces time diesel locomotives spend idling producing emissions, as well as the time spent in motion (that generates significantly more emissions per unit of time) running over longer routes than they would in the project scenario. This avoids emissions of criteria pollutants such as fine particulates (over 154 metric tons), nitrous oxide (over 5,000 metric tons) and sulfur dioxide (over 1.8 metric tons), emissions with known impacts on human health. This is a particular concern for low-income and predominantly Black and Latino neighborhoods in Chicago that would be exposed to greater amounts of these pollutants if the project is not carried out. Locomotives also generate over 700,000 metric tons of carbon dioxide, a greenhouse gas contributing to climate change.

Based on prevailing winds in the Chicago area, the additional emissions produced on the rail diversion routes in the no-build scenario, which are west and south of the current routings, would be carried predominantly north and east over some of the most disadvantaged neighborhoods in the city, such as Lawndale, Garfield Park, much of the West Side. The communities to the west of the project segment diverge sharply and negatively from those to the east in every metric – life expectancy, poverty, health, emissions exposure and employment. It is particularly important to avoid the emissions from this diversion because these impacts will fall disproportionately on these communities. The linked metrics from the Chicago Health Atlas illustrates this geographic differential across nearly every metric of community well-being. The costs avoided by preventing this additional air pollution release thanks to the project represent a benefit to resident health, is calculated at $82 million. The EJ Screen reports attached to this application emphasize the sensitivity of many of the neighborhoods that would be impacted in the no-build scenario and the emissions reductions advantages of the project.

The City of Chicago recently announced their 2022 Climate Action Plan (CAP) targeting a reduction in the City's carbon footprint of 62% by 2040. The Ogden Junction Project supports several CAP

goals by bringing the viaducts to a state of good repair that facilitate community equitable access (goals 2 & 3) to low or no-emission bus and rail transit options and by supporting environmental justice for disadvantaged residents of color through avoidance of an increased pollution burden. The CAP proposes strategies for diverse workforce development, procurement and contracting strategies, aligned with the workforce development and monitoring approached proposed for this project.

The replacement of high-pressure sodium vapor (HPSV) lighting in the underpasses with 83 new LED fixtures will save almost 75,000 Kilowatt hours per year in energy expense for the city while providing brighter illumination for pedestrians. These LEDs are expected to have a lifespan of over ten years when compared to about six for HPSV fixtures, further reducing operation and maintenance costs.

Fuel consumption reduction benefits

Project stakeholder Union Pacific updated their Climate Action Plan in 2021 with a **Serve, Grow, Win, Together** strategy. This project supports the **serve** element (page 8) by avoiding unnecessary fuel consumption during reroutes, a logistics efficiency benefit but also the driver of the emissions benefits. This project avoids over 50 million gallons of diesel fuel consumption over the analysis period that would otherwise be incurred due to rerouting of trains. Reducing unnecessary locomotive miles helps railroads transition their motive power fleets to a greater share of more efficient units utilizing energy management system (EMS) technologies. The **Together** element (page 15) is reflected in the integration of a community engagement and partnership approach to this project, from inception to post-completion, ranging from identification and mitigation of project impacts, maximization of benefits to the residents, including efforts to leverage the project for local job creation and economic development.

5.5 Equity, Multimodal Options and Quality of Life

Improved integration with other modes

This project is on a rail corridor that only carries heavy haul freight trains but is critical to the adjacent modes. This corridor serves as the northern route in and out of the Global 1 intermodal terminal, a major facility for truck to rail freight transfer. The loss of the corridor in the no-build scenario forces Global 1 traffic to route to and from the south of the facility. This diversion of trains in- and outbound at Global 1 accounts for some of the accumulated delay and impacts in the model.

