



**Rosedale Maryland Grade Crossing  
Improvement Project**

FY 2023-2024 Railroad Crossing Elimination Program  
Grant Application



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# 1. Cover Page

Project Title	Rosedale Maryland Grade Crossing Improvement Project
Applicant Name	Maryland Department of Transportation
Amount of RCE Program Funding Requested under this NOFO	\$2,958,969
Amount of Proposed Non-Federal Match	\$800,000
Does some or all of the proposed Non-Federal Match for the total project cost consist of Preliminary Engineering costs incurred before project selection (but after November 15, 2021)?	No
Other Sources of Federal funding, if applicable	Not applicable
Source(s) of Proposed Non-Federal Match	CSXT, MDOT, Baltimore County
If applicable, are set-aside funds requested? Is the project eligible for a funding set-aside in Section B.1?	Yes
If “Yes,” amount of set-aside funds requested:	\$220,000
Total Project Cost	\$3,758,969
Was a Federal Grant Application Previously Submitted for this Project?	Yes. Rail Crossing Elimination Program 2022
City(ies), Count(ies), State(s) Where the Project is Located	Rosedale, Baltimore, Maryland
Is the Project Located in a Rural Area or on Tribal Lands?	No
If the Project is located in a Rural Area or Tribal Land, is the Project Located in a county with 20 or fewer residents per square mile, according to the most recent decennial census?	No
Congressional District(s) Where the Project is Located	MD-002, MD-007
Application Track(s) proposed to be funded by this NOFO?	Tracks 1, 2, and 3
Lifecycle Stage(s) proposed to be funded by this NOFO?	Phase 1: Project Development/Construction Phase 2: Project Planning



Current Lifecycle Stage and Anticipated completion of current Lifecycle Stage?	
Is the Project located on real property owned by someone other than the applicant?	Yes, CSXT
Host Railroad/Infrastructure Owner(s) of Project Assets;	CSXT
Other impacted Railroad(s)	None
Tenant Railroad(s), if applicable	n/a
If applicable, is a 49 U.S.C. 22905-compliant Railroad Agreement executed or pending?	Pending
Is the project currently programmed in ANY medium- or long-range planning document: For example, State rail plan, or interregional intercity passenger rail systems planning study, State Freight Plan, TIP, STIP, MPO Long Range Transportation Plan, State Long Range Transportation Plan, etc.?	Yes, Maryland State Rail Plan
Is the project located on a potential corridor selected for the Corridor Identification and Development Program?	No

## 2. Project Summary

The Rosedale, Maryland Grade Crossing Improvement Project (“the project”) will address critical safety issues at four private highway-rail grade crossings located along a nearly two-mile section of CSXT’s Philadelphia Subdivision freight rail line. Between 2007 to 2023, these rail crossings experienced more than the statewide average number of train-vehicle crashes, resulting in one fatality and 16 injuries. In one of these crashes, a train-truck collision resulted in a chemical explosion causing property damage exceeding \$3.6 million. This project will address heightened safety risk through immediate safety feature enhancements at each crossing, in conjunction with a grade crossing elimination and consolidation study of long-term solutions. For this project, the Maryland Department of Transportation (MDOT) will partner with CSXT and Baltimore County, MD.

The crossings intersect the corridor between mile post (MP) 85.53 and 87.35, near Rosedale in Baltimore County, MD, at the following locations:

- Contractors Road (DOT 140828M / BAK 85.53)
- Schaefers Lane (DOT 140829U / BAK 85.94)
- Batavia Farms Road (DOT 140831V / BAK 86.42)
- 68th Street (DOT 140833J / BAK 87.35)

The project will occur in two coordinated phases that correspond to the Grade Crossing Elimination Program project tracks (Table 1). The first phase focuses on minimizing near-term safety risks by installing flashing light signals, automatic roadway gates, bells, and additional signage and roadway markings at the four crossing locations. As discussed below, the crossings currently have no controls other than stop signs, so these improvements will immediately enhance road and railway safety by alerting drivers to oncoming rail traffic and blocking approaches during train operations.

The second phase of the project would concurrently study long-term solutions to reduce collision risk near the rail line. This grade crossing elimination and consolidation study will examine the feasibility of more intensive safety interventions and roadway access alternatives to properties along the corridor and prioritize them for implementation.

While both phases would improve safety on their own, the project partners seek funding for both sets of activities to develop a lasting solution that will benefit businesses, residents, and first responders in Rosedale, MD. This project will reduce fatalities and injuries, minimize delay from blocked trains, and improve roadway connectivity and mobility of goods and people in Baltimore County.

**Table 1: Preliminary Schedule**

Track	Phase	Activity	Start-End
1,2,3	1 & 2	Project Administration & Management	Jan 1, 2025 – Dec. 31, 2026
2	1	Highway/Rail Grade Crossing Improvements: Preliminary Engineering/NEPA Re-evaluation	April 1, 2025 – Oct. 31, 2025
3	1	Highway/Rail Grade Crossing Improvements: Final Design/Construction	Jan 1, 2026 – Dec 31, 2026



1	2	Planning Study for Grade Crossing Elimination and Consolidation Study	Jan 1, 2026 – Dec 31, 2026
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### 3. Grant Funds, Sources, and Use of Project Funds

The Maryland Department of Transportation (MDOT) is requesting \$2,958,969 from the Federal Railroad Administration (FRA) Railroad Crossing Elimination (RCE) Program to fund both the immediate safety improvements and the long-term grade crossing elimination and consolidation study. This grant will fund 79 percent of the total project cost, and the remaining local match will be provided by MDOT, Baltimore County, and CSXT (Table 2). Table 3 provides preliminary budget estimates by project track (as specified in the NOFO) and by task.

