Illinois Department of Transportation

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ROCK ISLAND CONNECTION PROJECT – P2

CRISI FY25-26
BENEFIT-COST ANALYSIS
MEMORANDUM

SUBMITTED TO:
FEDERAL RAILROAD ADMINISTRATION

SUBMITTED BY:
ILLINOIS DEPARTMENT OF TRANSPORTATION

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List of Acronyms

AIS	Abbreviated Injury Scale (AIS)
AADT	Annual Average Daily Traffic
ADA	Americans with Disabilities Act
ATRI	American Transportation Research Institute
BCA	Benefit/Cost Analysis
BRC	Belt Railroad Company
CN	Canadian National
CO_2	Carbon Dioxide
CREATE	Chicago Region Environmental and Transportation Efficiency
FHWA	Federal Highway Administration
GDP	Gross Domestic Product
IMR	Interchange Modification Report
KABCO	Injury Classification Scale
LOS	Level of Service
mph	Miles per Hour
NOx	Nitrogen Oxide
NPV	Net Present Value
NS	Norfolk Southern
O&M	Operating and Maintenance
PDO	Property Damage Only
$PM_{2.5}$	Particulate Matter
PV	Present Value
RTC	Rail Traffic Controller
SWS	SouthWest Service
SO2	Sulfur Dioxide
SOGR	State of Good Repair
UP	Union Pacific
U.S. DOT	United States Department of Transportation
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
VOT	Value of Time

1. Introduction

This report documents the Benefit/Cost Analysis (BCA) for the FY2025-FY2026 Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant Program due on June 25, 2026, utilizing the updated December 2025 U.S. DOT BCA Guidance. The BCA evaluates the safety, cost savings, and reliability benefits, among others, resulting from the Chicago Regional Environmental and Transportation Efficiency (CREATE) Program improvements associated with the Chicago Rock Island Connection Project – P2 ("P2") that align with the administration's priorities including (1) enhancing safety, and (2) restoring and modernizing core assets to improve the state of good repair (SOGR) and enhance system resiliency. The BCA demonstrates the cost-effectiveness of the Project, measured in terms of a Benefit/Cost (B/C) ratio and Net Present Value (NPV).

1.1 Rock Island Connection Project (P2) Description

The Rock Island Connection Project – P2 (the 'Project' or 'P2'), is an independent project under the CREATE Program. Since its inception in 2003, the CREATE Program has been modernizing the Chicago Terminal rail network to improve safety, reliability, and operational efficiency for both freight and passenger rail. P2 represents the next phase of the 75th Street Corridor Improvement Project (75th St CIP) and is currently in final design.

P2 will construct a grade-separated flyover at Belt Junction, eliminating a major at-grade conflict point where freight and passenger trains currently intersect. The Project also includes reconfiguring Belt Railway Company of Chicago (BRC), Norfolk Southern (NS), and Metra tracks, including the addition of a second main track for Metra *SouthWest Service (SWS)* operations from Morgan Street to the *Rock Island District (RID)* connection at 75th Street. In addition, community mobility improvements will be installed at six viaduct locations, including ADA ramps, LED lighting fixtures, sidewalk and pedestrian enhancements, pavement replacements, sewer upgrades, and landscaping.

These improvements directly advance the goals of the Federal Railroad Administration Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program by enhancing rail safety, reducing operational conflicts, improving travel time reliability, and lowering operating and maintenance costs for both freight and passenger services.

At present, approximately 90 freight trains operate daily through the corridor alongside 30 *SWS* trains per weekday (150 trains per week) and six weekly Amtrak *Cardinal* trains. These shared tracks create recurring freight delays—up to six hours daily—driven by shared operations and passenger train priority.

Through the planned track improvements and construction of the flyover bridge, P2 will eliminate these conflicts, significantly improving operational safety by relieving congestion, reducing at-grade train interactions, and lowering the risk of derailments and collisions.

The Project also enhances freight system reliability for movements serving key intermodal facilities such as Norfolk Southern's Landers Yard, which handled over 350,000 lifts in 2024.[1] By reducing overall network congestion and improving operational efficiency, the Project helps ensure the rail system can continue to accommodate growing freight demand without shifting additional freight movements to trucking or through other regions.

Additionally, P2 will enhance passenger rail service capacity and reliability by allowing Metra to utilize the newly constructed flyover structure to reroute 30 trains per weekday from the highly congested Chicago Union Station (CUS) to LaSalle Street Station, improving travel times and reducing freight conflicts for intercity and commuter rail services, and allowing Metra to increase service and operating speeds.

Overall, the P2 flyover will eliminate critical chokepoints, improving efficiency, reliability, and safety for commuter, intercity passenger, and freight rail within the Nation's primary freight hub, delivering measurable benefits to both freight movement and passenger service.

Specific details of the P2 include (See video):

- **Track Work**: Reconfiguring tracks east of Belt Junction to create dedicated tracks—three for BRC, two for Metra, and one for NS—while grade separating Metra from the NS and BRC tracks. This improvement will eliminate conflicts between 90 daily freight and 30 weekday commuter revenue trains, reducing the risk of collisions, improving freight operations, and ensuring safer, more reliable travel for over 1,114,000 annual Metra *SWS* riders, as of 2025.[2]

- **Structures Work**: Constructing a new flyover bridge connecting Metra's *SWS* to the existing Metra RID tracks and grade-separating rail operations. Supporting elements include retaining walls, noise barriers, and modifications to existing structures to accommodate the new track configuration and ensure safe and efficient operations. The construction of the flyover and addition of new Metra tracks will allow Metra *SWS* to divert service from Chicago Union Station to the less congested LaSalle Street Station.

- **Signal Work**: New switches, signals, and bungalows will be added at seven locations on the existing and newly constructed segments along the corridor, improving safety and operations along the corridor. All railroads in the corridor are currently compliant with Positive Train Control (PTC) standards and will remain so, with targeted upgrades to PTC and Centralized Train Control (CTC) systems that will enhance interoperability among railroads and improve train movement efficiency and safety.

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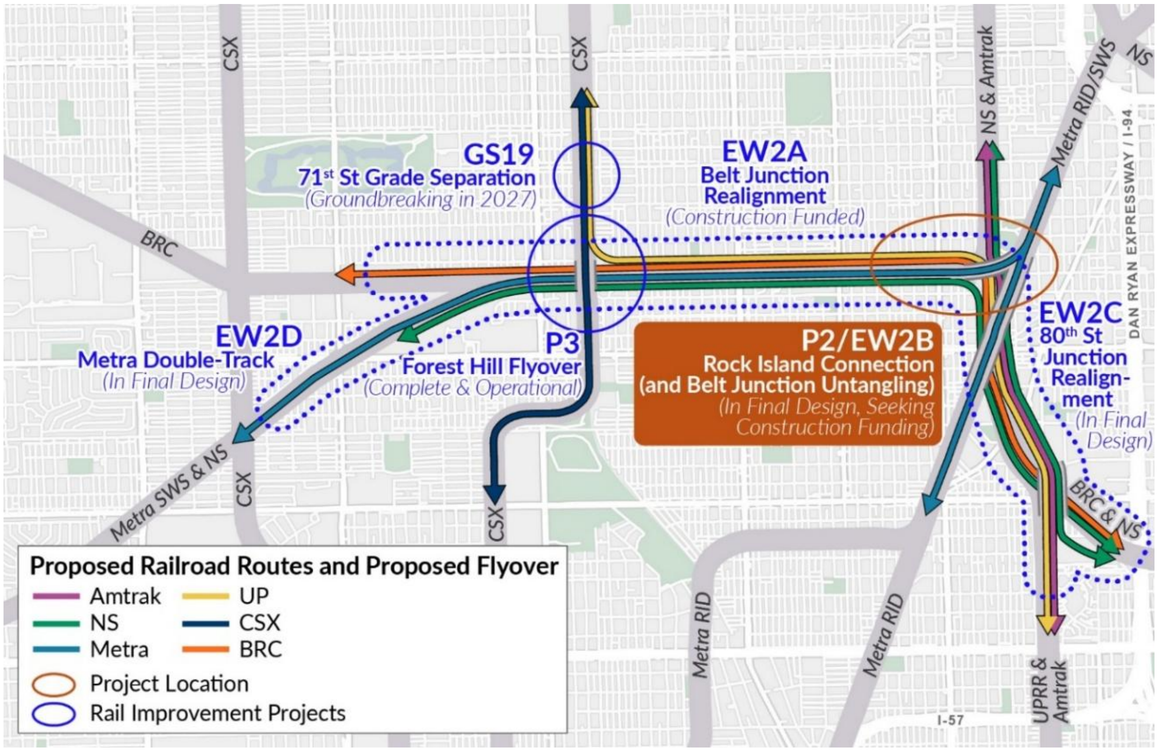
1 Chicago Metropolitan Agency for Planning (CMAP), Chicago Intermodal Facility Lift Counts and Regional TEU Estimate. https://engage.cmap.illinois.gov/28148/widgets/97089/documents/71095.

2 Metra January 2026 Ridership Trends, Initiatives & 2025 Annual Ridership Figures. https://assets.metra.com/s3fs-public/2026-02/January-2026-Ridership-Trends-and-2025-Annual-RidershipV2.pdf.

- **Community Mobility Improvements**: Installing family-friendly community safety and mobility improvements at six viaduct locations—73rd Street, 74th Street east of Normal Avenue, Normal Avenue north of 75th Street, 75th Street at Normal, Halsted Street, and Peoria Street—along the corridor and within the surrounding neighborhoods up to one-quarter (1/4) mile from the railroad work. Improvements, including ADA ramps, LED lighting fixtures, sidewalk and pedestrian enhancements, pavement replacement, sewer upgrades, and landscaping that will improve safety and usability for pedestrians, motorists, commercial vehicles, and families walking and driving below the railroad bridges. At the 73rd Street viaduct, upgrades will also improve the pedestrian tunnel under the Metra RID to provide enhanced access to Hamilton Park from the east. These improvements will provide a safer, more seamless travel experience within the Project area and improve connectivity between neighborhoods.

- **SOGR Improvements:** Addressing critical SOGR needs through infrastructure rehabilitation and replacement, including track installation, sewer upgrades, pavement replacement, ADA accessibility improvements, lighting upgrades, sidewalk improvements, and related viaduct-area enhancements. In addition, the flyover allows Metra to redirect rail traffic away from existing bridges in poor condition, and is therefore expected to reduce future maintenance requirements and associated lifecycle costs for those assets. Together, these improvements address deferred maintenance needs, improve asset condition, and enhance the long-term reliability and safety of transportation infrastructure throughout the corridor.