There are important multimodal accommodation characteristics of the traffic diversion model approach that was taken. First, diverted trains were not permitted to be assumed to halt and idle waiting for slot clearance in a block that would trigger at-grade crossing gates. This reduces available capacity for that train on that line and so increased delay. The diverted freight trains were not allowed to increase at-grade crossing impacts. Second, the delay in the model was not allowed to increase on any diversion routing to a level that would be thought to trigger shippers to redirect their cargoes from rail-rail interchange to rail – rubber tire – rail interchange or earlier diversion to truck for longer drays. Third, diverted freight trains were not allowed to impact existing intercity and commuter rail services. They had to route around the rail capacity in the Chicago Terminal that is absorbed by those operations. The model was designed to follow the CREATE partners' rules for operating the Chicago Terminal. The freight rail traffic must operate around the other modes and bear the cost of doing so. In this way the delay calculations represent the cost of not interrupting other modes borne by the freight railroads attempting to deal with the no-build scenario and the loss of the Project segment.

Commuter rail on-time performance impacts

The limitations of the project segment today have a specific impact on Metra. The UP-W line runs from Elburn in Kane County east to Downtown Chicago, 44 miles. This service is operated by UP for

Metra over the Geneva Subdivision. The line connects with the project segment at the wye between the Kedzie and Ogilvie stations, where freight trains passing through the project area transition on or off the Geneva Subdivision. Due to slow freight train speeds, and halts for manual dispatch and for crews to line switches, the movement of the freight trains between these subdivisions has variability that can conflict with the scheduled commuter train windows. The result is that commuter trains must slow or stop to accommodate delays in the planned movement of freight trains. Detailed station passenger count surveys found an average of 409 riders per train in 2019 on the junction segment, with this service carrying 7.8 million annual passenger trips in that year. Metra and UP track on-time performance (OTP) incidents. All delays to UP-W trains resulting from freight rail operations that deviate more than 6 minutes from the Metra timetable targets are logged. In 2019, a typical pre-pandemic year, there were 60 recorded delays caused by the project segment. UP dispatch estimates that delays of less than 6 minutes occur at a rate of 20% of the logged 6-minute threshold incidents, for a total of 72 incidents that year, with non-reportable incidents averaging 3 minutes and reportable incidents on average slightly over 6 minutes. These delays are estimated to have cost UP-W riders collectively some 2,697 hours of lost time in 2019, the last pre-pandemic year of normal service. The BCA approach taken removes the project segment from service in the no-build scenario. Because of this, future costs of these delays are calculated as a disbenefit. This analysis does quantify for the reader a negative impact experienced by Metra users due to the poor infrastructure conditions, one that this project would mostly remedy in the build case. With completion of the project a 75% reduction in these freight train-caused Metra OTP incidents at the junction is anticipated. This would translate to just under 90,000 passenger hours of delay avoided over the analysis period, based on a conservative UP-W ridership growth forecast of 1.2%.

Viaduct closures and community connectivity

Two of the viaducts along the corridor, at Maypole Avenue near the northern end of the project area and at 15th Street near the southern end will be closed as part of the project. The decision to close and fill these viaducts was made with thorough community stakeholder consultation to ensure community connectivity would not be negatively impacted by the closures.

Figure 19: Viaducts adjacent to Maypole Ave.

The viaduct at Maypole Avenue serves a short, low traffic residential street that is not used for through access within the community. It is located approximately 250 feet (less than a minute walking distance) from Lake Street to the north and Washington Boulevard to the south, both of which have viaducts that will remain open. As part of the project both adjacent viaducts will receive improved lighting and rebuilt sidewalks. The viaduct at West 15th Street is in a formerly industrial neighborhood – which is now home to a gated movie studio and Lagunitas Brewery – both accessible from the west, north and south. In 2019 the segment of 15th Street immediately west of the viaduct was vacated at the request of the adjacent property owners and closed to public access. This street vacation rendered the viaduct structure obsolete, and the remaining segment of 15th Street to the east of the viaduct was reconfigured with a cul-de-sac. The portion of the street under the railroad structure was fenced off and closed to all public access. Given this existing closed state, no negative community impact is anticipated from removing and filling this viaduct. At these locations, the WA1 project will reconstruct the affected local streets with standard cul-de-sac treatments to accommodate motor vehicle turnarounds, and provide new sidewalks, drainage, street lighting, connecting alleyway improvements, and landscaping.