In 2017, MDOT was previously awarded a Railroad Safety Infrastructure Improvements Grant for only the first phase’s scope of this project. However, the necessary safety upgrades were found to cost significantly more than this \$700,000 award. This, combined with a prohibition against using the funds at only two crossings, meant that MDOT could not make any improvements in this corridor. In 2022, MDOT applied for a new RCE grant, intending to return the 2017 award to FRA and adding the second phase scope, as described above. That application was unsuccessful, hence this resubmission in this 2024 cycle.

**Table 2: Project Funding Sources**

Funding Source	Funding Type	Description	Amount	Percentage of Total Project Cost
<b>Federal Railroad Administration</b>	Federal	Grant Funds Administrator	\$2,958,969	79%
<b>MDOT</b>	Non-Federal	Project Applicant	\$100,000	3%
<b>Baltimore County</b>	Non-Federal	Private Funding Partner	\$100,000	3%
<b>CSX</b>	Non-Federal	Other	\$600,000	16%
<b>TOTAL PROJECT COST</b>			\$3,758,969	100%

**Table 3: Preliminary Project Budget, by Project Track and Task**

Track	Task #	Task Title	Total
1,2,3	1	Project Administration and Management	\$135,779
2	2	Preliminary Engineering	\$55,000
2	2	NEPA Categorical Exclusion Re-evaluation	\$247,728
3	3	Final Design	\$202,338
3	4	Construction	\$3,008,123
3	5	Implement Required Environmental Commitments	\$10,000
1	6.1	Purpose & Need/ Stakeholder Coordination Plan	\$60,000

1	6.2	Alternatives Analysis ((Existing Conditions Report, Transportation Technical Analysis, Conceptual Engineering, Capital Cost Estimates, and Preliminary Environmental Impact Analysis)	\$95,000
		Total	\$3,758,969

## 4. Applicant Eligibility Criteria

MDOT is a principal department of the State of Maryland government under MD Transportation Code §2-101. As such, MDOT is eligible to receive federal funding.

## 5. Project Eligibility Criteria

The project proposes immediate safety enhancements under all three NOFO project tracks. The first phase would make immediate stop-gap safety improvements in a high-crash area under NOFO Tracks 2 and 3. The second phase’s long-term planning activities fall under NOFO Track 1. The project’s activities are eligible under the following project tracks:

- Track 2 (project development) proposes the 30% design phase of safety improvements.
- Track 3 (final design/construction) proposes final design and construction of safety improvements with the installation of protective devices, signals, signs, or other measures.
- Track 1 (project planning) proposes a grade crossing elimination and consolidation study that will provide a framework for long-term improvements with the vision of improving safety by eliminating or consolidating these crossings in the medium-to-long term.<sup>1</sup>

## 6. Detailed Project Description

The project is a two-phase undertaking that will first install immediate safety upgrades including flashing light signals, automatic roadway gates, standard electrical houses, bells, and signage at four private highway-rail grade crossings. These four crossings are located along a 1.87-mile stretch of CSXT’s Philadelphia Subdivision rail corridor near Rosedale, MD (Figure 1). The rail line intersects with 68th Street, Batavia Farm Road, Schaefers Lane, and Contractors Road in this corridor. These private crossings are passively protected only by crossbuck assembly signs. They are also traversed primarily by trucks that often do not stop or slow down to check for approaching trains: according to FRA Accident Reports between 2019 to 2023, three of six crashes recorded were caused by vehicles attempting to cross without stopping; one was attempting to beat the train.<sup>2</sup>

Whereas the first phase will stem immediate safety issues from grade-level crossings, we also propose a grade crossing elimination and consolidation study to develop a long-term plan to eliminate safety concerns. These two elements work in tandem, but also have independent utility.

<sup>1</sup> FRA, Highway Rail Crossing Handbook (3<sup>rd</sup> Edition), <https://railroads.dot.gov/gxhandbook>

<sup>2</sup> Detailed accounts of these crashes are available in Table 7 – Summary of Detailed Safety Crashes



Figure 1: Project Area Overview Map

## Project Challenges and Anticipated Outcomes

This project will address critical safety and mobility issues encountered at highway-rail grade crossings. These crossings have no active protection and have high train/vehicle crash rates. Further, they have a documented history of freight trucks and delivery trucks crossing without stopping or slowing down to check for approaching trains. Between 2007 and 2023, the rail crossings experienced higher-than-average number of crashes leading to one fatality, 16 injuries, and 12 property damage only (PDO) crashes. The Contractors Road crossing had the fourth highest number of crashes among highway-rail crossings in Maryland between 2016 and 2022.<sup>3</sup> A 2013 chemical explosion at the 68<sup>th</sup> Street crossing resulted from a train-truck collision where a CSXT train car was transporting HAZMAT freight.<sup>4</sup>

Safety at these crossings also has an economic impact on Rosedale, MD's thriving business community, located primarily south of the tracks. The project's highway-rail grade crossings are the primary means of accessing the businesses in the Rosedale Industrial Park. As the Rosedale

<sup>3</sup> MDOT, Maryland State Freight Plan (2022),

[https://www.mdot.maryland.gov/OPCP/MDOT\\_State\\_Freight\\_Complete\\_2022\\_12\\_06.pdf](https://www.mdot.maryland.gov/OPCP/MDOT_State_Freight_Complete_2022_12_06.pdf)

<sup>4</sup> National Transportation Safety Board, Highway-Railroad Grade Crossing Collision Rosedale, MD (2013),

<https://www.nts.gov/investigations/IncidentReports/Reports/HAR1402.pdf>



Industrial Park grows to accommodate existing and future businesses, the safety at these private crossings becomes increasingly important.

The proposed project will reduce safety risks at the four crossings as described below. Implementing safety enhancements would reduce predicted annual crashes by 78%, while long-term rail crossing elimination and consolidation has the potential to eliminate all safety risk. Further, the long-term goal of improving network connectivity in Rosedale will lower idling time when crossings are blocked, minimize travel time and vehicle operating costs, improve emergency services access times, and reduce greenhouse gas emissions.