Figure 1 P2 Project Overview Map



Source: Adapted from the CREATE Program.

Figure 2 Rendering of Proposed P2 Flyover
North Facing View

Source: Illinois Department of Transportation.

1.2 Organization of BCA Memorandum

- Section 2 provides an overview of the Project's costs and benefits.
- Section 3 describes the BCA approach and key methodological assumptions.
- Section 4 describes the detailed methodology for computing Project benefits, including sources for inputs and parameters, and an illustration of the benefits calculated for an example year for the Project.
- Section 5 summarizes the BCA results and the resulting B/C ratio.
- Section 6 provides a sensitivity analysis that explores Project outcomes under different assumptions.

2. Project Benefits and Costs Overview

2.1 Project Benefits

P2 is expected to generate benefits through several mechanisms, including: grade separation, avoided freight diversion, delay reduction, service improvements, mode shift, maintenance cost savings, and lighting and sidewalk improvements. The total discounted value of the expected benefits generated through these mechanisms is estimated at $803.2 million in 2024 dollars. Discounted benefits by category are summarized in Table 1 below:

Table 1 Benefit Cost Analysis Results Summary

	Total Benefits	Discounted Value (2024$)
Avoided Freight Diversions	1a: Reduced Externalities from Avoided Truck Diversion	$74,951,575
	1b: Reduced Externalities and Shipper Costs from Avoided Rail Diversion	$305,933,435
Passenger Service Upgrades	2a: Time Savings due to Operational Efficiency	$91,331,987
	2b: Reduced Externalities from Passenger Mode Shift	$81,444,583
	2c: O&M Cost Increase from Additional Service	-$28,319,482
Overall Network Efficiency	3: Avoided Delay (Passenger and Freight) from Typical Operations	$4,333,449
SOGR	4: O&M Cost Savings resulting from Infrastructure Improvement (Bridge Replacement Savings)	$248,089,912
Safety	5a: Reduced Roadway Crash Exposure from Passenger Mode Shift	$3,500,220
	5b: Reduced Roadway Crash Exposure from Avoided Truck Diversion	$1,012,194
	5c: Reduced Accident Likelihood at South Lumber St Crossing from Train Reroute	$40,729
	5e: Reduced Crash Risk from Lighting and Sidewalk Improvements	$1,582,598
	5f: Reduced Crime from Lighting and Sidewalk Improvements	$54,118
	Residual Value	$19,223,065

Total Benefits	Discounted Value (2024$)
Net Benefits	**$803,178,382**
Total Costs	**$253,114,530**
B/C Ratio	**3.17**
Net Present Value	**$550,063,852**

The methodology for evaluating each of these benefits is discussed in Section 4.

Table 2 Project Matrix

Current Status/ Baseline & Problem to be Addressed	The Project reduces conflicts and congestion between freight trains, passenger rail, and roadway users in Chicago's South Side.
Change to Baseline/ Alternatives	Build Scenario includes building a flyover structure to connect the Metra *SouthWest Service (SWS)* to the Metra *Rock Island District (RID)*; constructing a second main track for Metra's *SWS* operations: realigning BRC and NS to allow for independent operations; installing new switches, signals, and bungalows; and implementing community mobility improvements on surface streets throughout the corridor.
Type of Impacts	Reduced rail incident and collision risk, improved roadway safety, improved passenger rail operating speeds, reduced delay for freight and passenger rail, reduced vehicle operating costs, reduced highway externalities, reduced emissions damage, avoided operations and maintenance costs, reduced crime, improved freight movement and economic vitality, and improved operational efficiency.
Affected Population	Freight and passenger rail operators, daily local users, commercial through-traffic, roadway users, and surrounding communities.
Economic Benefit	The BCA indicates that the Project will result in O&M cost reductions, travel time savings, traffic delay savings, crash cost reductions, and emissions damage savings.
Summary of Results	Benefit/Cost ratio greater than 1.0 indicates that the Project generates benefits to society that exceed its costs.

2.2 Costs of the Project

Construction costs are estimated to be $479.9 million in 2030 dollars (or $419 million in 2024 dollars) spent between 2028 and 2033.[3] The total estimated construction cost of $479.9 million is based on an initial 2026 construction cost of approximately $328 million with a $50 million inflation adjustment added to reflect cost escalation through 2030, the assumed midpoint of construction (equivalent to an average annual inflation rate of about 3.8%). This results in an inflation-adjusted construction cost of roughly $378 million. An additional 15% construction contingency and 10% allowance for professional services were then applied, bringing the total construction cost estimate to $479.97 million.

Construction will occur between 2029 and 2032, with the Project opening by 2033. The vast majority of costs fall between those four years (2029–2032), with design/engineering and close-out costs in 2028 and 2033, respectively. These cost values are shown in Table 3, with the assumed distribution over time displayed in Table 4.

Table 3 Project Costs

Year	Project Total	Units
P2	$479,971,223	*2030$*
P2 Real Cost	$419,039,464	*2024$*
Discounted Value	$253,114,530	*2024$*

Source: Cost estimates derived from [Exhibit 2B. 75th St CIP Annual Financial Plan and Exhibit 2C. 75th St CIP Cost and Schedule Risk Assessment.]

Table 4 Cost Distribution

Funding Source	Projected Expenditures 2028	2029	2030	2031	2032	2033	Total
Distribution	2%	24%	24%	24%	24%	2%	2%
Cost (2024$)	$9.6M	$115.2M	$115.2M	$115.2M	$115.2M	$9.6M	$497.97M

[3] Inflation adjustments to convert future dollar values to 2024$ was done using Congressional Budget Office CPI-U 10-year forecasts published in January 2025. https://www.cbo.gov/data/budget-economic-data#4.

3. BCA Approach

The Benefit/Cost Analysis is based on freight rail, passenger rail, and traffic data in the Project area.

A spreadsheet-based BCA model was constructed for this analysis. The model uses Rail Traffic Controller (RTC) modeling outputs for delay reduction scenarios, Simplified Trips-on-Project Software (STOPS) ridership forecasting outputs, City of Chicago data, outputs from a freight analysis performed by Cambridge Systematics for the CREATE Partners, and global parameters provided by the United States Department of Transportation (U.S. DOT) for BCAs.

Using both Project-specific inputs and global parameters, the BCA model calculates life-cycle costs, life-cycle benefits, the NPV of quantifiable costs and benefits, and the resulting B/C ratio, utilizing a methodology that aligns with U.S. DOT guidance for FY25 grant applications and fulfills requirements of the National Rail Partnership NOFO.

3.1 Key Methodological Components

The BCA for the proposed Project is conducted in accordance with the U.S. DOT's Benefit/Cost Analysis Guidance for Discretionary Grant Programs, released in December 2025.

- Construction is scheduled for 2029–2032, with the first full year of operation in 2033.
- Most costs will occur during the construction phase; however, planning expenses will begin in 2028, and Project closeout costs will be incurred in 2033.
- Benefits were evaluated for a period of 30 years beginning with the opening of the Project in 2033 and ending in 2062.
- Per U.S. DOT BCA guidance, this analysis was conducted in constant 2024 dollars.
- All benefits and costs are discounted to 2024 at a 7% discount rate.

3.2 Existing Conditions (No-Build Scenario)

3.2.1 Mobility

- **Freight Demand:** The Chicago Terminal is currently the most congested rail gateway in the country, where six Class I railroads connect and interchange traffic. In 2022, Chicago's rail system handled 49 percent of the Nation's intermodal rail containers and 29 percent of all rail car shipments—approximately 500 freight trains and 800 passenger/commuter trains daily.[4],[5] Current congestion and delay throughout the network have made it increasingly difficult to accommodate growing freight rail demand, a challenge that is expected to intensify as both freight and passenger rail volumes continue to increase. Without additional capacity and operational improvements, future freight growth may be forced onto less efficient routes or diverted to trucking, resulting in increased roadway congestion, higher transportation costs, greater emissions, and additional safety impacts on the regional highway network.

- **Amtrak *Cardinal* Service:** Under existing conditions, Metra *SWS* trains operate through CUS, the busiest station in Amtrak's national network, which serves 17 intercity routes and more than 3 million annual Amtrak passengers.[6] This continued use of already constrained capacity creates congestion and directly limits the ability to expand intercity rail service. In particular, these capacity constraints restrict Amtrak's *Cardinal* service—part of the FRA Corridor Identification (CID) Program and the only direct rail connection between Chicago and New York via Philadelphia, Washington, D.C., Charlottesville, Cincinnati, and Indianapolis—preventing its expansion beyond six weekly trains and inhibiting movement toward daily service.

- **Metra SouthWest Service:** In addition to limiting Amtrak service, as currently configured, Metra's *SWS* also faces significant constraints on its ability to expand service and provide reliable operations. Because the *SWS* terminates at CUS, existing congestion and platform and track capacity constraints effectively prevent Metra from increasing *SWS* service under current operating conditions. Additionally, the line operates on tracks shared with NS freight traffic, creating operational conflicts that introduce delays, reduce reliability, and constrain scheduling flexibility. Together, these constraints limit Metra's ability to increase service frequency to meet rising demand, improve operating speeds, and provide more reliable service along the corridor.

3.2.2 Infrastructure

- **Deteriorating Infrastructure:** From 23rd Place to 74th Street, Metra owns 44 bridges in deteriorating condition that currently accommodate Amtrak's *Cardinal* service (six trains per week), Metra's *SWS* (30 weekday trains), and approximately two NS freight trains per day. These structures will require major rehabilitation or replacement within the next 30 years, with several needing action within 10 years. Under a No-Build scenario, addressing these needs would require substantial capital investment and prolonged construction, resulting in service disruptions to Metra, Amtrak, and freight operations, as well as roadway traffic below. These disruptions would increase travel

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4 Intermodal Association of North America, Intermodal Volume Analyzer, 2025-11; 2024 Chicago Metropolitan Agency for Planning (CMAP) Railroad Data.

5 About CREATE—CREATE Program.

6 Chicago Union Station Fact Sheet, 2023. https://chicagounionstation.com/uploads/documents/CUS_FactSheet_2023_Optimized.pdf.

times, require temporary diversions or operational constraints, and elevate safety risks due to altered traffic patterns and added congestion.