Equitable economic strength and improving core assets

The Ogden Junction Project, which divides the prosperous downtown and developing west Loop areas from the neighborhoods to the west, provides a long-awaited opportunity for the economic recovery of the West Side of Chicago and its residents. The communities west of the Rockwell Corridor are some of the city's poorest with the highest unemployment and poverty rates in the city. Compounding the challenge for these communities has been the exodus of thousands of jobs – and with that exodus, the abandonment of buildings, shops and homes.

The Ogden Junction project provides a chance for economic improvement for the West Side – an opportunity unparalleled in decades. The replacement of 100-year-old foreboding viaducts with well-lit and open passageways for cars, bikes, and pedestrians will facilitate and encourage greater movement between east and west. And, the estimated $100 million in construction, outside of the laying of rail and building of bridges can bring new resources and economic opportunity to this long-under-resourced part of the city. The partners in Ogden Junction have already reached out to public, union and community-based partners and begun to create an infrastructure to inform, recruit and train a diverse workforce and at the same time reach out to a more diverse set of contractors eager to have the opportunity. In addition, unbeknownst to visitors, and likely unknown to most Chicagoans, the west side of the city boasts some of the nation's most beautiful parks and boulevards. Designed by great park designer Olmstead, these parks and boulevards are the ring that inspired Chicago's motto of "city in a garden" – the opening and restoring of the viaducts will make it more attractive for visitors to appreciate the city's hidden gems.

5.6 Innovation Areas: Technology, Project Delivery and Financing

5.6.1 Innovative Technology

This project employs proven technologies and practices determined to be the most reliable means to deliver the operational outcome and benefits for the collective stakeholders. The technologies applied – modern bridge design, centralized traffic control and friction management - are significant improvements, but they are well-established and proven solutions. The viaduct lighting, similarly, is a significant upgrade that replaces high-pressure sodium vapor lamps with light-emitting diode lamps. With increased luminosity and less than half the energy consumption, the LED fixtures are a tremendous improvement, albeit a technology that has been in use for public lighting for some time.

This asset and its operations are and will be protected by a robust cybersecurity framework. AAR and the freight railroads have been performing industry coordination on cybersecurity practices and protection through the AAR's Rail Information Security Committee (RISC) for many years. RISC procedures will be followed in the procurement of information technology for the project and subsequent operations. This mechanism and the railroad implementation is fulfills and expands on the effective practices outlined in Executive Order 14028: Improving the Nation's Cybersecurity. AAR Members work closely with USDOT, USDHS, TSA and CISA to comply with all applicable laws and regulations and ensure the information technology systems supporting rail operations are protected from disruption.

5.6.2 Innovative Project Delivery

The project delivery method is design-bid-build. This approach has successfully delivered multiple CREATE projects on time and within budget. Project financing will be carried out through traditional approaches between the partners. The procurement process for the contracted portion of the project will request that bidders provide their proposals to include methods to maximize the efficiency of the construction and minimize the interruption to rail traffic and motorized and non-motorized traffic through the viaducts. This may include proposals for different approaches in terms of advanced bridge construction methodologies and will include traffic management plans. The CREATE

partners fully support review of any value engineering recommendation made by the contractor to reduce costs during construction.

5.6.3 Innovative Financing

Please see the section on funding. The funding plan offers a high degree of overall leverage between the public and private providers of a total of $100 million non-federal match, which far exceeds the minimum match requirement of 40% of total project cost. This includes a high level of private participation. Half the match comes from private freight railroad partners.

6. BENEFIT-COST ANALYSIS

Approach of the build/no-build scenario

The benefit case for the proposed Project assumes that, in absence of the proposed investments the Project Segment is taken out of service due to poor bridge conditions. In this "no-build" case, the freight trains are rerouted onto the next most efficient paths in the Terminal with capacity. This diversion analysis was performed under key constraints:

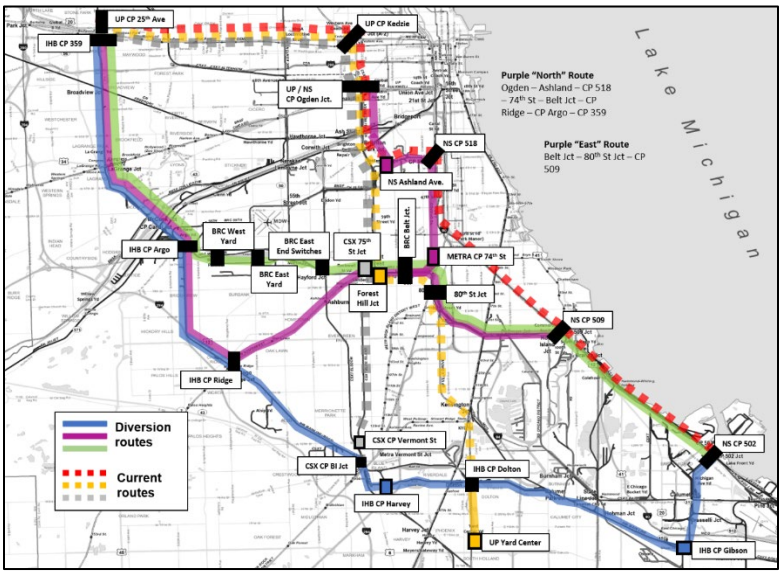


Figure 20: Build/no-build cases current and diversion routings

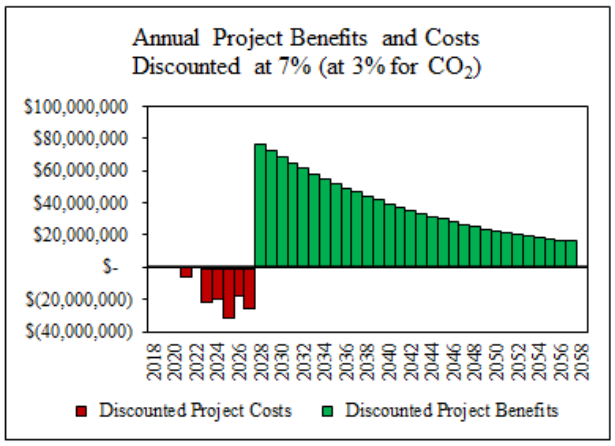
1. Diverted freight rail traffic must accommodate any Metra or Amtrak passenger services; freight trains are not allowed to interfere with passenger trains.
2. Diverted freight rail traffic would not operate in a fashion that would result in increased gate down time at crossings, such as by slower movement or halting within crossing blocks.
3. Delay on the line or in the Gateway was not allowed to accrue to such a degree as to potentially flush cargoes off of rail and onto truck that otherwise would have remained on rail. For this reason, this is a "rail only" diversion case. Creation of an operational scenario that would push tens of thousands of trucks onto the urban road network was assumed to be unrealistic.
4. Aggregate amounts of train delay within the Chicago Terminal would not be allowed to rise to the level of triggering STB "circuit breakers" established to monitor fluidity and efficiency of the Gateway.

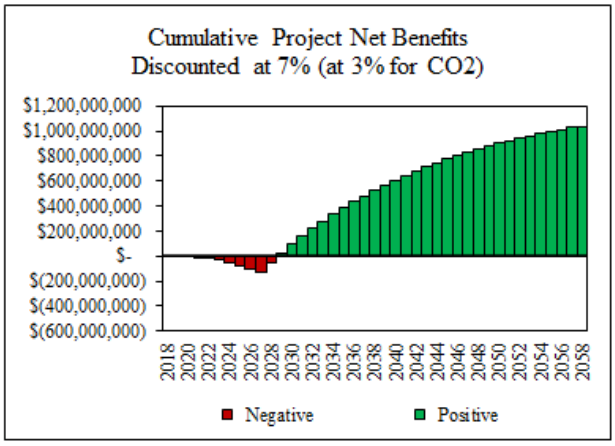
The primary output of the diversion analysis is increased delay accrued within the Gateway. Initial routings were selected through corridor level analyses to determine which pathways could viably accommodate diversion without accruing unacceptable levels of delay. Not all pathways in the Gateway can accept any additional trains due to current capacity or physical constraints. Of those that could accept diverted trains, they were unable to accept all trains before the aggregate delay threshold was reached. The additional volume, some 4 freight trains per day, was assumed to be driven "off Gateway" during their long-distance trajectory. A routing between Elkhart, IN and North Platte, NE via Kansas City rather than Chicago, was identified as a proxy for the wide range of routings that might be chosen by network traffic management teams. The outputs driving the costs

