Benefit-Cost Analysis Supplementary Documentation

FY2025-2026 Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant Program

New Horizons Project

Alabama Port Authority (APA)

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Executive Summary

The New Horizons Project (the Project) at the Port of Mobile is proposed to construct new rail infrastructure and expand railcar storage capacity within the existing Interchange Yard to support growing intermodal activity. The Interchange Yard is central to the Port's rail operations, where railcars are exchanged among Class I railroads serving the port, as well as the Terminal Railway Alabama State Docks (TASD), which operates as the switching carrier for the Mobile Intermodal Container Transfer Facility (ICTF). The proposed improvements focus on increasing track capacity, upgrading rail yard switches, and improving operational flexibility within the yard.

The Port of Mobile is a key element in the transformation of Southeastern manufacturing, and consumer supply chains, supporting major inland logistics centers operated by companies such as Walmart and Amazon. The Port is advancing a multi-year effort to expand its intermodal container business to approximately one million TEUs, roughly doubling current volumes. Intermodal traffic has already increased by 142%, and the Port is developing inland ports in Montgomery and North Alabama, both connected to Mobile, further increasing demand for efficient and reliable rail operations.

The scope of the project includes the construction of approximately 38,980 feet of new track adjacent to Industrial Canal Road. Work includes earthwork, erosion control, roadway and drainage (civil site) installation, trackwork and switches, and associated right-of-way and remediation activities to improve operational performance. The project also constitutes a rail capacity expansion initiative, as the reclamation of land and its conversion into a railcar storage yard will increase system capacity and operational flexibility.

A Benefit-Cost Analysis (BCA) for the Project was conducted in accordance with federal guidance on evaluation methods and monetization values issued by the U.S. Department of Transportation (USDOT) in its December 2025 Benefit-Cost Analysis Guidance for Discretionary Grant Programs[1].

Table 1 presents to the Summary of the Project improvements and impacts.

[1] Benefit Cost Analysis Guidance FY2026 Update II (Final).pdf

Table 1: Project Improvements and Impacts

Current Status (Base Scenario) & Problems to be Addressed	Changes to Baseline (Alternative Scenario)	Type of Impact	Economic Benefits	Population Affected by Impacts	Summary of Results (2024$, Discounted)
In the Base Case, the TASD Interchange Yard has insufficient railcar storage and staging capacity to support continued growth in intermodal freight at the Port of Mobile, and subsequently the planned inland ports in Montgomery and North Alabama. This limits operational efficiency and constrains the Port’s ability to accommodate additional train activity and expanding inland connections.	In the Alternative Case, additional capacity is created through construction of new tracks and conversion of underutilized land into a railcar storage yard in the facility. This improves staging, storage, and handling of railcars and supports increased intermodal activity by diverting truck freight transportation to railways.	Improved Mobility of People and Goods	Travel Time Savings	Mobile, State of Alabama, and trading partners outside of Alabama	**$34.9 M**
			Total Vehicle Operating Cost Savings	Port users and logistics/service providers	**$52.8 M**
			Total Externalities Congestion Savings	Regional transportation users	**$7.1 M**
		Safety	Toal Crash Cost Savings	External and regional communities	**$13.6 M**
		Environmental and Community Benefits	Total CAC Emissions Cost Savings	Truck and rail operators	**$0.9 M**
			Total Emissions Externalities Savings	Local community	**$2.0 M**
			Total Noise Externalities Savings	Local community	**$0.6 M**
		State of Good Repair	Total Operations & Maintenance (O&M) Cost Savings	Port of Mobile and rail operators	**$(0.2M)**
			Total Residual Value Benefits	Port of Mobile	**$1.4 M**

A 24-year period of analysis was used in the estimation of the project’s benefits and costs, including 4 years of project development and 20 years of operations. Project spending occurs from 2028 through 2032, and project impacts are considered over 20 years of operation. Benefits are monetized as thoroughly as possible with the data currently available.

The total project capital costs are $46.4 million, undiscounted, and are expected to be financed by Federal, State, and local funds. Based on the analysis presented in the rest of this document, the project is expected to generate $113.1 million in discounted benefits with $31.4 million in discounted costs, using a 7 percent real discount rate, per USDOT BCA guidance[2].

Therefore, the project is expected to generate a discounted net present value of $81.7 million and a benefit-cost ratio of 3.6, as presented in Table 2.