Appendix A: Proposed Crossing Improvements provides a graphical depiction of the project outcomes.

## Summary of Current and Proposed Railroad Operations

The project is located along the Philadelphia Subdivision, a freight railroad line owned and operated by CSXT in Pennsylvania, Delaware, and Maryland. The line runs from Philadelphia, PA, southwest to Baltimore, MD, on a former branch of the historic Baltimore and Ohio Railroad (B&O). CSXT operates approximately 14 freight trains daily over this segment through Rosedale, including to and from Baltimore, the Port of Baltimore, Philadelphia, New Jersey, and New York. The Philadelphia Subdivision is a critical corridor for the regional and national economy, including energy products such as ethanol and intermodal containers that move consumer and other bulk goods. The line does not support passenger service.

The design and construction of this project will not interrupt railroad operations. Implementing both near-term safety interventions and long-term crossing elimination will improve railroad operations by minimizing the potential for interruption due to uncontrolled crossing interactions.

## Expected Users and Beneficiaries of the Project

Users of the project's highway-rail grade crossings include:

- Truck operators, who access local businesses to pick-up and deliver goods.
- Employees, who access jobs in Rosedale's industrial areas.
- Business owners, whose companies rely on these crossings for transportation access.
- CSXT, the rail line operator affected by vehicular behavior at crossings.
- Local residents of the City of Rosedale affected by safety and environmental concerns.

## Specific Project Components

Project Tracks 2 and 3 focus on preliminary engineering, final engineering, and construction phases to install mast-mounted and/or cantilevered flashing light signals, bell, and automatic roadway gates at all four private crossings (Figure 2). This phase will require the following components: preliminary engineering design plans, reevaluation of NEPA documentation, final engineering design plans, construction, and final performance reporting.

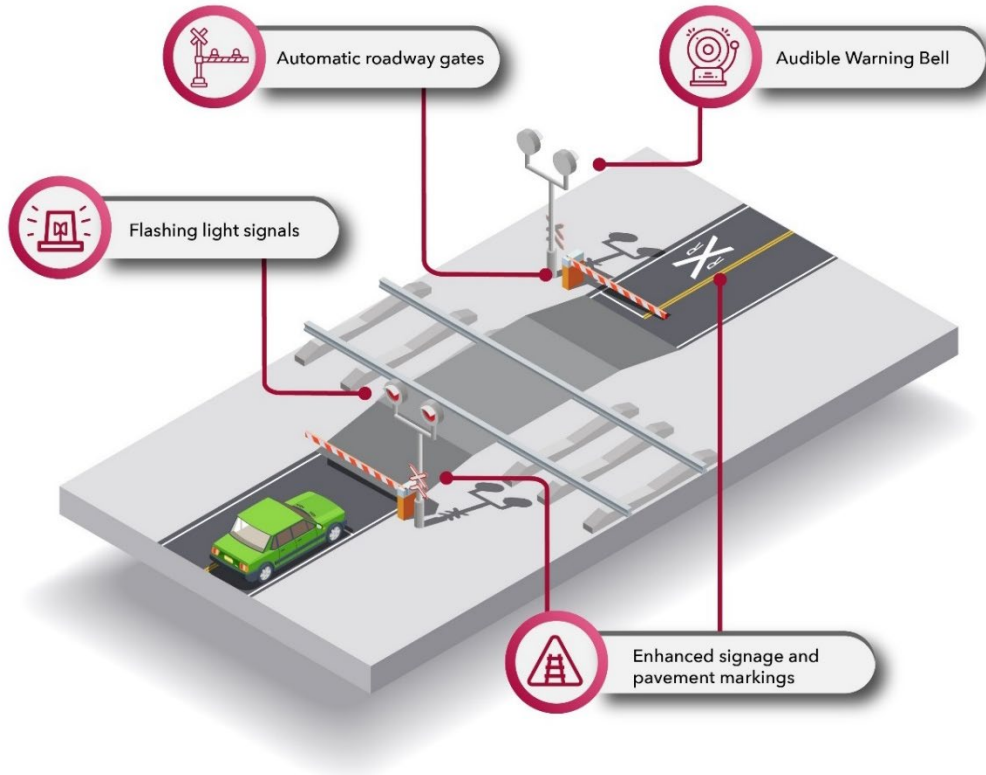


Figure 2: Track 2/3 Crossing Improvements

Track 1 will prepare the project’s grade crossing elimination and consolidation study, consisting of the following steps: existing conditions assessment, stakeholder coordination plan, existing conditions report, alternative screening/feasibility study, and conceptual engineering.

### Proposed Performance Measures

Figure 3 shows the performance measures to track improvement effectiveness. Tracking the number of motor vehicle-train collisions by error source allows MDOT and its partners to plan and identify interventions tailored to the problems on the ground.

<b>Motor Vehicle Crashes</b>	<b>Participation in Maryland Operation Lifesaver</b>
<ul style="list-style-type: none"> <li>• Goal: 75% reduction in train to motor vehicle crashes at Project's crossing</li> </ul>	<ul style="list-style-type: none"> <li>• Goal: 40% attendance of community outreach events</li> </ul>

Figure 3: Project Performance Measures

## **7. Highway-Rail Grade Crossing Safety Information and Education Programs**

This project does not contain any direct public rail safety education. The study process, however, will engage the community, including local businesses, in discussion about highway-rail grade crossings and their associated hazards. The project team will partner with Maryland Operation Lifesaver, a public safety education and awareness program focused on highway-rail crossings and preventing trespassing on or near railroad tracks. Maryland Operation Lifesaver will provide rail safety presentations to raise awareness of the risks associated with highway-rail grade crossings and encourage safe behavior near tracks and trains. Outreach activities will include a rail crossing safety overview.

## **8. Project Location**

The project is located on a segment of CSXT’s Philadelphia Subdivision rail corridor and includes four private highway-rail grade crossings in Rosedale, MD (Table 4). Figure 4 shows a detailed project location map.