accordingly were time and distance. Time measured included delay time accrued within the Gateway when trains were halted awaiting a slot to proceed. Time in transit was also analyzed, identifying the additional time trains would spend moving in diversion, within or outside of the Gateway. Distance was also evaluated, where trains would take different or longer paths due to diversion than they would have in the project build case. Speed in the diversion model was another constant. It was assumed that current operating speeds would not be allowed to decline to accommodate diverted traffic, in part because of the constraints on not impacting passenger traffic or grade crossings through the diversions. This "rail only" diversion case is conservative. The traffic growth rate was set at 0.14%, the bottom range of recent historical national and Gateway-specific physical volume indicators. This projection can be thought of a presenting an accounting in a major part of the costs that would accrue to railroads, shippers and the public in the situation where the segment is lost and the railroads are the entities primarily absorbing the impacts in order to preserve the fluidity and capacity of the Chicago Terminal for all modes, while avoiding massive public costs that would be seen if interference with passenger rail or truck diversions were allowed, or excessive delay accrued. This approach imposes significant costs on the railroads and shippers, as can be seen quantified in the benefit-cost analysis. It mitigates impacts to the public of a diversion scenario, but does not eliminate those costs, which remain substantial.

Benefits summary

The detailed benefit cost analysis developed in support of the application for funding shows that the proposed project will result in significant benefits to the operation of the railroad and to the public. The analysis identified $1 billion in discounted net benefits over the 30-year forecast period with a benefit-cost ratio of 9.75.





Project benefits and costs by category, diversion case		Present value (2020$)
Costs	Construction costs	$ (118,215,139)
Benefits	**Time value factors**	
	Locomotive delay costs avoided, network average train	$ 175,028,685
	Freight car delay costs avoided, network average train	$ 168,388,528
	Intermodal equipment delay costs avoided, network average train	$ 12,840,084
	Train crew delay costs avoided, network average train	$ 144,414,257
	Lading time cost of delay avoided, network average train	$ 474,798,784
	Total freight rail emissions costs from delay, avoided, ex CO2	$ 38,147,542
	Total freight rail emissions costs from delay, avoided, CO2 only	$ 18,370,177
	Total freight rail emissions costs trains in motion, avoided, ex CO2	$ 18,297,627
	Monetized (metric tons), CO2 emissions, trains in motion, avoided	$ 8,368,929
	Distance value factors	
	Railroad track maintenance costs due to diversions, avoided	$ 37,021,430
	Non-crossing railroad safety impacts, avoided	$ 53,389,273
	At-grade crossing factors (net)	
	Current routes crossing impacts	$ (7,755,300)
	Diversion routes at-grade crossing impacts	$ 13,266,780
	Build scenario foregone benefits (disbenefits)	
	Avoided commuter rail crew and passenger time saved from delays	$ (433,234)
	Avoided freight crew time saved from automated switches	$ (1,939,700)
	Residual, O&M and construction impacts	
	Residual value of assets at end of projection	$ 1,391,075
	Total cost of construction emissions ex. CO2 (disbenefit)	$ (749,246)
	Total discounted benefits	$ 1,152,845,691
Total discounted net benefits		$ 1,034,630,552
Benefit-to-cost ratio		9.75

Figure 21: Benefits summary charts and table

7. PROJECT READINESS AND ENVIRONMENTAL RISK

7.1 Technical Feasibility

The project is technically feasible and is designed to be constructed with conventional railroad construction materials. the cost estimate it's based on a combination of the railroads value of force account work for track and signal and estimates of structure construction costs in the Chicago area. All CREATE projects include a 10% contingency to cover unexpected outcomes plus a 5% management reserve to cover possible changes in scope. A scope change is not anticipated during construction of this project. This combination of contingency and management reserve has stood the test of time with the CREATE program resulting in most projects being at or slightly below budget when completed. All CREATE projects are open to are qualified contractors that meet the appropriate federal, state and railroad requirements and as such no such firm is denied participation in the program and there is there shall be no discrimination of any kind within the CREATE program.