Table 2: Overall Results of the Benefit Cost Analysis, 2024 Dollars

Project Evaluation Metric	Undiscounted	Discounted (2024$)
Total Benefits ($ millions)	$435.3	$113.1
Total Costs ($ millions)	$46.4	$31.4
Net Present Value ($ millions)	$81.7	
Benefit Cost Ratio	3.6	
Internal Rate of Return (%)	19%	
Payback Period (years)	5	

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[2] Benefit Cost Analysis Guidance FY2026 Update II (Final).pdf

Table 3: Summary of All Project Costs and Benefits, in millions (2024$)

CY	Travel Time Savings	Vehicle Operating Cost Savings	Total Externalities Congestion Savings	Total Crash Cost Savings	Total CAC Emissions Cost Savings	Total Emissions Externalities Savings	Total Noise Externalities Savings	Total O&M Cost Savings	Total Residual Value Benefits	Total Benefits	Total Capital Costs	Net Present Value
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	-7.9
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	-7.3
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	-6.4
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	-5.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	-4.7
2033	0.4	0.7	0.1	0.2	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.4
2034	0.8	1.3	0.2	0.3	0.0	0.0	0.0	0.0	0.0	2.7	0.0	2.7
2035	1.2	1.8	0.2	0.5	0.0	0.1	0.0	0.0	0.0	3.8	0.0	3.8
2036	1.5	2.2	0.3	0.6	0.1	0.1	0.0	0.0	0.0	4.7	0.0	4.7
2037	1.7	2.6	0.3	0.7	0.1	0.1	0.0	0.0	0.0	5.5	0.0	5.5
2038	2.5	3.8	0.5	1.0	0.1	0.1	0.0	0.0	0.0	8.0	0.0	8.0
2039	2.4	3.6	0.5	0.9	0.1	0.1	0.0	0.0	0.0	7.7	0.0	7.7
2040	2.3	3.5	0.5	0.9	0.1	0.1	0.0	0.0	0.0	7.4	0.0	7.4
2041	2.2	3.4	0.5	0.9	0.1	0.1	0.0	0.0	0.0	7.1	0.0	7.1
2042	2.1	3.3	0.4	0.8	0.1	0.1	0.0	0.0	0.0	6.9	0.0	6.9
2043	2.1	3.1	0.4	0.8	0.0	0.1	0.0	0.0	0.0	6.6	0.0	6.6
2044	2.0	3.0	0.4	0.8	0.0	0.1	0.0	0.0	0.0	6.4	0.0	6.4
2045	1.9	2.9	0.4	0.8	0.0	0.1	0.0	0.0	0.0	6.2	0.0	6.2

CY	Travel Time Savings	Vehicle Operating Cost Savings	Total Externalities Congestion Savings	Total Crash Cost Savings	Total CAC Emissions Cost Savings	Total Emissions Externalities Savings	Total Noise Externalities Savings	Total O&M Cost Savings	Total Residual Value Benefits	Total Benefits	Total Capital Costs	Net Present Value
2046	1.9	2.8	0.4	0.7	0.0	0.1	0.0	0.0	0.0	5.9	0.0	5.9
2047	1.8	2.7	0.4	0.7	0.0	0.1	0.0	0.0	0.0	5.7	0.0	5.7
2048	1.7	2.6	0.4	0.7	0.0	0.1	0.0	0.0	0.0	5.5	0.0	5.5
2049	1.7	2.5	0.3	0.7	0.0	0.1	0.0	0.0	0.0	5.3	0.0	5.3
2050	1.6	2.4	0.3	0.6	0.0	0.1	0.0	0.0	0.0	5.1	0.0	5.1
2051	1.6	2.3	0.3	0.6	0.0	0.1	0.0	0.0	0.0	4.9	0.0	4.9
2052	1.5	2.3	0.3	0.6	0.0	0.1	0.0	0.0	1.4	6.2	0.0	6.2
2053	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**34.9**	**52.8**	**7.1**	**13.6**	**0.9**	**2.0**	**0.6**	**-0.2**	**1.4**	**113.1**	**31.4**	**81.7**

Introduction

This document provides detailed technical information on the economic analyses conducted in support of the grant application for the Project.

The Methodological Framework section introduces the conceptual framework used in the Benefit-Cost Analysis. The Project Overview section provides an overview of the project, including a brief description of existing conditions and proposed alternatives, a summary of cost estimates and schedule, and a description of the types of effects that the project is expected to generate. Estimates of travel demand and traffic growth can be found in the Travel Demand & Growth section of the appendix. Specific data elements and assumptions pertaining to the merit criteria along with associated benefit estimates are presented in the Benefit Cost Analysis section of the appendix. Estimates of the project's net present value (NPV), its benefit-cost ratio (BCR) and detailed metrics for each merit criteria and benefit category are introduced in the Project Benefits section. Lastly, a sensitivity analysis was included in the Sensitivity Analysis section of this appendix. Additional data tables are provided within the BCA model including annual estimates of benefits and costs to assist the U.S. Department of Transportation (USDOT) in its review of the application.[3]

Methodological Framework

The specific methodology developed for this application was developed using the USDOT BCA guidance (December 2025). In particular, the methodology involves:

- Establishing existing and future conditions under the build and no-build scenarios;
- Assessing benefits that align with those identified in the BCA guidance which include travel time savings, safety benefits, vehicle operating cost benefits, externalities congestion emissions and noise benefits, CAC emissions cost savings and state of good repair benefits;
- Measuring benefits in dollar terms, whenever possible, and expressing benefits and costs in a common unit of measurement;
- Discounting future benefits and costs utilizing the 7 percent real discount rate, per the USDOT BCA Guidance; and
- Conducting a sensitivity analysis to assess the impacts of changes in key assumptions.