**Table 4: Highway-Rail Grade Crossing Information**

<b>Crossing</b>	<b>Crossing #</b>	<b>Railroad</b>	<b>Mile Post</b>	<b>Congressional District</b>	<b>Latitude</b>	<b>Longitude</b>
<b>Contractor’s Road</b>	#140828M	CSXT	BAK 85.53	MD-002	39.327638	-76.491757
<b>Schaefer’s Lane</b>	#140829U	CSXT	BAK 85.94	MD-002	39.323776	-76.497408
<b>Batavia Farm Road</b>	#140831V	CSXT	BAK 86.42	MD-002	39.319553	-76.504794
<b>68<sup>th</sup> Street</b>	#140833J	CSXT	BAK 87.35	MD-007	39.310894	-76.520082

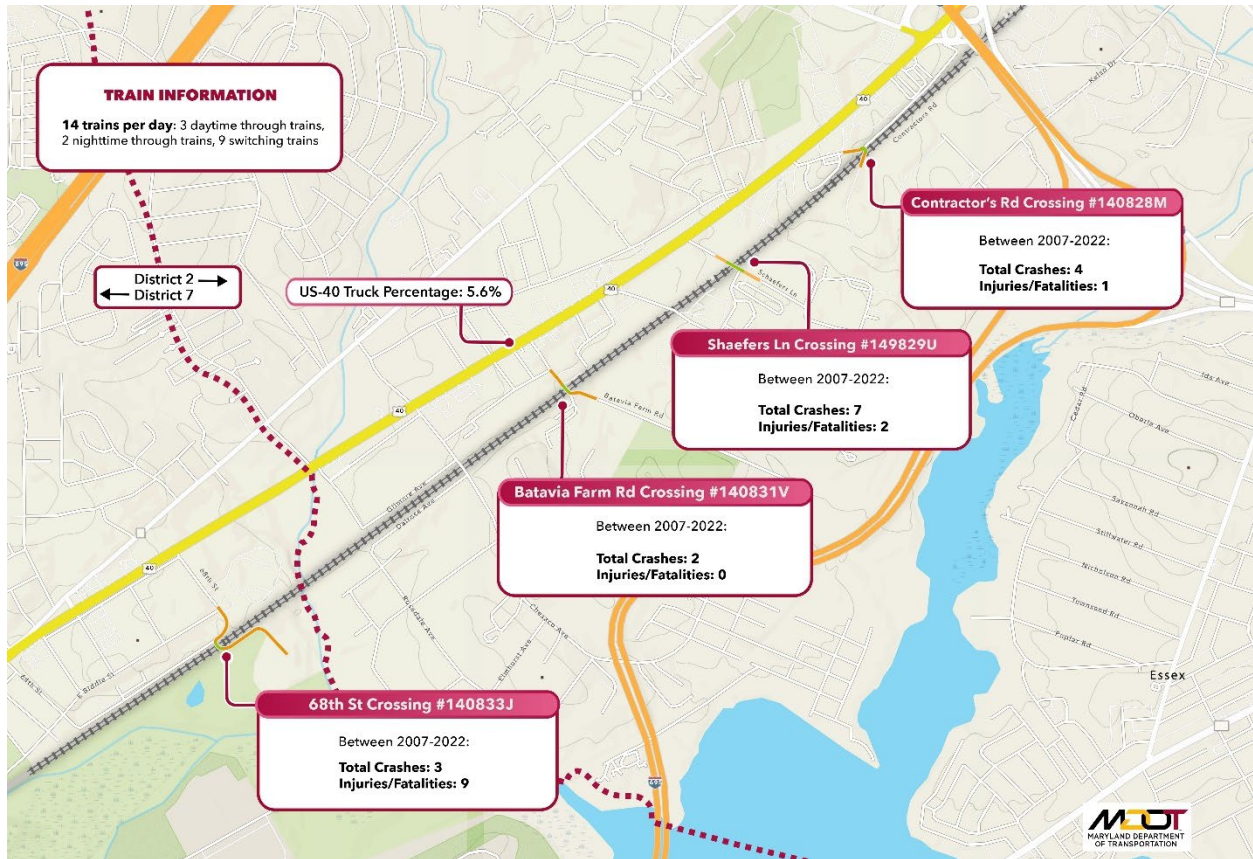


Figure 4: Project Area Map

## 9. Grade Crossing Information

Proposed improvements will result in the installation of active traffic control devices for the project’s grade crossings under Track 3 activities. Table 5 lists the details of each grade crossing below.

**Table 5: Highway-Rail Grade Crossing Information**

DOT Number	Proposed Improvement	Railroad/ Owner	Roadway	Latitude	Longitude
<b>140828M</b>	Improved	CSXT	Contractor's Road	39.327638	-76.491757
<b>140829U</b>	Improved	CSXT	Schaefer's Lane	39.323776	-76.497408
<b>140831V</b>	Improved	CSXT	Batavia Farm Road	39.319553	-76.504794
<b>140833J</b>	Improved	CSXT	68th Street/ Lake Drive	39.310894	-76.520082

Source: FRA Highway-Rail Grade Crossing Inventory Database



## 10. Safety Benefits

Between 2007-2023, one fatal crash, 16 injury crashes, and 12 PDO crashes occurred at the four project crossings, valued at a total of \$19.1 million (Table 6).<sup>5</sup> Safety benefits were quantified using FRA’s GradeDec tool. Safety benefits proposed for the 30-year period from 2025-2054 include:

- \$17.9 million from Track 3 activities (Final Design and Construction)
- \$22.1 million from crossing closures/separations after the Track 1 Grade Crossing Consolidation and Elimination study is implemented.<sup>6</sup>