7.2 Project Schedule

The project schedule identifies all permitting and environmental requirements, time to reach grant agreement, procurement processes, climate and other constraints on construction, and all federal, state, and local reporting and closeout obligations.

Task, Milestone or Deliverable	2021				2022				2023				2024				2025				2026				2027				2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preliminary design and environmental studies/NEPA ("Phase I")	<<✓																															
Programming (CMAP TIP)	<<✓																															
Land Acquisition/ROW	<<✓																															
Design ("Phase II")																																
Project public funding and financing																																
Construction ("Phase III")																																
Community engagement and partnership	>>>				Community partnership and engagement activity																								>>>			
FY 2022 INFRA Obligation Deadline 9/30/25																	X															

Figure 22: Summary project schedule

This project can commence quickly upon notification of a federal award and be approximately halfway through the construction activities by September of 2025. Closeout of Phase II engineering, which brings the project to the point of readiness for procurement, is imminent. NEPA and all land acquisition is complete for this project. A more detailed project schedule is provided as an attachment.

7.3 Required Approvals

7.3.1 Environmental Permits and Reviews

For the Phase I NEPA study, an Environmental Class Action Determination (ECAD) was prepared, and a Categorical Exclusion determination was approved by FHWA in 2009. A copy of this ECAD has been attached to this application. With the completion of Phase II, which included some NEPA refresh and update tasks, all NEPA obligations are satisfied for this project.

7.3.2 State and Local Approvals

The Ogden Junction Project is programmed within the CMAP e-TIP transportation improvement program as project 01-05-0011 which covers elements of the larger Western Avenue Corridor initiative within the CREATE Program. The CREATE Program is featured prominently in the current versions of the Illinois State Rail Plan, the State Freight Plan and the Long Range Transportation Plan. Implementation of CREATE is a core goal stated in the City of Chicago's latest Transportation Strategy Report (page 31). Cook County's Long-Range Transportation Plan emphasizes the importance of CREATE as "…a path-breaking effort, recognized nationally as a public-private approach for maintaining and growing the region's status as a continental freight hub. (Page 42).

7.3.3 Federal Transportation Requirements Affecting State and Local Planning

Please see the references to the CMAP TIP inclusion in the cover table and statutory requirements section. This project has been planned in close coordination with the City of Chicago, Cook County, the State of Illinois, FRA and FHWA. Various performance measures could be used to measure outcomes for this project. Train volumes on the line, average train speeds and segment transit times, relative to baselines, are potential measures. Some of these metrics have been utilized for past CREATE projects receiving federal grant funds. The partners will work with U.S. DOT to select appropriate performance measures. There are opportunities to achieve greater workforce diversity with this project. workforce account work is by owned by the rail unions under existing labor agreements. Most of the work will be contract work associated with the viaducts. The CREATE partners already carry out detailed DBE utilization monitoring and reporting and that

will continue with this project. The labor force utilized on this project will be monitored, both force account and contract, including subcontractors, to track and report on the demographics of the workforce deployed in the execution of the project.

7.4 Assessment of Project Risks and Mitigation Strategies

The CREATE Program has a proven record of successfully and expeditiously managing grant funding, through past successful execution of projects utilizing PNRS, TIGER, INFRA and CRISI grant funds.

Project management and organization

Each CREATE project is managed by an individual sponsor, which leads procurement, engineering, and construction activities. This project has followed federal guidelines associated with the receipt of federal funds. The administration of the project will be carried out in close coordination between the infrastructure owners, funding partners and U.S. DOT. The project will require a significant amount of coordination to ensure network capacity and access is not hindered for extended periods of time. This approach will balance the needs of multiple stakeholders and users, as detailed in various CREATE Program Partnerships agreements. CREATE partners will release all Requests for Proposals (RFPs) for design and bids for construction using established federally approved processes.