[3] The BCA spreadsheet model is provided separately as part of the application.

Project Overview

Base Case and Alternatives

To assess the benefits and costs of the New Horizons Project, no build and build scenarios were developed.

The no build scenario: Assumes no expansion of rail infrastructure at the TASD Interchange Yard, leaving existing constraints in track capacity, railcar storage and switching operations. As intermodal demand grows, these limitations would result in increased congestion and delays due to freight demand being handled by trucks rather than rail.

The build scenario: Assumes full implementation of the project, including new track construction (approximately 38,980 feet), expanded railcar storage, upgraded switches, and supporting civil works. These improvements would increase yard capacity and flexibility and enable additional intermodal train activity and facilitate a shift of freight from truck to rail.

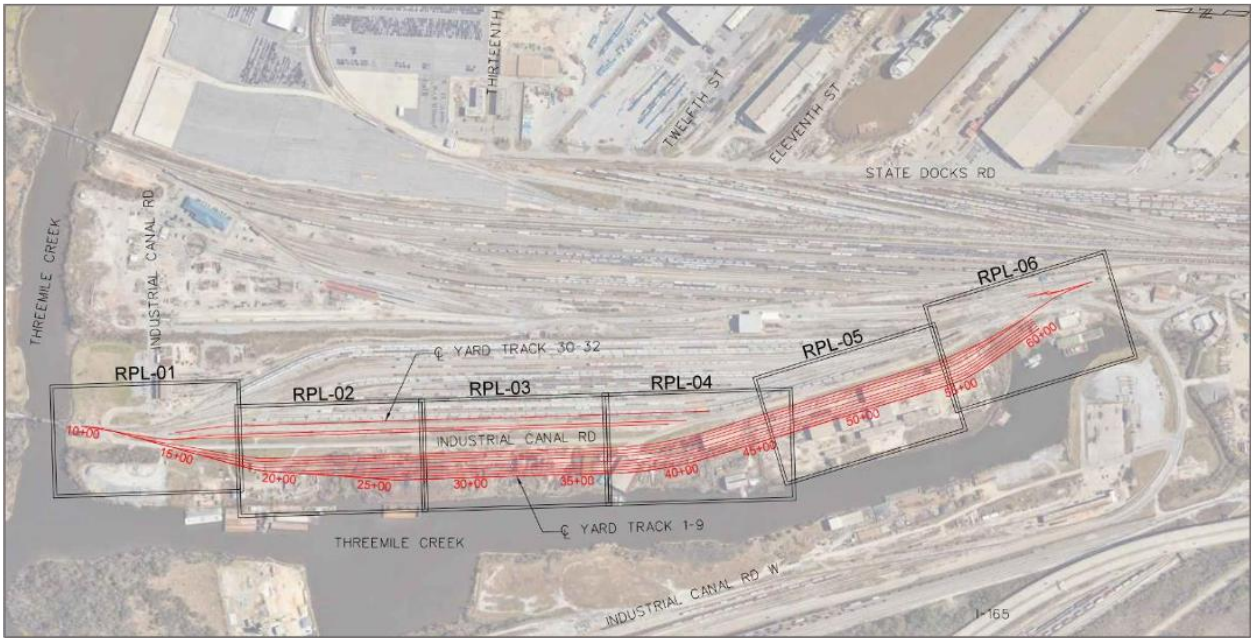
Project Impacts

The project will deliver several key impacts:

- **Increased capacity and efficiency:** Expanded track and improved switching will reduce congestion, delays and dwell times while accommodating additional train volumes.
- **Support for intermodal growth:** Enhances the Port's ability to handle rising container volumes and strengthens connections to inland ports and regional supply chains.
- **Improved freight mobility:** Reduces bottlenecks and improves coordination among rail carriers, enhancing overall network performance.
- **Economic and environmental benefits:** Facilitates greater use of rail, lowering costs, reducing highway congestion, and decreasing emissions.
- **Greater reliability and resiliency:** Strengthens the Interchange Yard's role as a critical hub for current and future port operations.

The New Horizons Project, shown in Figure 1, will expand the existing interchange yard with approximately 38,980-feet (7.4 track miles) of new track. These proposed nine additional rows of track would include five tracks toward the west of the existing Industrial Canal Road for both through movement and storage and four additional tracks toward the east of the existing Industrial Canal Road for storage. The number and location of tracks will depend on preserving the location of existing utilities.

Figure 1. Overview of the New Horizons Project



Project Investments & Cost Estimates

Project Investments including project administration, permitting and fees, final design, construction will require a total of $48.7 million (in 2026 dollars) as budgeted in the APA Interchange Yard 30% design cost estimate documentation for both East and West yards, or $46.4 million expressed in 2024 dollars.