**Table 6: Highway-Rail Grade Crossing Safety Data, 2007 - 2023**

Grade Crossing #/ MP Number	Crash Data			GradeDec Results Safety Benefits (\$'000)	
	Fatal	Injured	PDO Only	With Safety Enhancements	With Consolidation
#140828M/ MP 85.53 Contractors Road	0	1	4	\$200	\$247
#140829U/MP 85.94 - Schaefers Lane	1	2	5	\$5,890	\$7,241
#140831V/MP 86.42 - Batavia Farm Road	0	0	2	\$176	\$217
#140833J/MP 87.35- 68th Street	0	13	1	\$11,604	\$14,331
Total	1	16	12	\$17,871	\$22,071

Source: FRA Inventory and Accident Reports, FRA GradeDec Tool

The costliest crash occurred at the 68th Street crossing on May 28, 2013, summarized in the National Transportation Safety Board (NTSB) Accident Report.<sup>7</sup> In response to the NTSB recommendations, the state of Maryland undertook recommendations to work with CSXT to improve safety, including the removal of visual obstructions. Nonetheless, crashes at these rail crossings continue as drivers fail to exercise caution at crossings, as evidenced by most recent safety crashes detailed in Table 7. To address these persistent issues, the proposed project will reduce safety risk<sup>8</sup>, as follows:

- Track 3- Construction of safety enhancements will reduce predicted annual crashes by 78% from 0.65 to 0.145.
- Track 1- Implementation of Grade Crossing Elimination and Consolidation Study has the potential to eliminate predicted annual crashes of 0.65, if a combination of grade closures and grade separations are implemented at the project’s crossings.<sup>3</sup>

<sup>5</sup> Based on 2022 dollars, using USDOT 2024 Benefit Cost Analysis Guidance

<sup>6</sup> Results are based on a GradeDec Risk Analysis, which assumes grade separation occurs at 68<sup>th</sup> Street and Contractors Road, and closures occur at Batavia Farm Road and Schaefers Lane. The model estimates results for the period 2025 to 2054 and is based on default parameters. Refer to Appendix B.

<sup>7</sup> NTSB Highway-Railroad Grade Crossing Collision, Rosedale Maryland, May 28, 2013 (NTSB/HAR-14/02 PB2014-109131), <https://www.nts.gov/investigations/AccidentReports/Reports/HAR1402.pdf>

<sup>8</sup> Based on GradeDec’s New APS model. Further details are available in Appendix B.

**Table 7: Summary of Detailed Safety Crashes (2018 – 2023)**

<b>DOT #140828M- Contractors Road</b>					
<b>Date</b>	<b>Highway User Action</b>	<b>Killed</b>	<b>Injured</b>	<b>Vehicle Damages</b>	<b>Narrative</b>
11/25/2018	Vehicle stopped on crossing	0	1	\$1,500	Train struck an occupied SUV
10/21/2018	Vehicle stopped and then proceeded	0	0	\$27,500	Train struck the rear of an occupied tractor trailer on track #1 and knocked it into train on track #2
<b>DOT #140829U - Schaefers Lane</b>					
<b>Date</b>	<b>Highway User Action</b>	<b>Killed</b>	<b>Injured</b>	<b>Vehicle Damages</b>	<b>Narrative</b>
8/5/2022	Vehicle did not stop	0	0	\$27,500	Train struck a semi-truck that did not stop at the crossing
4/25/2022	Vehicle stopped and then proceeded	0	1	\$6,500	Train struck occupied SUV
<b>DOT #140833J - 68th Street</b>					
<b>Date</b>	<b>Highway User Action</b>	<b>Killed</b>	<b>Injured</b>	<b>Vehicle Damages</b>	<b>Narrative</b>
5/10/2023	Highway user stopped and then proceeded	0	2	\$27,500	Truck drivers were sitting on the tracks and ignored sounding horn and bell, once the train was approaching both trucks began to move over the crossing but were struck by the lead locomotive.
3/14/2023	Highway user stopped and then proceeded	0	2	\$27,500	Struck a tractor trailer truck that was stopped south of the crossing and proceeded over the crossing in front of the train
8/30/2022	Highway user stopped and then proceeded	0	0	\$27,500	Struck the left rear side of the trailer of a tractor trailer that attempted to cross at the crossing.
9/17/2019	Vehicle did not stop	0	1	\$6,500	Train struck an occupied vehicle who was attempting to beat the train

Source: FRA Inventory and Accident Reports

# 11. Evaluation and Selection Criteria

## Project Readiness

### (A) NEPA Actions and Environmental Permitting Readiness

The FRA already approved a NEPA categorical exclusion for the first phase of this project on October 18, 2019. If awarded, a NEPA re-evaluation will be completed within six months. MDOT will complete all required NEPA documentation and obtain written approval from FRA prior to construction activities. MDOT will obtain any federal- or state-specific permits prior to construction activities.

### (B) Status and Timeline of Agreements

MDOT will employ project management processes necessary to ensure satisfactory technical, financial, and administrative oversight, including meeting reporting and other requirements for federal funding. MDOT is responsible for coordinating all project implementation activities. The state and local funding will be provided directly to CSXT, who will develop the plans and manage the design and construction of improvements. They will be responsible for developing the plans, specs, and estimates for the short-term improvements only. MDOT will handle the environmental review. CSXT will complete the construction.

If the project is awarded, MDOT will revise the existing 49 U.S.C. 22905 template to reflect this specific project and submit to CSXT for signature. Both parties will execute the project’s agreement before FRA provides the official grant agreement. MDOT anticipates that this process will take four months, since CSXT has already approved the template. MDOT executed a similar agreement with CSXT regarding the Warner Street project within eight months.

### (C) Lifecycle Stage(s) for the Proposed Project

Since the award of the original 2017 grant application, crashes at the project’s rail crossings have continued. In the time since, MDOT obtained a NEPA categorical exclusion and estimated preliminary costs of crossing removal. Unfortunately, MDOT has determined that it cannot complete the project using the original award because construction costs were significantly higher than the awarded amount of \$700,000.