8. STATUTORY PROJECT REQUIREMENTS

Statutory Selection Requirements (INFRA Only)	
23 U.S.C. 117 INFRA	**Response**
1) The project will generate national, or regional economic, mobility, or safety benefits	The project will prevent inefficient rerouting of up to 30 daily freight trains moving regionally and nationally over the corridor, a key STRACNET line. Significant logistics, efficiency, safety and health impacts will be avoided by performing the project, including national supply chain impacts. Significant additional train miles will be avoided by constructing the project. The community will benefit from improvements to the viaducts carrying streets and sidewalks beneath the rail corridor. Trespassing and theft incidents on the corridor that present a great safety risk to workers and the public will be reduced.
2) The project will be cost effective	The project has a strong benefit cost ratio over 9. This is due to the high volumes of trains that would be impacted (rerouted) in the no-build scenario and the capacity limitations of the Chicago Terminal that make alternative routings much less efficient. Benefits to the public are significant including in areas such as emissions and safety, which add significant value to the benefits case.
3) The project will contribute to 1 or more of the national goals described under Section 150	Per 23 USC 150 this project will: (4) "…improve the efficiency of the surface transportation system…" by avoiding the inefficient rerouting of trains and associated costs that would be imposed on transport providers and shippers. (5) "…strengthen the ability of rural communities to access international trade markets and support regional economic development…" by improving efficiency of heavy-haul freight rail movements serving the region and nation, including rural areas and exporters. This corridor carries a range of goods coming to and from U.S. rural areas, such as fertilizer and agricultural products.

Statutory Selection Requirements (INFRA Only)	
23 U.S.C. 117 INFRA	**Response**
	(6) "…enhance the performance of the transportation system while protecting and enhancing the natural environment…" the project preserves the most efficient freight rail routing through the Chicago Terminal and avoids substantial additional freight train emissions that would occur otherwise, as well as avoiding emissions from additional delays at at-grade crossings. (7) "…reduce project delivery delays…" thanks to the experience of the partners and the proven public-private partnerships (work practices) through the CREATE process, there is low risk of project delivery delays.
4) The project is based on the results of preliminary engineering	All Phase I engineering is complete. Phase II engineering is in its final stage. The NEPA ECAD (decision document) has been received. This was done in close coordination with the CREATE Partners, including IDOT and FHWA. See the attached detailed statement of work, cost estimate, schedule, engineering drawings, and environmental class of action determination as documentation of completion of preliminary engineering and NEPA and the near completion of final design.
5) With respect to related non-federal financial commitments, 1 or more stable and dependable sources of funding and financing are available to construct, maintain, and operate the project, and contingency amounts are available to cover unanticipated cost increases	The ~$100 million in matching funds for the project future costs will be divided amongst the public and private partners. The maintenance of the corridor is the responsibility of the three freight railroad companies through their regular maintenance budgets. These are long-established Class I railroad companies with consistent and disciplined system asset management practices who report their network investments in detail to the STB. This project is identified in the CMAP TIP. See section 4 for a description of the ample contingency amounts budgeted to cover risk of cost increases. The contingency for the project is 10% on the baseline costs prior to year of expenditure escalation, over which a 5% management reserve is added.
6) The project cannot be easily and efficiently completed without other Federal funding or financing available to the project sponsor	If MPDG funds are not received, the no-build scenario will be implemented. The segment will be taken out of service and freight rail traffic rerouted within and outside of the Chicago Terminal. The conditions of the sidewalks and roads underneath the corridor through the viaducts will continue to decline. Additional viaducts may be closed for safety reasons, reducing community mobility and connectivity.
7) The project is reasonably expected to begin not later than 18 months after the date of obligation of funds for the project	If federal funding is received the project could begin before the end of 2022. We do not see any risk of this project not beginning construction prior to 2025. Design and engineering are in the very last steps, matching funding is committed, no further land acquisition is required, and the NEPA decision document has been received. The CREATE partners have years of experience working together and with U.S. DOT to carry out similar complex projects.

Figure 23: Statutory requirements table