Table 4 below shows the project costs and schedule for each construction phase in the Project.

Table 4: Project Cost Summary, in 2024 Dollars

Construction Phase	Start	End	Total Project Cost
Project Admin / Project Mgmt.	2028	2032	$3,715,501
Permitting and Fees	2028	2029	$1,300,425
final design completion	2028	2030	$4,644,376
construction substantial completion	2028	2032	$36,783,461
Total Construction Costs	**2028**	**2032**	**$46,443,764**

Travel Demand & Growth

In addition to improving operational efficiency at the TASD Interchange Yard, the New Horizons Project is critical to enabling the Port of Mobile's ability to accommodate projected growth in intermodal freight demand. The Port is advancing a long-term strategy to expand intermodal capacity to approximately one million TEUs, as mentioned above, supported by recent and planned investments in on-dock rail infrastructure, expanded container handling facilities, and inland ports in Montgomery (under construction) and North Alabama. These investments are expected to significantly increase the volume of containerized cargo moving between the Port and inland destinations, particularly within Alabama.

The TASD Interchange Yard plays a central role in this system as the primary location where railcars are exchanged among Class I railroads and staged for intermodal operations at the Mobile ICTF. However, under the no-build scenario, the yard's existing constraints, including limited track capacity, insufficient railcar storage, and restricted switching flexibility, would limit its ability to accommodate additional train traffic. As demand grows, these constraints would prevent rail from absorbing its share of new freight volumes, resulting in a greater reliance on truck transport. In practical terms, much of the Port's future growth would be handled by trucks moving goods to inland destinations, increasing vehicle miles traveled on the regional highway network.

To assess the benefits of the project, the analysis focuses on estimating the potential for truck-to-rail diversion enabled by the proposed improvements. Freight Analysis Framework (FAF5) data were used to characterize current flows of imported containerized cargo moving from the Port of Mobile to inland markets. This analysis, shown in ‘Truck FAF Data’ and ‘Rail FAF Data’ sheets of the model, indicate that freight movements are highly concentrated within Alabama and that, as of 2024, less than 12 percent of these volumes are transported by rail. This relatively low rail share highlights a significant opportunity for mode shift if rail capacity constraints are addressed.

Future freight demand was projected using an annual growth rate of 3.2 percent, derived from FAF5 projections of truck tonnage growth between 2024 and 2030. This growth reflects increasing demand from key regional industries, including automotive manufacturing, steel production, coal and large-scale distribution networks supported by companies such as Hyundai, Walmart, and Amazon. Without corresponding improvements in rail infrastructure, this additional demand would be handled primarily by trucks.

The mode shift analysis focuses in particular on freight destined for inland Alabama (019 - Rest of Alabama), which includes key markets such as Montgomery and northern Alabama. These locations are expected to be served directly by the planned inland ports, making them strong candidates for rail-based intermodal service. To estimate diversion potential, the analysis applies a conservative assumption that 20 percent of eligible truck movements in these corridors will shift to rail once sufficient capacity and inland port infrastructure are in place. This assumption reflects both the cost advantages of rail for medium-distance hauls and observed performance at comparable inland port facilities.

Under this assumption, approximately 23,440 containers per year are expected to shift from truck to rail in the long term. For each diverted shipment, the analysis assumes a typical movement of approximately 200 miles by truck under current conditions. In the build scenario, this movement is replaced by a 165-mile rail haul between Mobile and the Montgomery inland port, combined with approximately 35 miles of truck drayage for first- and last-mile delivery. While drayage trips remain necessary, they are significantly shorter than the full truck haul they replace.

Based on these assumptions, the project is estimated to reduce an average of 11 million truck miles per year on a round-trip basis. These reductions represent net savings after accounting for added drayage miles and form the basis for quantifying benefits related to travel time, vehicle operating costs, safety, highway externalities and emissions in the BCA. To reflect realistic adoption patterns, these benefits are assumed to phase in gradually over a five-year period, consistent with ramp-up observed at comparable inland port developments such as the Greer Inland Port in South Carolina.

Overall, the New Horizons Project enables a substantial shift of freight from truck to rail by removing key capacity constraints at the TASD Interchange Yard. In the absence of the project, the Port's anticipated growth would be absorbed largely by the highway system, resulting in increased congestion, higher emissions, highway externality disbenefits and reduced efficiency across the regional freight network.

Table 5 below shows the assumptions made in the estimation of the traffic demand volumes used in the model.