The proposed project is currently in the project development stage and will require preliminary design and the renewal of categorical exclusion before it can move to final design and construction. However, given that the construction phase is relatively short and requires only safety enhancement implementations, both Track 2 and 3 activities can be implemented within 21 months. Table 8 provides details for the duration of the project’s tasks and key milestone dates.

**Table 8: Future Anticipated Project Milestone Dates**

Milestone	Schedule Date
Task 1-Project Administration and Management (Tracks 1, 2, and 3)	January 1, 2025 to December 31, 2026

<b>Track 2: Highway/Rail Grade Crossing Improvements – Project Development (Preliminary Engineering and NEPA)</b>	
Task 2: Preliminary Engineering	April 1, 2025 to October 31, 2025
Task 2: NEPA Categorical Exclusion Re-Evaluation	April 1, 2025 to December 31, 2025
<b>Track 3: Highway/Rail Grade Crossing Improvements – Final Design &amp; Construction</b>	
Task 3: Final Design	January 1, 2026 to April 31, 2026
Task 4: Construction	May 1, 2026 to December 31, 2026
Task 5: Implement Required Environmental Commitments	May 1, 2026 to December 31, 2026
<b>Track 1: Grade Separation Planning Study</b>	
Task 6.1: Purpose & Need Statement and Stakeholder Coordination Plan	January 1, 2026 to February 28, 2026
Task 6.2: Alternatives Analysis (Existing Conditions Report, Transportation Technical Analysis, Conceptual Engineering, Capital Cost Estimates, and Preliminary Environmental Impact Analysis)	March 1, 2026 to December 31, 2026

**(D) Project Partner Coordination and Commitments**

MDOT shall perform all tasks required through a coordinated process involving affected railroad owners, operators, and funding partners (including FRA, CSXT, MDOT, Baltimore County, and private property owners). Table 9 provides a list of stakeholders and commitments.

**Table 9 - Stakeholders and Funding Commitments**

	<b>Letters of Support</b>	<b>Funding Commitment</b>	<b>Anticipated Agreement</b>	<b>Stakeholder Outreach/Education</b>
CSXT	X	X	X	X
Baltimore County	X	X		X
Property Owners				X

**Technical Merit**

**(A) Scope of Work, Project Budget, and Estimated Project Schedule**

The detailed statement of work tasks and subtasks, budget, and estimated schedule are provided in Attachment 2 and summarized in the sections above.



## **(B) Technical Qualifications**

### MDOT project Implementation/Management Capability

MDOT oversees a multi-billion dollar, six-year capital program, and currently manages funding for grade crossing safety projects under its Section 130 Highway-Rail Grade Crossing Safety Program. MDOT has an extensive history of successfully implementing a variety of rail projects and grade safety projects, and has the technical, administrative, and legal capabilities to successfully deliver this project. As a direct recipient of federal funding, MDOT employs best practice project management procedures to ensure comprehensive technical, financial, and administrative oversight of large planning and capital projects; including adhering to all reporting and other requirements for federal funding. The technical lead for MDOT will be Ms. Stacey Beckett, Rail Safety Program Manager. She has 13+ years of project management experience in highway, multi-modal, and railroad projects and 6+ years of managing the highway-railway grade crossing program.

### CSXT Project Implementation/Management Capability

This first phase of the project will be completed under an agreement between the MDOT and CSXT. CSXT ensures adequate technical, financial, and administrative oversight of large planning and capital projects through its management of consultants and contractors, compliance with FRA and other federal grant and reporting requirements, and regular meetings with MDOT staff. It prioritizes the delivery of its projects on schedule, on or under budget, and of the highest quality. Mr. Michael Liebelt will be the technical lead from CSXT. He is the public projects manager who manages and reviews all types of projects that impact and/or improve CSXT rail lines. He oversees projects in Maryland, Washington DC, Virginia, West Virginia, and North Carolina.

## **(C) Alignment with State Plans**

This project aligns with MDOT goals and objectives outlined in statewide planning and policy documents. The “2050 Maryland Transportation Plan” lays out a transportation planning vision for the state under which all projects will “Enhance Safety and Security,” “Deliver System Quality and “Serve Communities and Support the Economy.”<sup>9</sup> The project has also been specifically identified in the 2022 “Maryland State Rail Plan” (as the “Rosedale Community Crossing to install short-term signing, and signalization and long-term grade separation or elimination”) and in the 2017 Maryland Strategic Goods Movement Plan (as the “Rosedale Grade Crossing project”).<sup>10</sup>

## **(D) Innovative technologies, design and construction techniques, or construction materials that reduce greenhouse gas emissions;**

To address the reduction of greenhouse gas emissions, the project will incorporate hydrogen fuel cells as a backup power source under Track 2 and Track 3 safety enhancement implementation activities. Hydrogen fuel cells produce zero emissions, making them a more environmentally

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<sup>9</sup> “The Playbook”, 2050 Maryland Transportation Plan, Appendix F, Action Plan, [https://www.mdot.maryland.gov/OPCP/MTP\\_Playbook\\_web.pdf](https://www.mdot.maryland.gov/OPCP/MTP_Playbook_web.pdf)

<sup>10</sup> November 2022 Maryland State Rail Plan, Appendix E-28, [https://www.mdot.maryland.gov/OPCP/MD\\_State\\_Rail\\_Plan.pdf](https://www.mdot.maryland.gov/OPCP/MD_State_Rail_Plan.pdf)

friendly option compared to traditional gasoline generators. By maintaining power to crossing signals and gates, hydrogen fuel cells can help prevent crashes during power disruptions.

#### **(E) Financial support from impacted rail carriers**

The project has funding commitments from CSXT amounting to \$600,000, which equates to around 16 percent of the total project cost.