3.2.3 Safety

- **High Vehicle Miles Traveled:** As a result of the two mobility constraints described above affecting both freight and passenger rail under existing conditions, the No-Build scenario is expected to generate higher levels of vehicle travel. This increase would occur both through potential freight diversion to trucking as rail congestion worsens and network reliability declines, and through mode choice/shift, as travelers choose to drive rather than use passenger rail due to reliability concerns and service frequency. Higher levels of vehicle miles traveled (VMT) increase exposure to roadway crashes, as highway travel carries substantially greater safety risks per passenger- or ton-mile than rail transportation. These impacts affect not only travelers and freight operators shifting from rail to roadway modes but also all users of the regional highway network, as higher VMT raises overall crash exposure, congestion, and conflict points across the transportation system.

- **Rail-Rail At-Grade Configuration Introduces Additional Conflict Points:** Under the existing configuration, at-grade movements require trains to cross shared corridors and rely on switches and diamonds, which introduces additional operational complexity and exposure to potential conflict points. While managed safely under current practices, this arrangement inherently involves more interactions between train movements and greater reliance on maintenance-intensive components. As a result, it does not achieve the same level of risk reduction and operational simplicity as a fully grade-separated configuration**.**

- **Accident Exposure at an At-Grade Roadway-Rail Crossing:** Along the existing Metra *SWS* route to CUS, trains traverse an at-grade crossing at South Lumber St (Crossing ID: 523004X). Metra *SWS* accounts for the majority of train movements at this gated crossing and therefore represents a primary contributor to exposure to potential accidents at this location, which also carries approximately 1,000 vehicles per day, roughly 18 percent of which are trucks.[7] Although there is no recent history of train-involved accidents at the crossing, risk remains present and is elevated due to *SWS* operations.

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[7] Illinois Grade Crossing Inventory. https://icc.illinois.gov/rail-safety/crossing/523004X/inventory.

3.3 Project Implementation (Build Scenario)

3.3.1 Mobility

- **Avoided Rail Diversions:** By reducing congestion and improving reliability, P2 lowers the likelihood that freight rail traffic will divert to other routes or modes, such as trucking. This helps avoid costly diversions in terms of both shipper costs and externalities, while preserving the network's role as a critical national rail gateway.

- **Improved Amtrak *Cardinal* Service:** By redirecting approximately 30 Metra *SWS* trains per weekday from CUS to LaSalle Street Station, P2 could reduce train volumes at CUS by roughly 17 percent, primarily during peak periods. This shift would alleviate congestion at CUS and free up an estimated 30 weekday train slots, creating critical capacity to support expansion of Amtrak services, including the potential upgrade of the *Cardinal* route from six weekly trains to a daily round trip. Increased frequency would improve passenger convenience and reliability, support higher ridership, and encourage mode shift away from automobile travel.

- **Increased Metra Service:** By providing Metra with dedicated tracks and constructing a flyover that allows *SWS* service to be rerouted from CUS to LaSalle Street Station, P2 enables more reliable and flexible operations along the 75th Street corridor. This is expected to improve operating speeds, reduce delays, and enhance reliability, ultimately supporting higher ridership, driven by a shift from personal vehicle travel.

- **Improved Network Efficiency:** Through targeted track improvements and the grade separation of Metra *SWS* movements via the flyover, the Project reduces congestion and eliminates a major chokepoint in the Chicago rail network. This improves overall network efficiency and reduces the frequency and severity of delays for both freight and passenger service.

3.3.2 Infrastructure

- **Replacement of Aging Infrastructure:** P2 would allow Metra to redirect *SWS* service to the RID via the new flyover, eliminating train movements over aging bridge structures that have exceeded their useful life along the existing *SWS* route. Under the Build scenario, Metra could eliminate *SWS* rail operations on the single-track segment between 23rd Place and 43rd Street. While Amtrak currently operates occasional trains on this segment, those movements could potentially be rerouted to adjacent NS tracks, which Amtrak already uses for a substantial share of its operations, subject to a formal agreement among the affected parties. Similarly, reduced traffic volumes could allow one of the two tracks in the segment between 43rd Street and 74th Street to be removed from service while retaining sufficient capacity for NS and Amtrak operations on the remaining track. This concept, developed in coordination with Amtrak and NS and subject to the necessary agreements, would eliminate train movements over an entire track's worth of bridge infrastructure across the corridor, avoiding the need for future bridge rehabilitation and replacement. As a result, the Project would avoid substantial capital reinvestment and ongoing maintenance costs while preserving corridor functionality for both passenger and freight rail service.

- **Reduced Stress on Aging Infrastructure:** In addition to Metra-owned structures, Amtrak owns and maintains the South Branch Bridge (SBB), a high-maintenance lift bridge along the corridor. With the flyover in place and *SWS* service shifted to the RID with termination at LaSalle Street Station, approximately 30 weekday Metra train movements would no longer cross the SBB. While Amtrak is advancing a separate program to rehabilitate and ultimately replace the bridge, the reduction in Metra traffic will decrease near-term operational demands on the structure as those longer-term investments are planned and implemented.

3.3.3 Safety

- **Reduced Vehicle Miles Traveled:** By shifting travelers from personal vehicles to passenger rail and accommodating future freight demand on rail rather than trucking, the Project reduces overall vehicle miles traveled. This, in turn, lowers exposure to roadway safety risks, as rail travel is proven to be a significantly safer mode of transportation.

- **Reduced Conflict Points and Improved Operating Environment:** The proposed flyover structure is the safest option for the corridor, both operationally and physically. A grade-separated flyover removes conflict points between different train movements and reduces the need for trains to cross one another's path, pass, or wait. By physically separating train movements, the Project removes the risk of side collisions and reduces operational complexity. Furthermore, unlike the existing infrastructure, the flyover is comprised of a straight, dedicated track alignment that will have no diamonds or switches. This provides significant safety benefits as these components are some of the highest-risk and highest-maintenance components of rail infrastructure. Eliminating them improves both safety and reliability.

- **Accident Exposure at an At-Grade Roadway-Rail Crossing:** With Metra *SWS* shifting to the RID, approximately 150 weekly Metra trains would no longer cross the at-grade South Lumber Street crossing, reducing movements at the crossing to approximately 6 trains per week (Amtrak *Cardinal* service only) and substantially lowering accident risk.

- **Investments in Community Infrastructure:** The Project also includes streetscape improvements at six viaducts, including the installation of ADA-compliant ramps and enhanced LED lighting to improve visibility. Improved lighting has been shown to reduce both crash incidence and crime. Therefore, it is expected to generate additional safety benefits within the Project area.

4. Benefits

P2 generates substantial benefits by improving passenger rail service, enhancing network efficiency, improving rail and roadway safety, and averting significant future costs. By alleviating network congestion, P2 ultimately prevents significant freight diversion to trucks or alternative rail lines that would be eventually necessary in the absence of the Project, maintaining Chicago's critical role as a primary rail interchange hub (Benefits 1a and 1b). The Project also allows for improved Metra *SWS* operations, producing meaningful travel time savings and attracting new riders, which in turn reduces automobile use and associated externalities such as congestion, poor air quality, and noise (Benefits 2a, 2b, 2c). Additional network benefits resulting from easing overall congestion on the corridor include reduced passenger and freight rail delay and associated avoided fuel and air quality costs (Benefits 3). Furthermore, while still accommodating Amtrak and freight movements, shifting *SWS* operations onto the new P2 flyover structure allows Metra to eliminate train movements on 44 single-track bridges, and therefore avoid expensive rehabilitation and eventual replacement of those bridges, resulting in major SOGR cost savings (Benefit 4). The Project also delivers a range of safety benefits through both direct infrastructure improvements and broader system impacts. Mode shift to improved Metra *SWS* and reduced future truck traffic will decrease roadway VMT, improving safety for remaining roadway users (Benefits 5a and 5b). Additionally, rerouting Metra *SWS* to the RID dramatically reduces the number of daily train movements at an at-grade crossing south of CUS, in turn reducing the likelihood of accidents at this roadway-rail intersection (Benefit 5c). Finally, lighting, sidewalk, and viaduct improvements will support safety in surrounding communities by reducing crash risk and improving personal security near the corridor (Benefits 5d and 5e). Overall, these benefits produce more than $803.2 million in discounted value, far exceeding the Project's discounted costs of $253 million, as detailed in Table 1.

4.1 Avoided Rail Diversions

The Chicago Terminal is the most congested rail gateway in the country, where six Class I railroads connect and interchange traffic. The CREATE Program projects are critical to reducing this congestion and ensuring the long-term viability of Chicago as a rail gateway. Based on a freight diversion analysis performed by Cambridge Systematics for the CREATE Partners, without CREATE Program projects including P2, the existing infrastructure is at risk for degraded performance and reduced capacity, resulting in the diversion of some regional freight to trucks and other less efficient rail routes. This freight diversion analysis is consistent with the analysis used for the CREATE EW2A Project, which received funding through the FY2025/2026 Multimodal Project Discretionary Grant (MPDG) Program. Assumptions specific to P2 are that, absent from the separation of freight and passenger operations and associated congestion relief, capacity constraints in the Chicago Terminal are expected to reach a point where freight diversion becomes necessary by 2048. Under these conditions, a portion of freight traffic would be compelled to shift to alternative modes or gateways as the system's ability to reliably accommodate demand is exceeded.

4.1.1 Benefit 1a: Avoided Truck Diversion from Network Congestion

This benefit captures the value of avoided operating costs and external impacts associated with truck diversions that would occur under the No-Build scenario if P2 were not completed. The analysis assumes that by the year 2048, the network congestion will reach the point where additional regional growth in freight traffic can no longer be accommodated, and a percentage of that traffic shifts to truck.

To estimate avoided truck VMT under the Build scenario, the analysis conservatively considers only the volume of regional freight movements most likely to divert. This includes: freight traffic to or from Chicago and Midwest markets (e.g., Minneapolis, Nashville, Omaha) located within 500 roadway miles, or one day's driving distance.

By 2048, the Chicago Terminal is projected to experience significant freight rail capacity constraints if P2 is not constructed. This would lead to a percentage of growth in freight demand diverting to trucks. This corresponds to up to 8% of the annual freight traffic that moves to and from Chicago and nearby Midwest markets diverting to truck by 2060. A weighted average trip length of 255 miles is applied to avoided diverted trips to calculate reduced VMT from avoided truck trips.