Table 5: Traffic Demand Assumptions

Variable	Units	Value	Source
General			
Roundtrip Factor	factor	2	Known
Growth Rate at Port of Mobile	%	3.2%	FAF5 Growth Rate between 2024-2040 for Trucks, which is the most conservative modal growth rate
Year FAF Data is Presented	yr	2024	FAF5 Model Run
Implementation Period	yrs	5	Project Assumption based on similar port project schedules
Tons per Container Assumption	tons	19	Conservative Project Assumption based on Industry Standards for a 20-ft Container
Truck & Rail			
Rest of AL - Truck Trip Miles - No Build	truck-miles	23,522,533	FAF5 Model Run
Rest of AL - Truck Trip Miles - Build	truck-miles	20,474,965	
Rest of AL - Truck Trip Miles - (Project Impacts / Implementation Period)	truck-miles	(609,514)	
Rest of AL - Inferred Truck Miles	truck-miles	201	
Assumed Truck Average Speed	mph	55	Project Assumption based on Highway Speed Limits

Variable	Units	Value	Source
Rest of AL - Containers- No Build	containers	15,466	FAF5 Model Run
Rest of AL - Inferred Rail Miles	rail-miles	259	
Rest of AL - Inferred Container Miles	rail-miles	4,007,636	
Rest of AL - Inferred Ton Miles	rail-miles	76,145,093	
Rest of AL - Trains- No Build	trains	94	
Rest of AL - Containers- Build	containers	38,908	
Rest of AL - Trains- Build	trains	237	
Rest of AL - Rail Trip Miles- No Build	rail-miles	15,560	
Rest of AL - Rail Trip Miles - Build	rail-miles	39,146	
Rest of AL - Rail Trip Miles - (Project Impacts / Implementation Period)	rail-miles	4,717	
Estimated Miles Traveled on Rail	miles	165	Distance between Mobile and the Montgomery inland port
Number of Containers per Train	no.	164	Project Information
Intermodal Train Speed	mph	24.5	CSX data for April 2024
Train Efficiency Metric (TMPG)	ton-mile per gallon	535	2025 CSX System wide train efficiency metric
Empty Container Factor	%	21%	Project Assumptions
Diversion Probability	%	20%	
Montgomery Rail Corridor Distance	miles	165	Google Maps
North Alabama Rail Corridor Average Distance	miles	346	Distance Assumption for reference
Drayage Truck Miles Addition	miles	35	Project Assumptions

Benefit Cost Analysis

A quantitative benefit-cost analysis (BCA) was performed based mainly on the expected modal shift from truck to rail, and the subsequent decrease in vehicle miles as a result of this shift. These benefits were then monetized using inputs from USDOT's BCA guidance.

While it complies with USDOT's BCA Guidance, the BCA does not capture the full economic impact of the project, as it excludes several potential regional benefits, including increased competitiveness of the Mobile area, broader gains to Alabama-based firms and industries, and associated employment and multiplier effects.

Identifiable future years' costs and benefits have been projected, in constant 2024 dollars, for a period extending 20 years beyond construction. Per federal guidance, the monetized value of these quantified future benefits and costs are discounted at 7%. benefits are presented in Table 6 below.

Table 6: Expected Effects on Benefit Categories

National Grant Merit Criteria	Benefit Categories	Discounted ($ millions)
Improved Mobility of People and Goods	Travel Time Savings	$34.9
	Vehicle Operating Cost Savings	$52.8
	Externalities Congestion Savings	$7.1
Safety	Crash Cost Savings	$13.6
Environmental and Community Benefits	CAC Emissions Cost Savings	$0.9
	Emissions Externalities Savings	$2.0
	Noise Externalities Savings	$0.6
State of Good Repair	O&M Cost Savings	-$0.2
	Residual Value Benefits	$1.4
Total Benefit Estimates		**$113.1**

Project Benefits

Quantified project benefits are estimated through 2052, 20 years after the project is fully functioning. Abbreviated summaries of analysis methods for each merit criteria are presented below.

Improved Mobility of People and Goods

The Project enhances the movement of freight and roadway users by shifting container traffic from long-haul trucking to more efficient rail service, easing pressure on highway corridors and improving overall system performance across multiple dimensions of mobility.

The BCA conducted for this application focuses on the improved mobility of people and goods criterion. Within that criterion, the analysis assesses travel time, vehicle operating costs, and external congestion savings.

Methodology

Travel Time Savings

Travel time savings accrue to freight operators through reductions in total vehicle hours traveled (VHT). Under the No Build scenario, a larger share of freight is transported by truck, resulting in higher total VHT because trucks have relatively limited capacity and require a greater number of overall trips, and more cumulative driver hours, to move a given volume of goods.

In contrast, the Build scenario enables increased use of rail, where each train can carry the equivalent of dozens to hundreds of truckloads. This significantly reduces the number of trips required to move the same volume of freight, leading to substantial reductions in total VHT and overall freight travel time. While greater reliance on rail increases train hours traveled, the resulting reduction in truck hours is much larger, meaning the overall travel time savings more than outweigh the increase in rail activity.

These travel time savings were monetized using the value-of-time parameters from the USDOT BCA Guidance. The difference in total VHT between the No Build and Build scenarios represents the travel time savings attributable to the Project.

Vehicle Operating Cost Savings

Vehicle operating cost savings arise directly from this modal shift. Under the No Build scenario, greater reliance on trucks leads to higher vehicle miles traveled (VMT), increasing fuel consumption, driver labor hours and equipment wear due to the large number of trips required to move freight.