#### **(F) Improve mobility of multiple modes of transportation**

The safety measures implemented under this project will improve the mobility of the vehicular and freight truck traffic that traverses these crossings by:

- Reducing delays attributable to crashes;
- Improving the efficiency of traffic management
- Improving crossing times by giving drivers ample time to stop and providing clear indications of when it is safe to cross;
- Facilitating smoother traffic flow, as drivers will know in advance whether a train is approaching; and
- Reducing emergency response times by minimizing the likelihood and severity of rail crossing crashes and other traffic disruptions, which can impede emergency vehicles.

## Project Benefits

The project will realize a range of benefits related to safety, mobility, reduction in emissions, environmental protection, improved emergency access, and increased economic benefits.

#### **(A) Improves safety at Highway-Rail or Pathway-Rail Grade Crossings**

This project will result in safety benefits at all four crossings. As described above, the cost of crashes at these rail crossings since 2007 tops \$19.3 million.<sup>11</sup> This project will implement immediate safety improvements during the initial Track 2 and Track 3 phases to provide motorists with appropriate advanced notice of oncoming trains using:

- Cantilevered flashing light signals, which provide enhanced visibility over the roadway especially at night, from greater distances, and on angles).
- Bells, which provide audible warnings for pedestrians, bicyclists, and motorists.
- Automatic gates, which physically bars the roadway approaching the crossing.

These measures will not only mitigate train/vehicle crashes occurring at these crossings, but also reduce HAZMAT exposure risks. Based on EPA records, the 2013 collision between a CSXT train and a truck at the 68th Street at-grade crossing led to the derailment and the subsequent explosion of a car containing sodium chlorate. This caused nearby cars of terephthalate acid to burn. Although this type of incident has occurred only once at a project crossing, truck-train crashes continue to be common and CSXT continues to move HAZMAT freight along this route.

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<sup>11</sup> Estimates based on undiscounted 2022 dollars and valuations based on USDOT 2023 BCA Guidance.

Activities proposed under Track 1 will plan to consolidate the crossings to improve safety and network connectivity. According to the Highway-Rail Crossing Handbook,<sup>12</sup> grade crossing elimination and consolidation is highly effective in improving safety. It involves developing a treatment program to eliminate crossings along a segment of rail line while improving those to remain at grade. The long-term goal of grade separation and/or closures would remove all train-truck conflicts at these crossings. GradeDec estimates safety benefits of \$22.1 million over a 30-year period (refer to Appendix B).

**(B) Proposes to grade separate, eliminate, or close one or more Highway-Rail or Pathway-Rail Grade Crossings;**

The project proposes the potential for grade separation and/or elimination under Track 1 Project Planning activities. The long-term component of the project proposes a long-term solution to explore the feasibility of highway-rail grade crossing closures. The grade crossing elimination and consolidation study will be undertaken to improve safety and to provide a framework and vision for long-term improvements to the transportation network in the immediate vicinity of CSXT Railroad line in Rosedale, Baltimore County Maryland. The project partners understand that long-term grade separation, consolidation, or closure of the highway-rail grade crossings is desired. According to the Highway-Rail Crossing Handbook,<sup>13</sup> grade crossing elimination and consolidation is a highly effective approach to improving safety which involves the development of a program of treatments to eliminate significant numbers of crossings in a segment of rail line while improving those that are to remain at grade. The feasibility study task shall prioritize maintaining transportation network connectivity and provision roadway access to properties along the corridor.

**(C) Improves the mobility of both people and goods;**

The Rosedale area provides connectivity for local, statewide, and national movement of freight traffic; the area is served by both I-95 and Pulaski Highway to the west, and I-695 to the east. The Rosedale Industrial Park lies east of Pulaski Highway and provides tax credits for registered businesses in the Chesapeake Enterprise Zone for Baltimore County.<sup>14</sup> The Chesapeake Enterprise Zone is one of three enterprise zones in Baltimore County designated by the Maryland Department of Business & Economic Development.<sup>15</sup> The purpose of the zones is four-fold: ensure retention and spur expansions of existing companies; promote development and occupancy of vacant, underutilized land and buildings; encourage the creation of well-paying new jobs; and support the County's commitment to revitalizing older office and industrial areas of Baltimore County. As a result, this area attracts several types of industries and consequently accounts for a more than 5 percent truck share per day equivalent to over 1,600 truck AADT.

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<sup>12</sup> FRA, Highway Rail Crossing Handbook (3<sup>rd</sup> Edition), <https://railroads.dot.gov/gxhandbook>

<sup>13</sup> FRA, Highway Rail Crossing Handbook (3<sup>rd</sup> Edition), <https://railroads.dot.gov/gxhandbook>

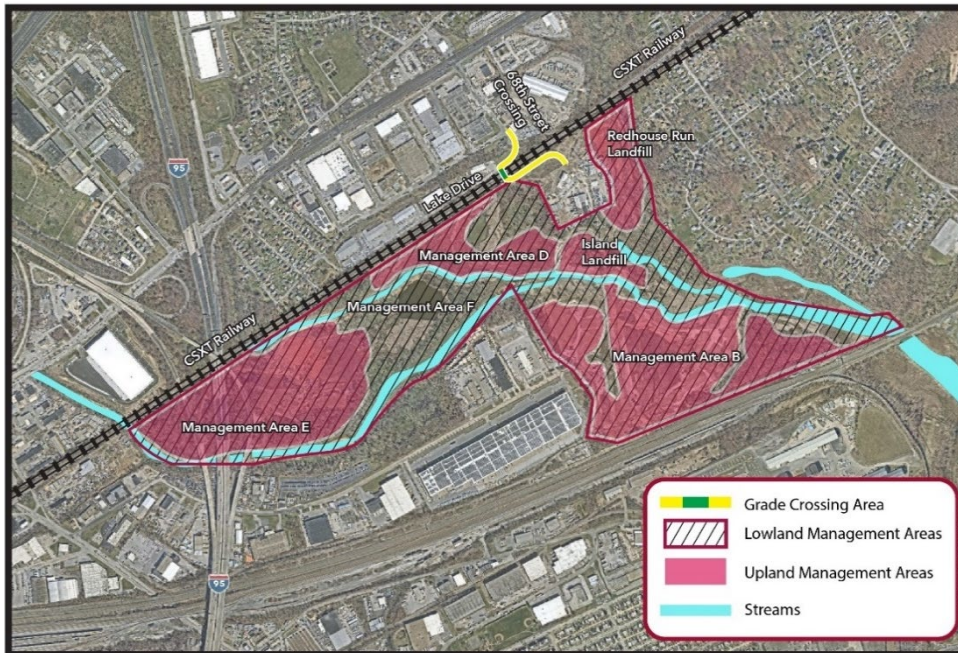
<sup>14</sup> <https://maryland.maps.arcgis.com/apps/InformationLookup/index.html?appid=08c59e9cf06a4be99b178cfda57e65d3>