Between 2048 and 2062, over 558 million vehicle miles traveled are avoided due to the completion of P2 and the avoidance of the diversion described above, leading to a reduction in truck-related operating costs and externalities, such as congestion, noise, emissions, and crash exposure. Table 5 summarizes the benefit in the year 2048, the assumed first year of diversion. The benefits of avoided truck travel are reduced by approximately 30% percent for operating costs and 12% for externality costs to reflect that a portion of these costs would still be incurred under rail transportation; these adjustment factors correspond to the relative cost of rail compared to truck.

Over the 30-year analysis period (with these benefits occurring only in the final 15 years), total discounted benefits from avoided truck diversions are estimated to reach $75.0 million (2024$).

Table 5 Benefits From Avoided Truck Diversion

Factor		2048 Value	Units
a	Vehicle Miles[A]	4,029,012	*persons/train*
MONETIZATION[B]			
b	Truck Operating Costs	$1.23	*2024$/VMT*
c	Emissions Unit Value	$0.038	*2024$/VMT*
d	Congestion Unit Value	$0.367	*2024$/VMT*
e	Noise Unit Value	$0.047	*2024$/VMT*

	Factor		2048 Value	Units
RAIL COST ADJUSTMENT[C]				
f	Rail Costs as a % of Truck Operating Costs		30%	*Adj. factor*
g	Rail Externalities as a % of Truck Externalities		12%	*Adj. factor*
VALUE OF BENEFIT				
h	Avoided Operating Costs	(a * b) * (1 - f)	$3,462,626	*2024$/year*
i	Emissions Benefit	(a * c) * (1 - g)	$135,437	*2024$/year*
j	Congestion Benefit	(a * d) * (1 - g)	$1,308,034	*2024$/year*
k	Noise Benefit	(a * e)*(1 - g)	$165,732	*2024$/year*
	Annual Externality Reduction Benefits	h + i + j + k	$5,071,828	*2024$/year*

Sources: A: Cambridge Systematics analysis of IDOT S&P 2019 TRANSEARCH data, STB Confidential Waybill Sample, & FAF 5.

B: U.S. DOT BCA Guidance, December 2025.

C: Congressional Budget Office, 2015. Table A-4 (Shipper Costs) and Table A-1 (Externality Costs) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/50049-Freight_Transport_Working_Paper-2.pdf.

4.1.2 Benefit 1b: Avoided Rail Diversion from Network Congestion

This benefit measures the value of avoided shipper costs and external impacts associated with rail-to-rail rerouting that would occur under the No-Build Scenario if P2 were not completed. The analysis assumes that by the year 2048, the network congestion is to the point where additional non-intermodal (carload) growth in rail freight traffic can no longer be accommodated, and a percentage of that traffic shifts to other Class I gateways, resulting in longer rail trips and higher costs.

The analysis used the Surface Transportation Board (STB) public use waybill sample to examine U.S. non-intermodal rail traffic between markets west of the Mississippi (STB Freight Territories 3, 4, and 5) and the northeastern U.S. (STB Freight Territory 1). Due to distance and observed volumes, Chicago is the primary gateway for interchange between UP or BNSF and NS or CSX (and vice versa).

In the analysis, rerouting begins in 2048, when network congestion will reach a point where additional regional growth can no longer be accommodated. These capacity constraints could ultimately shift up to 8% of traffic to and from Chicago and nearby Midwest markets to divert to truck by 2060 as described in Benefit 1a, and additionally push up to 5% of non-intermodal rail traffic onto longer alternative routes through St. Louis or Kansas City.

AAR provided a conservative assumption of 5% of non-intermodal traffic to divert away from the Chicago Terminal in a congested scenario. In the analysis, diversion begins at 1% in 2048, and increases linearly until 5% is reached in 2052, after which a flat 5% diversion rate is assumed. Empty equipment movements are excluded. The estimate of avoided non-intermodal tonnage is based on the volume of freight moving through Chicago and a conservative cumulative annual growth rate of 0.8% for through carload rail traffic.[8] The diversion distance reflects the minimum rerouting distance, based on the average non-intermodal movement through Chicago, resulting in rerouting over the distances shown in Table 6.

Between 2048 and 2062, over 41 billion ton-miles of freight rail shipment diversion would be avoided, saving an average of $172 million annually in shipper costs and externality costs. Here, shipper costs refer to the rates charged to shippers per ton-mile for transporting goods by rail. Under the No-Build scenario, shippers face higher costs due to longer, less efficient diversion routes.

Avoiding these additional shipper costs in the Build scenario therefore constitutes an operating cost saving, which U.S. DOT BCA Guidance recognizes as a standard and allowable benefit category. External rail costs represent the negative impacts borne by the general public per additional ton-mile of freight rail travel, including pavement damage at grade crossings, congestion, emissions (such as PM and NO_x), and safety risks. The inclusion of avoided externalities due to mode or route shifts is also standard practice within the U.S. DOT BCA framework. Both externality and shipper costs values were obtained from a 2015 Congressional Budget Office working paper titled “Pricing of Freight Transportation to Account for External Costs.”

Over the full 30-year analysis period (with these benefits occurring only in the final 15 years of analysis), total benefits from avoided freight diversions are estimated to reach $305.9 million, discounted to 2024 dollars.

Table 6 summarizes the benefits from avoided rail diversion in the year 2048, the first year of assumed rail diversion. In 2048, diversion begins at 1%; however, the analysis assumes that by 2052, diversion will impact 5% of applicable freight traffic.

8 FHWA FAF5 Carload Rail Through Traffic 2019-2050.

Table 6 Reduced Costs from Avoided Rail Diversions

Factor			2048 Value	Units
DIVERSION PARAMETERS[A]				
a	Avoided Tons—BNSF/CSX		28,859,242	*tons/year*
b	Avoided Tons—BNSF/NS		26,192,461	*tons/year*
c	Avoided Tons—UP/CSX		21,103,219	*tons/year*
d	Avoided Tons—UP/NS		21,103,219	*tons/year*
e	Distance Rerouted—BNSF/CSX		325	*miles*
f	Distance Rerouted—BNSF/NS		274	*miles*
g	Distance Rerouted—UP/CSX		1,019	*miles*
h	Distance Rerouted—UP/NS		844	*miles*
VALUE OF BENEFIT				
i	Percent Rerouted		1	*percent*
j	Shipper Cost[B]		$0.0611	*2024$/ ton-mile*
h	External Rail Cost[C]		$0.0057	*2024$ /ton-mile*
	Annual Benefit	(a * e + b * f + c * g + d * h) * i * (j + h)	$37,296,877	*2024$/year*

Sources:
A: Cambridge Systematics Analysis of STB Public Use Waybill Sample, 2019. AAR Analysis of Class I railroads, 2019.
B: Congressional Budget Office, 2015. Table A-4 (Carload/Truckload Rail rate, inflated to 2024$) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/50049-Freight_Transport_Working_Paper-2.pdf.
C: Congressional Budget Office, 2015. Table 1 (Pavement Damage, Traffic Congestion, Accident Risk, and Emissions: PM and NOx midpoint cost value, inflated to 2024$) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/50049-Freight_Transport_Working_Paper-2.pdf.

4.2 Metra Service Improvements

By adding network capacity and alleviating congestion, P2 also allows Metra to improve its *SWS* operations and increase service along the 75th Street CIP corridor.

Ridership modeling was performed by Metra to consider changes to the service plan and the resulting change in ridership and incremental operating cost. The FTA Simplified Trips-on-Project Software (STOPS) model was used to forecast the ridership impact of the improved Metra *SWS*. General Transit Feed Specification (GTFS) files were developed to describe the Build and No-Build service plans and modeled using the regional STOPS model calibrated for Chicago.

The model assumed no other changes to the region's transit network. The raw STOPS outputs for 2017 and 2037 were used in this analysis, including total corridor ridership and change in person miles traveled (PMT) by automobile, as summarized in Table 7. The two data points provided here were used to linearly project outcomes on the timeline during which the Project will realistically be implemented (i.e., operations in 2033). Note that the change in PMT presented assumes that each additional *SWS* passenger between the No-Build and Build reflects a shift from driving, and that the average driving trip length is equivalent to the average *SWS* trip length (19.2 miles).

Table 7 Metra *SWS* Passengers under No-Build and Build Scenarios

Factor	2017	2037
RIDERSHIP (*SWS*)[A]		
No-Build Daily Weekday Passengers	7,786	9,055
Build Daily Weekday Passengers	14,293	15,972
Annualization Factor[B]	287	287
Average Trip Length	19.2	19.2
MODE SHIFT		
PMT Reduction	-124,934	-132,806

Sources: A: STOPS Model Output.

B: 2024 NTD Agency Profile, Northeast Illinois Regional Commuter Railroad Corporation (Annual UPT/Weekday UPT).

4.2.1 Benefit 2a: Time Savings due to Operational Efficiency

This benefit quantifies the travel time savings for Metra passengers due to improved operational speeds along the corridor allowed by P2. Furthermore, once P2 is complete, Metra will be able to improve its service offerings along the *SWS* corridors due to the new P2 flyover and second main track, resulting in increased ridership.

Table 8Table 8 summarizes estimated travel time savings as a result of the Project for the opening year 2033. Total discounted travel time saving benefit from service improvements over the 30-year analysis period is estimated at $91.3 million (2024 dollars).

The travel time benefits are based on increased average operating speeds under the Build scenario, based on STOPS model output, and are estimated separately for existing and additional riders, with additional riders only receiving one-half of the quantified benefit, per U.S. DOT BCA Guidance.

Table 8 Metra *SWS* Passenger Travel Time Savings from Service Improvements

Input			2033 Value	Units
TIME SAVINGS[A]				
a	No-Build Average Speed		27.0	*mph*
b	Build Average Speed		34.5	*mph*
c	Average Trip Length		19.2	*miles/passenger*
d	Average Time Savings per Passenger	((c / b) - (c / a)) * 60	9.3	*minutes/passenger*
e	No-Build Daily Weekday Passengers		8,786	*passengers/ weekday*
f	Build Daily Weekday Passengers		15,621	*passengers/ weekday*
g	Annualization Factor[B]		287	*days*
ANNUAL TIME SAVINGS PER PASSENGER				
h	Existing Passengers	d * e * g / 60	384,491	*person-hours/year*
i	New Passengers	d * (f - e) * g / 60 / 2	149,572	*person-hours/year*
MONETIZATION[C]				
j	In-Vehicle Travel, All Purposes		$21.80	*2024$/year*

Input			2033 Value	Units
VALUE OF BENEFIT				
k	Existing Riders	h * j	$8,553,194	*2024$/year*
l	New Riders	i * j	$3,327,310	*2024$/year*
	All Riders	k + l	$11,880,504	*2024$/year*

Sources: A: STOPS Model Output.
B: 2024 NTD Agency Profile, Northeast Illinois Regional Commuter Railroad Corporation (Annual UPT/Weekday UPT).
C: U.S. DOT BCA Guidance, December 2025.