In the Build scenario, increased use of rail allows substantially more cargo to be moved per trip, significantly reducing the number of truck movements needed. This results in lower total VMT and associated truck operating costs. While greater reliance on rail increases train miles traveled (TMT) and associated rail operating costs, the resulting reduction in truck hours is much larger, meaning the overall vehicle operating costs reduction more than outweigh the increase in rail activity.

Externalities Congestion Savings

Externalities congestion savings occur as fewer trucks travel on regional highways, reducing delays for general roadway users and improving overall traffic flow on key corridors. By shifting container movements from truck to rail, the Project reduces the number of heavy-duty vehicles on constrained highway segments, easing congestion and lowering the time costs for passenger vehicles and other commercial drivers. These systemwide benefits reflect the broader mobility improvements generated when freight demand is accommodated on rail.

Assumptions

The assumptions used in the estimation of mobility of people and goods benefits are summarized in Table 7 below using inputs from the 2026 USDOT Guidance.

Table 7: Assumptions Used in The Estimation of Mobility of People and Goods

Variable	Units	Value	Source
Travel Time Savings			
Passenger Vehicle Average Occupancy (AVO) (All Travel)	persons/vehicle	1.52	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025
Truck Vehicle Average Occupancy (AVO)	persons/vehicle	1	
Value of Time, Personal	2024 $/hour	$20.10	
Value of Time, Business	2024 $/hour	$34.60	
Value of Time, All purpose	2024 $/hour	$21.80	
Value of Time, Truck Drivers	2024 $/hour	$37.20	
Freight Train - Hauling Operating Costs	2024 $/hour	$655.00	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025 Includes fuel costs, depreciation and labor costs
Vehicle Operating Cost Savings			
Light Duty Vehicles	2024 $/mile	$0.56	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025 Excludes Driver Wages
Commercial Trucks	2024 $/mile	$1.23	
Externalities Congestion Savings			
Buses and Trucks - Urban - Congestion	2024$	$0.367	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025
Buses and Trucks - Rural- Congestion	2024$	$0.0800	
Buses and Trucks - Weighted Average- Congestion	2024$	$0.14	

Benefit Estimates

Mobility of people and goods benefits resulting from the Project are estimated at $94.8 million over the 20-year operations period when discounted at 7 percent. Estimates for this benefit category are presented in Table 8.

Table 8: Estimates of Mobility of People and Goods

Values in Millions of 2024$	Over the Study Period	
	Undiscounted	Discounted
Travel Time Savings	$133.2	$34.9
Vehicle Operating Cost Savings	$201.5	$52.8
External Congestion Savings	$27.1	$7.1
Total Benefits	**$ 361.8**	**$ 94.8**

Safety

The Project generates safety benefits by reducing truck traffic on regional highways and shifting freight movements to rail, resulting in fewer potential accidents over the period of analysis. This reduction in truck volumes is expected to lower the risk of crashes, injuries and fatalities, improving overall roadway safety. At the same time, the Project results in an increase in total rail miles traveled, which introduces a marginal safety disbenefit associated with rail operations; however, this increase is substantially smaller in magnitude compared to the safety benefits from reduced truck traffic. The net effect of the Project is a significant improvement in system-wide safety due to the shift from truck to rail freight movement.

Methodology

Crash Cost Savings

Road safety data was sourced from the Alabama Department of Transportation DriveSafe 2024 fact book, and Federal Railroad Administration Alabama dataset. Crash rates, including fatalities and injuries per unit of vehicle miles traveled, were applied to estimate baseline crash risk. The reduction in truck vehicle miles traveled associated with the Project was then used to estimate avoided crashes across severity categories. These avoided crashes were monetized using unit cost values by severity level.

Assumptions

The assumptions used in the estimation of crash cost savings are summarized in Table 9 below.

Table 9: Assumptions Used in The Estimation of Crash Cost Savings

Variable	Units	Value	Source
Crash Cost Savings			
Alabama Vehicles Miles Traveled (VMT) - 2024	vehicle-miles	72,650,000,000	ALABAMA DEPARTMENT OF TRANSPORTATION DRIVESAFE ALABAMA.ORG - 2024 Fact Book
Number of Fatalities - 4 Yr Average	fatalities	969	
Number of Fatal Crashes	fatal crashes	893	
Fatalities involving Trains - 2024	fatalities	9	
Injuries involving Trains - 2024	injuries	30	
Number of Serious Injuries - 2024	serious injuries	4,655	
Total Non-Fatal Injuries	injuries	36,601	
Alabama Fatality Rate per 100 Million VMT - 4 Yr Average	fatality per 100M vehicle-mile	1.366	
Alabama Train Miles Traveled (TMT) - 2023	Train-miles	549,527,000	Federal Railroad Administration Alabama dataset
K - Killed	2024 $/ fatality	$13,700,000	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025
A - Incapacitating	2024 $/ injury	$1,302,300	
U - Injured (Severity Unknown)	2024 $/ injury	$238,500	

Benefit Estimates

Crash cost savings benefits resulting from the project are estimated at $ 13.6 million over the 20-year operations period when discounted at 7 percent. Crash cost savings estimates are presented in

Table 10 below.