4.2.2 Benefit 2b: Increased Ridership and Mode Shift

As shown in

Table 7, increased service and ridership on Metra's *SWS* line are expected to reduce auto travel, as shown through reduced automobile passenger miles traveled (PMT). This assumes that each new train rider represents a shift from auto to rail, with a one-to-one relationship between the increased PMT on rail and the reduction in PMT for automobiles for those riders.

This mode shift from auto to rail provides benefits for both riders and society by reducing the negative externalities of low-occupancy automobile travel. Rider benefits are captured through lower vehicle operating costs, monetized on a per vehicle-mile traveled (VMT) basis. Societal benefits include reductions in highway congestion, noise, and emissions—all monetized using per-mile rates provided in the U.S. DOT BCA Guidance.

Table 9 summarizes the travel cost savings for Metra passengers and the reduction in externalities resulting from the Project in its opening year (2033). For benefits experienced by shifting users—such as vehicle operating cost savings—values are reduced by one-half to reflect the lower willingness to pay by new riders compared to existing Metra passengers. This adjustment recognizes that new riders were not previously willing to use Metra service before the improvements, indicating that their perceived benefit is lower than that of existing passengers. Total benefits over the 30-year analysis period are estimated to be $81.4 million in 2024 dollars.

Table 9 Passenger Travel Cost Savings resulting from Mode Shift

Factor			2033 Value	Units
PASSENGER MILES				
a	Passenger Miles Diverted from Vehicles[A]		131,193	*person-miles/ weekday*
IMPACT				
b	Vehicle Occupancy (Passenger Vehicles)[C]		1.52	*persons/ automobile*
c	Vehicle Miles Diverted	a / b	86,311	*vehicle-miles/ weekday*
d	Annualization Factor[B]		287	*weekdays/year*
OPERATING COST[C]				
e	Light Duty Vehicles		$0.56	*2024$/vehicle-mile*
f	**Value of Benefit**	**c * d * e / 2**	**$6,930,603**	**2024$/year**
EXTERNALITY COST[C]				
g	Congestion		$0.147	*2024$/vehicle-mile*
h	Noise		$0.002	*2024$/vehicle-mile*
i	Emissions		$0.013	*2024$/vehicle-mile*
k	**Value of Benefit**	**c * d * (g + h + i)**	**$4,012,324**	**2024$/year**
	Total Annual Benefit	**f + k**	**$10,942,926**	**2024$/year**

Sources: A: STOPS Model Output.
B: 2024 NTD Agency Profile, Northeast Illinois Regional Commuter Railroad Corporation (Annual UPT/Weekday UPT).
C: U.S. DOT BCA Guidance, December 2025.

4.2.3 Benefit 2c: O&M Cost Increase from Additional Service

While increased and improved Metra service provides benefits to riders, there are increased O&M costs for Metra associated with the service, which were included as a disbenefit in the analysis.

To estimate the operating and maintenance (O&M) costs associated with the improved service, a cost model was developed by Metra using its 2019 expenditure and service data by corridor. The No-Build service plan reflects the 2019 Metra schedule, with the only modification being the addition of the planned Auburn Park station on the RID corridor, anticipated to open in 2026. The Build scenario assumes rerouting the *SWS* via the proposed flyover to terminate at LaSalle Street Station, along with the corresponding increase in service levels that this operational change enables, consistent with the STOPS model assumptions.

Each Metra expenditure was assigned to a cost driver to derive unit costs, which are used to estimate the incremental cost increase. To account for operational differences by Metra corridor, unit costs were derived at the corridor level. Five cost drivers were used to estimate the incremental O&M cost for *SWS*: dollars per train mile, dollars per car mile, dollars per train hour, dollars per train trip, and dollars per track mile. Unit costs and cost drivers are summarized in Table 10, along with the annual incremental O&M costs, which reflect the increased cost drivers (i.e., service metrics) multiplied by the user costs. Annual increased operating costs are presented in Table 10 at just over $3.9 million; after discounting, O&M costs for increased Metra service over the full 30-year period are expected to be $28.3 million (2024 dollars), reflected as a disbenefit in the analysis.

Table 10 Operating and Maintenance Cost Drivers and Unit Costs

Factor			SWS	Units
INCREASED COST DRIVERS				
a	Train Miles		53,839	*train miles*
b	Car Miles		398,408	*car miles*
c	Train Hours		-450	*train hours*
d	Train Trips		1,638	*train trips*
e	Track Miles		17	*track miles*
UNIT COSTS				
f	Train Miles		$8.66	*2024$/train mile*
g	Car Miles		$4.77	*2024$/car mile*
h	Train Hours		$942.96	*2024$/train hour*
i	Train Trips		$209.53	*2024$/train trip*
j	Track Miles		$96,114.26	*2024$/track mile*
	Total Annual Incremental O&M	(a*f) + (b*g) + (c*h) + (d*i) + (e* j)	$3,921,185	*2024$/year*

Source: Metra O&M Model, 2019.

4.3 Overall Network Efficiency

The Association of American Railroads (AAR) provided Rail Traffic Controller (RTC) modeling outputs for P2 No-Build and Build Scenarios (See Exhibit 3A. RTC Modeling Simulation of CREATE P2 Project and Exhibit 3B. Train Growth Results and Calculations). The No-Build scenario describes the network under typical operations if the Project is not completed. The No-Build includes the presumed completion of all completed and funded CREATE projects to date, including the CREATE EW2A Project, which received funding through the FY2025/2026 Multimodal Project Discretionary Grant (MPDG) Program. The Build scenario models the network after P2 is also completed.

Model outputs are provided for the years 2023, 2028, 2033, 2038, 2043, and 2048, with both the Build and No-Build scenarios reflecting fully implemented Project conditions in each modeled year. Each scenario incorporates projected growth in rail volumes and the associated impacts on network performance using a consistent framework. Results are interpolated for interim years to enable annual estimation of Project benefits. Because P2 is anticipated to be completed in 2033, only results from 2033 onward—interpolated through 2062—are used to quantify benefits over the analysis period.

The primary output of the model used in this analysis is delay reduction on the overall Chicago Terminal. Table 11 below presents the change in delay attributable to P2 for select years. It is important to note that this reflects reductions in overall delays due to congestion, whereas the time savings captured under Benefit 2a for Metra service correspond to reduced travel time due to improved *SWS* operating speeds. Improved *SWS* operating speeds due to P2 were not considered within the RTC modeling, hence double counting was avoided.

As shown in Table 11, P2 initially reduces delay across the Chicago Terminal network, followed by a modest increase during the middle years of the analysis period, before returning to a net reduction of over 3%, a significant reduction when considering the scale of the entire Chicago Terminal District. The temporary increase is delay-driven by projected growth in freight traffic, which raises the overall number of train movements and therefore the opportunities for delay. As traffic volumes continue to grow, however, the capacity and operational benefits of P2 become more pronounced, leading to net delay reductions in the later years.

Table 11 Rail Delay Time (hours/year)

Factor	2023	2028	2033	2038	2043	2048
NO-BUILD						
Passenger (Total)	1,689	1,719	1,822	1,780	1,854	1,886
Amtrak	244	181	225	211	227	272
Metra	1,445	1,539	1,597	1,569	1,628	1,614
Freight	26,549	36,079	41,303	48,256	60,237	77,317

Factor	2023	2028	2033	2038	2043	2048
BUILD						
Passenger (Total)	1,672	1,700	1,834	1,697	1,805	2,304
Amtrak	232	175	232	189	196	267
Metra	1,440	1,525	1,602	1,508	1,609	2,037
Freight	26,194	36,223	41,401	48,502	59,437	74,201
AVOIDED DELAY						
Passenger (Total)	17	19	-12	83	49	-418
Amtrak	12	6	-7	22	31	5
Metra	5	14	-5	61	19	-423
Freight	355	-144	-98	-246	800	3,116
Overall Change in Delay	**-1.3%**	**0.3%**	**0.3%**	**0.3%**	**-1.4%**	**-3.4%**

Source: AAR Chicago Terminal RTC Modeling, 2025, Exhibits 3A and 3B.

4.3.1 Benefit 3: Avoided Delay (Passenger and Freight) from Typical Operations

Avoided delay for passenger and freight trains when comparing the No-Build and Build conditions generates benefits in the form of value of time savings, avoided operating costs, as well as reduced externalities like emissions.

This analysis assumes a passenger load of 224 persons per train based on the most recent Metra commuter rail ridership data. Amtrak trains typically carry more passengers per train than Metra, but the same occupancy is assumed for this analysis to be conservative. Travel time savings for Metra passengers are calculated using the All-Purpose travel monetization rate, whereas Amtrak passenger travel time savings use the Long Distance Intercity Personal travel rate, both from U.S. DOT BCA guidance.

For freight and passenger rail (Amtrak and Metra), reduced delay also generates operating cost savings and emission cost savings. The analysis applies U.S. DOT BCA guidance values for hourly operating costs—which include fuel and labor-associated costs—and for emissions associated with idling, using parameters specific to freight, commuter rail, and Amtrak intercity service, as applicable.

Table 12 summarizes the estimation of the undiscounted benefit for the year 2033, the first year of benefits, as an example, as well as the monetization parameters applied to all years of the analysis. Note that 2033 through 2039 are the only years included in the analysis in which net benefits are estimated to be negative; after this period, delay reductions begin to materialize and more than offset the initial increases. The total discounted benefits associated with this avoided delay for the full 30-year analysis period are estimated at $4.3 million in 2024 dollars.

Table 12 Avoided Rail Delay under Typical Operations

	Input		2033 Value	Units
DELAY[A]				
No-Build Delay				
	Passenger (Total)	a + b	1,822	*hours/year*
a	Amtrak		225	*hours/year*
b	Metra		1,597	*hours/year*
c	Freight		41,303	*hours/year*
Build Delay				
	Passenger (Total)	d + e	1,834	*hours/year*
d	Amtrak		232	*hours/year*
e	Metra		1,602	*hours/year*
f	Freight		41,401	*hours/year*
Avoided Delay				
	Passenger (Total)		-7	*hours/year*
g	Amtrak	a - d	14	*hours/year*
h	Metra	b - e	-21	*hours/year*
i	Freight	c - f	-168	*hours/year*
MONETIZATION[B]				
j	Passenger Train Occupancy[C]		224	*persons/train*
Value of Time				
k	Long Distance Intercity Personal Travel		$28.20	*2024$/ person-hour*
l	All Purposes, In Vehicle		$21.80	*2024$/ person-hour*
Operating Cost (including fuel and labor)				
m	Amtrak Long-Distance (Idling)		$723.00	*2024$/train-hour*
n	Commuter Train (Idling)		$281.00	*2024$/train-hour*
o	Freight (Idling)		$259.00	*2024$/train-hour*

Input			2033 Value	Units
Emissions (Non-CO2)				
p	Amtrak Long-Distance (Idling)		$109.00	*2024$/train-hour*
q	Commuter Train (Idling)		$109.00	*2024$/train-hour*
r	Freight (Idling)		$799.00	*2024$/train-hour*
VALUE OF BENEFIT				
s	Amtrak	(g *j * k) + g * (m + p)	-$27,801	*2024$/year*
t	Metra	(h * j * l) + h * (n + q)	-$51,461	*2024$/year*
u	Freight	i * (o + r)	-$103,479	*2024$/year*
	Total	**s + t + u**	**-$182,742**	***2024$/year***

Sources: A: AAR Chicago Terminal RTC Modeling, 2025.
B: U.S. DOT BCA Guidance, December 2025.
C: Average Metra SouthWest Service Ridership per Train (2022 conductor counts)

4.4 State-of-Good-Repair Benefits

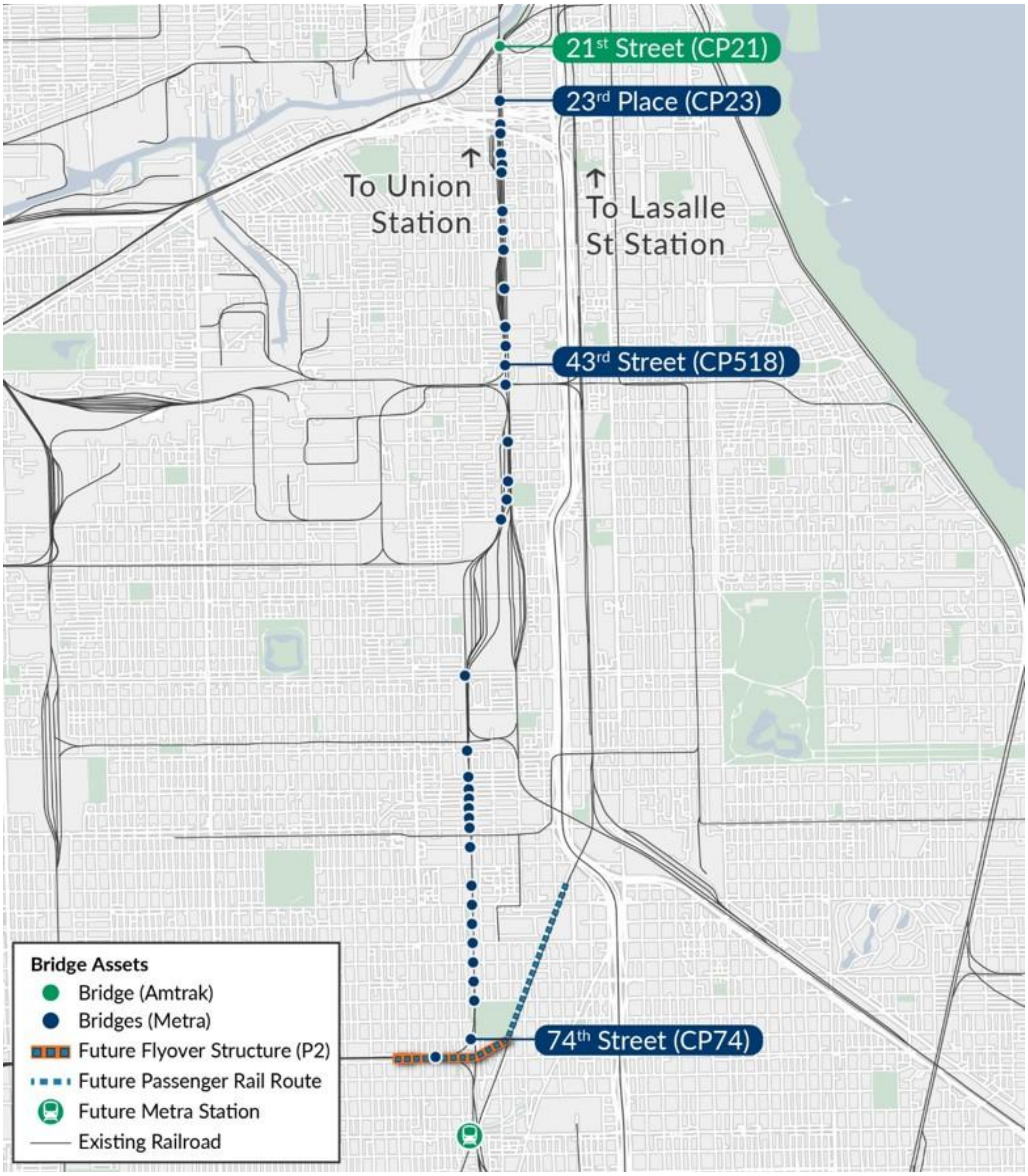
4.4.1 Benefit 4: Avoided Bridge Reconstruction Costs

One of the primary benefits of P2 is that the new flyover would allow Metra to reroute *SWS* operations to the RID, eliminating the vast majority of train movements over several aging bridge structures between 23rd Place and 74th Street that have exceeded the end of their useful life. This corridor includes 21 single-track bridges between 23rd Place (CP23) and 43rd Street (CP518), and 23 double-track bridges between 45th Street and 74th Street (CP74), which are displayed in Figure 3. These structures currently carry 30 weekday Metra *SWS* trains, six weekly Amtrak *Cardinal* trains, and two daily NS freight trains, although Metra remains responsible for their ownership and maintenance.

With *SWS* service rerouted to the RID, Amtrak could potentially reroute its *Cardinal* service to adjacent NS tracks, from 21st Street (CP21) to 43rd Street (CP518), where it already operates roughly 50% of the time, subject to agreement among the affected parties. This would eliminate train movements on the single-track segment of Metra-owned bridges between 23rd Place and 43rd Street (CP23 to CP518) and reduce traffic volumes sufficiently to consolidate operations onto a single track between 43rd Street and 74th Street (CP518 to CP74) while maintaining Amtrak and NS service. This operating concept was developed collaboratively by Metra, Amtrak, and NS to preserve corridor functionality for both passenger and freight rail service, while reducing infrastructure redundancy.

As a result, approximately one track's worth of bridge infrastructure across the corridor would no longer carry train traffic, eliminating the need for ongoing maintenance, rehabilitation, and eventual replacement of those structures and avoiding substantial future operating, maintenance, and capital costs.

Figure 3 Metra Identified Bridges for Reduced or Eliminated Operations



Source: Metra

All 44 structures shown in Figure 3 were identified by Metra as having exceeded their useful life, all built in or before 1917. Seven of the 44 bridges have never been rehabilitated, 12 were rehabilitated more than 70 years ago, and the remaining 25 were rehabilitated between 1998 and 1999. Given their age and condition, Metra expects all 44 bridges to need replacement within the next 30 years to keep the corridor operational.

The estimated capital cost of replacement is $10 million per single-track bridge; including engineering, design, and construction contingencies, base costs are escalated 50% to $15 million per track. Furthermore, any major bridge rehabilitations that would take place would cost an average of $7.5 million. These costs are reflected in 2026 dollars. Based on guidance from Metra regarding rehabilitation and replacement schedules, the following assumptions were made under the No-Build:

- The 19 bridges that have not received rehabilitation within the last 70 years will require replacement in the first 10 years of the analysis period. The 25 bridges that were rehabilitated within the last 70 years (i.e., those rehabilitated in the late 1990s), will be replaced in the final 20 years of the analysis.

- The 25 bridges that will undergo replacement in the final 20 years of the analysis (2043–2062) will require rehabilitation to stay in service during the initial 10 years of the analysis (2033–2042).

Total discounted benefits associated with avoiding single-track bridge replacement costs for the corridor under the Build for the 30-year analysis period are estimated at $248.1 million in 2024 dollars. This total cost only accounts for the capital costs needed to replace the bridges. Other costs, such as travel time increases due to train traffic reroutes or service interruptions during reconstruction, are not captured, but would likely be substantial.

The parameters and assumptions involved in estimating the avoided bridge rehabilitation and replacement cost are presented in Table 13. All cost estimates and replacement schedule assumptions are based on data provided by Metra in 2025.

Table 13 Avoid Bridge Rehab and Replacement Costs
Annual, First 10 Year and Last 20 Year

	Factor		Annual Value	Units
	Number of bridge replacements avoided		44	*bridges/ 30 years*
a	Replacement Cost (Single Track)		$15,000,000	*$2026/bridge*
b	Rehab Cost		$7,500,0000	*$2026/bridge*
c	Average number of single-track bridge replacements a year (First 10 years)		1.90	*bridges/year*
d	Average number of single-track bridge rehabilitations a year (First 10 years)		2.50	*bridges/year*
e	Average number of single-track bridge replacements a year (Last 20 years)		2.50	*bridges/year*
	Average Annual Bridge Rehab and Replace Costs (First 10 years)	(a * c) + (b * d)	$47,250,000	*$2026/year*
	Average Annual Bridge Rehab and Replace Costs (Last 20 years)	(a * e)	$18,750,000	*$2026/year*
	Average Annual Bridge Rehab and Replace Costs (First 10 years)	Inflation adjustment	$45,120,585	*$2024/year*
	Average Annual Bridge Rehab and Replace Costs (Last 20 years)	Inflation adjustment	$17,904,994	*$2024/year*

Source: Metra Bridge Rehab and Replacement Data, 2025.

While not quantified, P2 also has the benefit of reducing demands on Amtrak-owned infrastructure. Along the same corridor, Amtrak owns and maintains the South Branch Bridge (SBB), a high-maintenance lift bridge that carries frequent passenger train movements. With the flyover in place and *SWS* service shifted to the RID with termination at LaSalle Street Station, 30 weekday Metra train movements would be removed from the SBB. This reduction meaningfully lowers the daily wear on critical components of this 100+ year old bridge. While Amtrak is advancing a separate program to rehabilitate and ultimately replace the bridge, reducing Metra traffic in the interim helps moderate operational strain, improve reliability, and extend the functional performance of the existing structure as longer-term investments are planned, funded, and delivered.