Table 10: Estimates of Safety Benefits

Values in Millions of 2024$	Over the Study Period	
	Undiscounted	Discounted
Crash Cost Savings	$52.1	$13.6
Total Safety Benefits	$52.1	$13.6

Environmental and Community Benefits

Environment and Community Benefits reflect reducing fuel consumption, lowering harmful emissions, and decreasing the noise impacts associated with heavy truck traffic on regional highways. As long-haul truck trips are replaced with intermodal rail movements, the Project produces measurable reductions in emissions and other criteria air contaminants, along with corresponding decreases in the social costs associated with these pollutants. These improvements also lessen highway noise exposure for nearby communities, as fewer trucks operate on major corridors, reducing one of the most persistent quality of life burdens on highway communities. The BCA conducted focuses on CAC emissions costs, emissions externalities and noise externalities savings.

Methodology

CAC Emissions Cost Savings

CAC emissions cost savings are estimated by quantifying the reduction in criteria of air contaminants that results when long-haul truck trips are replaced with more fuel-efficient intermodal rail movements. Emission impacts are evaluated separately for truck and rail activity, capturing reductions from fewer truck miles traveled and increases from additional rail operations. Using MOVES data with an assumed speed of 55.0 mph for Mobile County and heavy-duty diesel trucks, truck-related emissions are applied to the anticipated reduction in truck VMT. Rail-related emissions are estimated using emission factors from the 2020 National Emissions Inventory Locomotive Methodology (Eastern Research Group, Inc.), reflecting added rail activity. Although increased rail activity also produces additional emissions, these are substantially outweighed by the decrease in truck generated pollutants, particularly NO_x, $PM_{2.5}$, and SO_x. Net annual pollutant quantities are monetized using USDOT BCA Guidance values and presented in 2024 dollars, reflecting the avoided health and environmental costs associated with lower CAC emissions.

Emissions Externalities Savings

Emissions externality savings capture the broader environmental benefits that occur when fewer vehicles operate on the roadway network, reducing congestion related emissions for the general public. As truck traffic declines and shifts toward rail, overall roadway activity decreases, leading to lower emissions from idling and speed variability that would otherwise affect all highway users. These reductions represent systemwide improvements in air quality beyond the direct CAC reductions from freight vehicles themselves and are monetized using the emissions highway externalities values from USDOT's BCA FY2026 Guidance.

Noise Externalities Savings

Noise externality savings arise from the reduction in heavy-truck traffic on major highway corridors, which lowers exposure to highway noise for nearby residents and improves overall community quality of life. Benefits are calculated by applying USDOT's noise highway externalities cost factors to the share of truck VMT removed from highways in the Build scenario. With the Project, noise impacts are more spatially concentrated and less disruptive to residential areas.

Assumptions

The assumptions used in the estimation of environmental and community benefits cost savings are summarized in Table 11 using rates from the U.S. DOT FY 2026 guidance.

Table 11: The Estimation of Environmental and Community Benefits

Variable	Units	Value	Source
CAC Emissions Cost (Truck)			
Trucks - SOx	g/mile	varies by year	MOVES Mobile County Data
Trucks - NOx	g/mile		
Trucks - PM2.5	g/mile		
CAC Emissions Cost (Rail)			
Rail - NOx	g/gallon	20.8	2020 National Emissions Inventory Locomotive Methodology – Eastern Research Group, Inc.
Rail - PM2.5	g/gallon	0.30264	
Rail - SOx	g/gallon	0.09390	
Emissions Externalities			

Variable	Units	Value	Source
Buses and Trucks - Urban	2024$	$0.0380	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025
Buses and Trucks - Rural	2024$	$0.0380	
Noise Externalities			
Buses and Trucks - Urban	2024$	$0.0465	U.S.DOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs - December 2025
Buses and Trucks - Rural	2024$	$0.0039	

Benefit Estimates

Environmental and community benefits resulting from the project are estimated at $ 3.5 million over the 20-year operations period when discounted at 7 percent. Environmental and community benefits are presented in Table 12.

Table 12: Estimates of Environmental and Community Benefits

Values in Millions of 2024$	Over the Study Period	
	Undiscounted	Discounted
CAC Emissions Cost Savings	$3.1	$0.9
Emissions Externalities Savings	$7.5	$2.0
Noise Externalities Savings	$2.4	$0.6
Total Benefits	**$13.0**	**$3.5**

State of Good Repair

The Project supports a state of good repair by replacing aging yard infrastructure with modern track components that offer significantly longer service lives, though they may require higher ongoing maintenance due to expanded capacity and increased operational demands associated with the project.