4.5 Safety Benefits

The Project generates safety benefits through both systemwide travel behavior changes and targeted infrastructure improvements.

While not directly monetized due to insufficient historical data to capture the safety risks imposed by the existing configuration, the proposed flyover will improve safety by eliminating at-grade crossings, removing key conflict points, and reducing the need for trains to interact on shared track. Its straight, dedicated alignment also eliminates switches and diamonds, reducing exposure to potential failure points and lowering both operational risk and maintenance burden while improving reliability.

By shifting passenger travel from driving to rail (described in Benefit 2a) and enabling freight to remain on rail rather than diverting to truck (described in Benefit 1a), P2 also has the benefit of reducing overall VMT. This reduction lowers exposure to crash risk for users who shift modes, while also improving safety for remaining roadway users through reduced congestion and fewer vehicle interactions. These benefits are quantified under Benefits 5a and 5b.

Furthermore, by rerouting Metra *SWS* to the RID, P2 removes approximately 30 weekday trains from the at-grade roadway–rail crossing at South Lumber Street, significantly reducing exposure and associated safety risk at this location, as demonstrated under Benefit 5c.

Finally, additional localized improvements, including enhanced lighting and upgraded sidewalk and viaduct conditions, further support pedestrian safety and improve visibility in constrained urban environments (Benefits 5d and 5e). Together, these actions address both system-level conflict reduction and corridor physical deficiencies that contribute to rail, roadway, and pedestrian safety risks.

4.5.1 Benefit 5a: Reduce Roadway Crash Exposure from Passenger Mode Shift

As described in ***Benefit 2b: Increased Ridership and Mode Shift,*** expanded service and higher ridership on Metra's *SWS* line are expected to reduce auto travel, and therefore the vehicle miles traveled on the surrounding roadway network. This shift from automobile to rail travel yields safety benefits by reducing the number of vehicles on the road and, in turn, lowering crash exposure for remaining drivers. These safety benefits are monetized using per-mile crash cost rates from the U.S. DOT BCA Guidance. Table 14 summarizes the resulting reduction in crash exposure in the Project's opening year (2033). Total safety benefits over the 30-year analysis period are estimated at $3.5 million in 2024 dollars

Table 14 Passenger Travel Cost Savings Resulting from Mode Shift

Factor			2033 Value	Units
PASSENGER MILES				
a	Passenger Miles Diverted from Vehicles[A]		131,193	*person-miles/weekday*
IMPACT				
b	Vehicle Occupancy (Passenger Vehicles)[C]		1.52	*persons/automobile*
c	Vehicle Miles Diverted	a / b	86,311	*vehicle-miles/weekday*
d	Annualization Factor[B]		287	*weekdays/year*
MONETIZATION[C]				
e	Safety		$0.019	*2024$/vehicle-mile*
	Total Annual Benefit	**c * d * e**	**$470,291**	**2024$/year**

Sources: A: STOPS Model Output.
B: 2024 NTD Agency Profile, Northeast Illinois Regional Commuter Railroad Corporation (Annual UPT/Weekday UPT).
C: U.S. DOT BCA Guidance, December 2025.

4.5.2 Benefit 5b: Reduced Roadway Crash Exposure Avoided Truck Diversion

As described in ***Benefit 1a: Avoided Truck Diversion from Network Congestion***, by alleviating congestion and capacity constraints on the rail network through track improvements and grade separations, P2 avoids a future scenario in which a portion of regional freight rail movements would shift to trucking. This avoided diversion prevents the substantial increase in vehicle miles traveled that would otherwise occur. By limiting this additional truck traffic, the Project reduces roadway crash exposure due to lower traffic volumes. Consistent with the approach described for Benefit 5d, these safety benefits are monetized using per-mile crash cost rates from the U.S. DOT BCA Guidance. Table 15 summarizes the resulting reduction in crash exposure in the Project's opening year (2033). Total safety benefits over the 30-year analysis period are estimated at $1.0 million in 2024 dollars.

Table 15 Externality Reduction Benefits from Avoided Truck Diversion

Factor			2048 Value	Units
a	Vehicle Miles [A]		4,029,012	*persons/train*
MONETIZATION[B]				
b	Safety Unit Value		$0.017	*2024$/VMT*
VALUE OF BENEFIT				
c	Annual Safety Benefit	a * b	$68,493	*2024$/year*

Sources: A: Cambridge Systematics analysis of IDOT S&P 2019 TRANSEARCH data, STB Confidential Waybill Sample, & FAF 5.
B: U.S. DOT BCA Guidance, December 2025.

4.5.3 Benefit 5c: Reduced Accident Likelihood at South Lumber St Crossing from Train Reroute

With the existing route terminating at CUS, Metra *SWS* must traverse the at-grade roadway–rail crossing at South Lumber Street (Crossing ID: 523004X), where it accounts for the vast majority of train movements. The crossing currently experiences approximately 156 weekly train movements, including about 150 from Metra *SWS* (30 weekday trains) and six from Amtrak's *Cardinal* service.

With *SWS* service shifted to the RID with termination at LaSalle Street Station, train activity at the crossing would be substantially reduced, lowering both exposure and the associated likelihood of accidents. Although the crossing has not recently experienced any reported collisions, at-grade crossings inherently present some level of risk, which increases with train frequency. Removing approximately 150 weekly trains (roughly 21 daily trains) from the corridor would materially improve safety at this location.

The FRA GradeDec tool was used to estimate the change in annual accident exposure associated with decreased train volumes at the crossing from roughly 22 per day to less than one average daily crossing. The resulting annual accident estimates for the Build and No-Build scenarios are presented in Table 16.

Table 16 Annual Accident Likelihood Reduction from Train Reroute

Severity	Annual Accidents (No-Build)	Annual Accidents (Build)	Avoided Accidents
Fatal	0.0004	0.00008	0.0003
Injury	0.0010	0.0002	0.0008
PDO	0.0020	0.0005	0.0015
Total	**0.0034**	**0.0008**	**0.0026**

Source: FRA GradeDec Tool, https://gradedec.fra.dot.gov/gcx.

U.S. DOT BCA guidance on Fatal, Injury, and PDO crashes was used to monetize the anticipated reduction in accident exposure resulting from reduced train traffic at this crossing. The benefit estimate for this lowered exposure is presented in Table 19 for the year 2033. Over the 30-year analysis period, accident reduction benefits are estimated at $40,729, discounted to 2024 dollars.

Table 17 Benefits from Reduced Accident Risk at the South Lumber St Crossing

Factor			2033 Value	Units
AVOIDED ANNUAL ACCIDENT[A]				
a	Fatalities		0.0003	*accidents/year*
b	Injuries		0.0008	*accidents/year*
c	Property Damage		0.0015	*accidents/year*
CRASH UNIT VALUE[B]				
d	Fatalities		$15,366,400	*2024$/accident*
e	Injuries		$342,400	*2024$/accident*
f	Property Damage		$9,700	*2024$/accident*
VALUE OF BENEFIT				
g	Fatalities	a * d	$5,368	*2024$/year*
h	Injuries	b * e	$257	2024$/year
i	Property Damage	c * f	$14	*2024$/year*
	Total	**g + h + i**	**$5,640**	***2024$/year***

Sources: A: FRA GradeDec Tool, https://gradedec.fra.dot.gov/gcx.
B: U.S. DOT BCA Guidance, December 2025.

4.5.4 Benefit 5d: Reduced Crashes from Lighting and Sidewalk Improvement

To estimate the benefits associated with lighting improvements, crash history was collected at the locations to be improved, as summarized in Table 18. The analysis applies a crash modification factor of 0.68, based on the CMF Clearinghouse value for lighting improvement (CMF ID:11026).

Table 18 Improvement Area Crash History
Average Annual Incidents, 2019–2023

Factor	Crashes	Injuries	Fatalities
73rd St (West of Stewart Ave)	0.0	0.0	0.0

74th Street (Normal to Eggleston)	2.0	1.0	0.0
75th Street (Normal to Eggleston)	0.4	0.6	0.0
S Normal Ave (74th to 75th)	1.4	0.0	0.0
S Halsted Street	5.6	0.8	0.0
S Peoria Street	1.4	0.0	0.0
Total	**10.8**	**2.4**	**0.0**

Source: City of Chicago Data Portal. Traffic Crashes, from https://data.cityofchicago.org/Transportation/Traffic-Crash-es-Crashes/85ca-t3if/.

To monetize the reduction in injuries resulting from lighting improvements, the KABCO-scale "Injury (Unknown Severity)" rate from U.S. DOT BCA Guidance was applied (see Table 19, below). To monetize the reduction in overall crashes, an average number of vehicles per crash was estimated using 2023 National Highway Traffic Safety Administration data.[9] The reduction in vehicles involved in crashes was then monetized using a Property Damage Only (PDO) cost per vehicle, calculated by dividing the U.S. DOT BCA guidance PDO crash cost by the assumed number of vehicles per PDO crash (177, as stated in the Guidance). The resulting per-vehicle rate is equivalent to the KABCO "No Injury" rate.

The benefit estimates for the reduction in crashes in the Project area resulting from the improved lighting under viaducts are summarized in Table 19 for year 2033. Over the 30-year analysis period, crash reduction benefits are estimated at $1.6 million, discounted to 2024 dollars.

Table 19 Reduced Crash Benefits

Factor		2033 Value	Units
EXISTING CRASH RATES[A]			
a	Fatalities	0.0	*persons/year*
b	Injuries	2.4	*persons/year*
c	Property Damage	10.8	*crashes/year*
CRASH REDUCTION			

[9] Total national crashes for 2023 were obtained from the NHTSA Traffic Safety Facts: *Summary of Motor Vehicle Traffic Crashes* (October 2025), available at: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813762.

Data on total vehicles involved in crashes were sourced from NHTSA Traffic Safety Facts: *Large Trucks* (April 2025), available at: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813717.pdf, and *Passenger Vehicles* (May 2025), available at: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813723.pdf.

d	Crash Modification Factor		0.68	
e	Average Vehicles per Crash[B]		1.86	*vehicles/crash*
Avoided Crashes				
f	Fatalities	a * d	0.00	*persons/year*
g	Injuries	b * d	0.77	persons/year
h	Property Damage	c * d * e	6.46	*vehicles/year*
CRASH UNIT VALUE[C]				
i	Fatalities		$13,700,000	*2024$/person*
j	Injuries		$238,500	*2024$/person*
k	Property Damage		$5,480	*2024$/vehicle*
VALUE OF BENEFIT				
l	Fatalities	f * i	$0	*2024$/year*
m	Injuries	g * m	$183,740	2024$/year
n	Property Damage	h * k	$35,390	*2024$/year*
	Total	**l + m + n**	**$219,130**	***2024$/year***

Sources: A: City of Chicago Data Portal. Traffic Crashes, from https://data.cityofchicago.org/Transportation/Traffic-Crash-es-Crashes/85ca-t3if/.

B: Estimated from crash data from the National Highway Traffic Safety Administration.

C: U.S. DOT BCA Guidance, December 2025.

4.5.5 Benefit 5e: Reduced Crime from Lighting and Sidewalk Improvement

To estimate the crime reduction benefits associated with lighting improvements under viaducts, crime history was collected at the locations to be improved, as summarized in Table 20. The analysis assumes a 4% crime reduction based on a University of Chicago study of crime reduction through street lighting in New York City.[10]

Table 20 Improvement Area Crime History
Average Annual Incidents, 2019–2023

Factor	Burglary	Auto Theft	Larceny	Robbery	Murder	Rape	Assault
73rd St (West of Stewart Ave)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74th Street (Normal to Eggleston)	0.0	0.2	0.0	0.4	0.0	0.0	0.4
75th Street (Normal to Eggleston)	0.0	0.0	0.2	0.0	0.0	0.0	0.0
S Normal Ave (74th to 75th)	0.0	0.4	0.2	0.2	0.0	0.0	0.4
S Halsted Street	0.0	0.2	0.0	0.2	0.0	0.0	0.0
S Peoria Street	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: City of Chicago Data Portal. Crimes, from https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-Pres-ent-Map/ahwe-kpsy/.

To convert benefits for reduced crime, the unit values provided by the Federal Emergency Management Agency (FEMA) were inflated to 2024 dollars, as summarized in Table 21 below.

The estimated benefit from this assumed reduction in crime in the Project area is summarized in Table 21 below for the year 2033. Over the 30-year analysis period, crime reduction benefits are estimated at just over $50,000, discounted to 2024 dollars.

10 Chalfin & Parker. " Reducing Crime Through Environmental Design: Evidence from a Randomized Experiment of Street Lighting in New York City." University of Chicago Crime Lab. January 2021. https://crimelab.uchicago.edu/resources/reducing-crime-through-environmental-design-evidence-from-a-randomized-experiment-of-street-lighting-in-new-york-city/.

Table 21 Reduced Crime Benefits

	Input		2033 Value	Units
EXISTING CRIME RATES[A]				
a	Burglary		0.0	*incidents/year*
b	Auto Theft		0.8	*incidents/year*
c	Larceny		0.4	*incidents/year*
d	Robbery		0.8	*incidents/year*
e	Murder		0.0	*incidents/year*
f	Rape		0.0	*incidents/year*
g	Assault		0.8	*incidents/year*
CRIME REDUCTION				
h	Crime Reduction		4.0%	
AVOIDED CRIME				
i	Burglary	h * a	0.00	*incidents/year*
j	Auto Theft	h * b	0.03	incidents/year
k	Larceny	h * c	0.02	incidents/year
l	Robbery	h * d	0.03	incidents/year
m	Murder	h * e	0.00	incidents/year
n	Rape	h * f	0.00	incidents/year
o	Assault	h * g	0.03	*incidents/year*
VALUE OF BENEFIT[B]				
p	Burglary		$9,333	2024$/incident
q	Auto Theft		$15,558	2024$/incident
r	Larceny		$5,101	2024$/incident
s	Robbery		$61,108	2024$/incident
t	Murder		$12,973,985	2024$/incident
u	Rape		$347,752	2024$/incident
v	Assault		$154,948	2024$/incident
	Total	**(l * p) + (j * q) + (k * r) + (l * s) + (m * t) + (n * u) + (o * v)**	**$7,493**	***2024$/year***

Sources: A: City of Chicago Data Portal. Crimes, from https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-Pres-ent-Map/ahwe-kpsy/.

B: FEMA Benefit/Cost Analysis Re-engineering (BCAR). 2011. Accessed at https://files.hudexchange.info/course-content/ndrc-nofa-benefit-cost-analysis-data-resources-and-expert-tips-webinar/FEMA-BCAR-Resource.pdf.

4.6 Residual Value

The Residual Value of the P2 flyover assumes that the original value of the structure depreciates in a linear manner over its service life. The flyover bridge is an asset with an expected useful life of 75 years and would thus retain 60 percent of its value after 30 years in service (the analysis period). The estimated P2 construction cost is $419 million in undiscounted 2024 dollars. After 30 years, 60% or $251.4 million in undiscounted value would remain, which is equivalent to $19.2 million discounted to 2024 dollars.

4.7 Qualitative Benefits

Several benefits of the Project could not be directly monetized due to insufficient data. Most notably, the aforementioned benefits to Amtrak *Cardinal* Service, operational safety benefits from grade separating the rail-rail intersection, and additional SOGR benefits.

As mentioned, by shifting Metra *SWS* traffic away from CUS, P2 is expected to meaningfully improve conditions for Amtrak's *Cardinal* service. By reducing traffic at the CUS, one of Amtrak's busiest terminals, the Project frees up valuable platform and approach capacity, which could support expanded intercity service, including a potential transition of the *Cardinal* from its current six weekly trips to a daily round trip. Increased frequency would improve schedule reliability and passenger convenience, likely supporting higher ridership and encouraging mode shift from personal vehicles; however, there is insufficient modeling to accurately forecast future ridership and therefore to quantitatively capture this benefit.

Furthermore, the Project provides safety benefits at the location by converting an at-grade rail-to-rail crossing into a grade-separated configuration. These benefits were not monetized due to limited data on the existing safety risk, as the location has not experienced a significant recent history of safety or operational incidents. However, by eliminating a key conflict point, the P2 configuration inherently improves safety.

Finally, as noted under the SOGR benefits (Benefit 4), the Build scenario reduces maintenance needs not only on Metra infrastructure that would no longer be used, but also on Amtrak-owned and maintained assets, such as the South Branch Bridge. While these benefits were not monetized, shifting Metra service off these facilities is expected to reduce wear and maintenance burden on this Amtrak infrastructure.

5. Benefit/Cost Analysis Results

The BCA indicates that the Project will result in avoided delay for passenger and freight rail, increased passenger rail ridership and an associated reduction in passenger vehicle travel, reduced O&M costs associated with aging bridge structures, avoided freight diversion due to network congestion, rail and traffic, avoided rail idling, reduced crashes, and reduced crime. All values are discounted at 7%, per U.S. DOT Guidance.

The Project produces a Benefit/Cost ratio of 3.17, shown in Table 22, indicating that the benefits to society exceed the Project's costs, with a net present value of over $550 million.

Table 22 Benefit Cost Analysis Results Summary

Total Benefits	Discounted Value (2024$)
1a: Reduced Externalities from Avoided Truck Diversion	$74,951,575
1b: Reduced Externalities and Shipper Costs from Avoided Rail Diversion	$305,933,435
2a: Time Savings due to Operational Efficiency	$91,331,987
2b: Reduced Externalities from Passenger Mode Shift	$81,444,583
2c: O&M Cost Increase from Additional Service	-$28,319,482
3: Avoided Delay (Passenger and Freight) from Typical Operations	$4,333,449
4: O&M Cost Savings resulting from Infrastructure Improvement (Bridge Replacement Savings)	$248,089,912
5a: Reduced Roadway Crash Exposure from Passenger Mode Shift	$3,500,220
5b: Reduced Roadway Crash Exposure from Avoided Truck Diversion	$1,012,194
5c: Reduced Accident Likelihood at South Lumber St Crossing from Train Reroute	$40,729
5e: Reduced Crash Risk from Lighting and Sidewalk Improvements	$1,582,598
5f: Reduced Crime from Lighting and Sidewalk Improvements	$54,118
Residual Value	$19,223,065
Net Benefits	$803,178,382
Total Costs	$253,114,530
B/C Ratio	3.17
Net Present Value	$550,063,852

6. Sensitivity Analysis

A sensitivity analysis helps identify which variables have the greatest impact on the BCA results. This analysis estimates how changes to key variables from their preferred value affect the results and how sensitive the results are to these changes. This allows for the assessment of the strength of the BCA, including whether the results reached using the preferred set of input variables are significantly different by reasonable departures from those values. summarizes the key variables that have been evaluated for sensitivity and the results of this analysis.

First, a sensitivity analysis was conducted by reducing one of the driving benefits of the Project, avoided bridge reconstruction costs, by 50%, resulting in a BCR of 2.68:1 and an NPV of $426.0. This indicates that even under a significantly more conservative assumption regarding these avoided costs, the BCA has a favorable outcome.

Second, the primary benefit of this analysis, avoided rail diversion, was tested based on significantly more conservative assumptions regarding the maximum percentage of rail traffic expected to divert under the No-Build scenario, reducing the assumption from 5% to 1% (an 80% reduction in assumed diversion, which reflects a roughly 80% reduction in avoided rail diversion benefits as a whole). Under the 1% maximum diversion assumption, diversion begins in 2048 at 0.2% and grows to 1% by 2052. This change reduced the BCR to 2.21:1 and the NPV to $305.3 million.

Third, the shipper costs used to monetize the benefit of avoided rail diversion were adjusted. The analysis originally applied the average rate per ton-mile for Carload traffic, under the assumption that this is the most likely type of freight to divert. In the sensitivity analysis, this was replaced with the overall average rate across all service types (Carload, Bulk, Intermodal, and Auto), which is approximately 10% higher than the Carload-only rate. Using this higher shipping cost increased the benefit-cost ratio to 3.26:1 and raised the net present value to $572.0 million.

Finally, a sensitivity was assessed by increasing the cost of the Project by 20%. The resulting discounted BCR was 2.64:1, with an NPV of $499.4 million.

Table 23 Sensitivity Testing

Sensitivity Variable	Sensitivity Value	New BCR (Discounted 7%)	New NPV (Millions of $2024)
Benefit 4: Avoided Bridge Reconstruction Costs	-50%	2.68	$426.0
Benefit 1b: Rail Diversion Rate	-80%	2.21	$305.3
Benefit 1b: Shipper Cost Rate	+10%	3.26	$572.0
Capital Costs	+20%	2.64	$499.4