Methodology

Operations & Maintenance (O&M) Cost Savings

O&M costs for the Project are estimated based on routine and periodic maintenance requirements associated with new track construction, expanded railcar storage and upgraded switch infrastructure. These costs reflect both ongoing maintenance needs and lifecycle interventions required to maintain a state of good repair over the 20-year operations period analyzed.

Routine maintenance includes long-term track component replacement. According to the Port of Mobile, approximately 1,411 units of ties and rail replacements are anticipated in Year 20, at a unit cost of $300 in 2022 dollars. This results in a total replacement cost that is annualized over the 20-year analysis period, inflated to 2024 dollars, and presented as an equivalent annual cost of approximately $22,494 for this component.

In addition to routine maintenance, the analysis includes periodic maintenance activities:

- Electrical Maintenance: Electrical system work is expected every three years at a cost of approximately $32,000 (in 2024 dollars). This occurs six times over the 20-year analysis period.
- Periodic Inspections: Major inspection activities are assumed to occur every six years, for a total of three occurrences over the analysis period, at a cost of $43,000 per inspection (in 2024 dollars).
- Pavement Maintenance: Pavement maintenance is scheduled every nine years, occurring twice during the 20-year period, at a cost of approximately $11,000 per maintenance cycle (in 2024 dollars).

Residual Value Benefits

Residual value benefits reflect the remaining useful life of the improved yard assets at the end of the 20-year analysis period. With periodic replacement of ties and rail accounted for as an operating expense in the section above, the service life of some of the construction assets are expected to substantially exceed the 20-year discounting period specified in USDOT guidance for capacity enhancement and improvement-type projects. Accordingly, the unexpired portion of asset value is prorated and discounted to capture the long-term durability and continued utility of the improvements beyond the BCA horizon. These assets include storm drains, ballast, sub ballast and switches in both the East and West yards. In 20 years, the undepreciated residual value for these assets is expected to be approximately $9.2 million in 2024 undiscounted dollars.

Assumptions

The assumptions used in the estimation of state and good repair benefits are summarized in Table 13 and Table 14.

Table 13: Assumptions Used in O&M Savings

O&M Component	# of Units	Cost per Maintenance	Frequency
Tie & Rail Replacement	1,411	$22,494	1[4]
Electrical	1	$31,882	3
Periodic Inspection	1	$42,510	6
Pavement Maintenance	1	$10,627	9

Table 14: Assumptions Used in Residual Value Benefits

Cost Descriptions for Residuals	East/West Yards	Useful Life (Years)	Remaining Useful Life (Years)
F & I Storm Drains	West Yard	40	20
Construct Track (136# Rail, Wood Ties, OTM)		37.5	17.5
F& I Ballast		22.5	2.5
F & I Sub ballast		47.5	27.5
F & I # 10 LH Turnout		25	5
F & I Storm Drains	East Yard	32.5	20
Construct Track (136# Rail, Wood Ties, OTM)		37.5	17.5
F& I Ballast		22.5	2.5
F & I Sub ballast		47.5	27.5
F & I # 10 LH Turnout		25	5
F & I # 10 RH Turnout		25	5

Benefit Estimates

State of good repair savings benefits resulting from the project are estimated at $ 1.2 million over the 20-year operations period when discounted at 7 percent. State of good repair benefits estimates are presented in Table 15.

[4] *Maintenance at year 20 for ties & rail is spread out evenly over the 20-yr analysis period, to be presented as an O&M cost on an annual basis, rather than a lump sum expense at year 20.*

Table 15: Estimates of State and Good Repair

Values in Millions of 2024$	Over the Study Period	
	Undiscounted	Discounted
O&M Cost	-$0.8	-$0.2
Residual Value Benefits	$9.2	$1.4
Total Benefits	**$8.4**	**$1.2**

Sensitivity Analysis

The BCA outcomes presented in the previous sections rely on many assumptions and long-term projections, all of which are subject to uncertainty. The primary purpose of the sensitivity analysis is to help identify the variables and model parameters whose variations have the greatest impact on the BCA outcomes: the “critical variables.”

The outcomes of the quantitative sensitivity analysis of the Project are summarized in Table 16 below.

Table 16: Results of Sensitivity Analysis

Parameters	Change in Parameter Value	New NPV (Discounted) $millions	New B/C Ratio
Base/Sensitivity Tested	**n/a**	$81.7	3.6
Discount Rate	7% to 3.1%	$194.6	6.0
Project Cost Estimate	10% overall increase in capital costs	$78.6	3.3
	10% overall decrease in capital costs	$84.9	4.0
Mobile Volumes Growth Rate	Half current growth rate	$56.4	2.8
	0% growth	$37.9	2.2
Diversion Probability	One and a half-assumed diversion probability	$137.7	5.4
	Half assumed diversion probability	$25.8	1.8

Across all sensitivity tests conducted, the benefit-cost ratio remained above 1.0, demonstrating that the Project is consistently cost-effective and that its economic justification is robust to variations in key assumptions and input parameters.