<sup>15</sup> Baltimore County Government, Enterprise Zone Brochure, <https://www.baltimorecountymd.gov/files/Documents/EconomicDevel/Enterprise/ezbrochure.pdf>

All four highway-rail grade crossings lie in the Rosedale Industrial Park, and truck traffic serves many local industries. Currently eight businesses depend on these grade crossings to move inputs and finished products, and their employees cannot access workplaces without them. Several more businesses operate adjacent to these grade crossings and the proposed improvements will provide for more consistent and timely mobility for vehicular traffic throughout the area.

**(D) Reduces emissions, protects the environment, and provides community benefit (including noise reduction)**

These crossings are frequently traversed by both passenger vehicles and truck-traffic, with most crashes due to truck-train collisions, with trucks often speeding across the tracks without stopping to check for oncoming trains. Beyond the personal and economic costs associated with these crashes, these collisions take a toll on the local environment, and mitigating their frequency would provide clear environmental benefits. Volpe’s 2013 study on *Delay and Environmental Cost of Truck Crashes* assessed the environmental cost of truck crashes estimated that the cost to environment includes not only the direct cost of emissions attributable to a crash incident, but also the impact a crash has on property damage, spilled fuel, and additional detours and delays associated with re-routing of traffic and idling hours.<sup>16</sup> According to the study, an average crash incident involving a truck lead to 3.2 tons of CO<sub>2</sub> emissions due to detours and delays, with nearly 11 tons of CO<sub>2</sub> emitted for an incident on an urban expressway—and an average collision claim ranges from \$6,800 for crashes with medium-sized trucks, to \$20,900 for extra-heavy trucks. Each truck crash prevented, therefore, stands to have a similar environmental benefit from the prevention of those related emissions.



<sup>16</sup> USDOT/Volpe Center, *Delay and Environmental Cost of Truck Crashes* (March 2013), <https://rosap.ntl.bts.gov/view/dot/10074>



Figure 5: 68th Street Dump Superfund Site Map

In addition to the cost of emissions, each train-truck crash on this route increases the risk of deleterious impacts on air quality, water quality and the surrounding environment from toxic emissions involving the transportation of HAZMAT chemicals. After the 2013 highway-rail grade crossing collision at the 68<sup>th</sup> Street at-grade crossing, for instance, environmental scans revealed measurable levels of terephthalic acid and other contaminants in the Back River downstream from the crash site. Total cleanup costs were estimated at \$3.6 million.<sup>17</sup>

Beyond the environmental impacts described above, the location of the project's 68<sup>th</sup> Street site presents the capacity for a very specific environmental risk associated with a crash, as it is adjacent to a local Superfund site (Figure 5).<sup>18</sup> The 68<sup>th</sup> Street Dump Superfund site was previously a landfill for hazardous commercial and industrial waste. As cleanup operations continue, the land is being transferred to conservation purposes. The site is unique from an ecological standpoint in that it is a very large wetland with drainage to the Chesapeake Bay amid a highly urbanized setting. Any crash that contaminates this area, would impact local ecologies and populations of local birds and animals, as well as present clean-up challenges associated with accessing the site.

#### **(E) Improves access for emergency services**

Rosedale's only EMS services are located west of Pulaski Highway, which means that EMS vehicles traverse project crossings to reach the businesses on the town's east and south sides. The shortest access route to these areas is via the project crossings. Without improved safety measures, the accessibility of these crossings remains unpredictable. These factors do not lend themselves to use by emergency services, which require reliable and safe routes that remain open. Figure 6 shows the alternate route for Contractors Road that increases access times to businesses east of the rail crossings.

This project will ensure safe and reliable passage for EMS vehicles. This is critical for ambulances and firefighters who may respond to incidents in Rosedale's industrialized areas. Although commercial fires are less frequent than residential fires, the property damage that commercial fires cause is higher, with fire losses on manufacturing properties being five times higher.<sup>19</sup> According to the most recent statistics from the U.S. Fire Administration, in 2015 8.4% of fires occurred on non-residential properties, but these accounted for 34.4% of fire dollar loss per fire.<sup>20</sup>

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<sup>17</sup> NTSB Highway-Railroad Grade Crossing Collision, Rosedale Maryland, May 28, 2013 (NTSB/HAR-14/02 PB2014-109131), <https://www.nts.gov/investigations/AccidentReports/Reports/HAR1402.pdf>

<sup>18</sup> 68<sup>th</sup> Street Superfund Site Website, <https://www.68thstreetlandfillsite.com/>

<sup>19</sup> Freitas. Verisk.com. "Report sparks conversation about fires by occupancy or property type." <https://www.verisk.com/blog/report-sparks-conversation-about-fires-by-occupancy-or-property-type/>

<sup>20</sup> US Fire Administration. "Fire loss in the United State." 2015. [https://www.usfa.fema.gov/downloads/xls/statistics/us\\_fire\\_loss\\_data\\_sets\\_2006-2015.xlsx](https://www.usfa.fema.gov/downloads/xls/statistics/us_fire_loss_data_sets_2006-2015.xlsx)

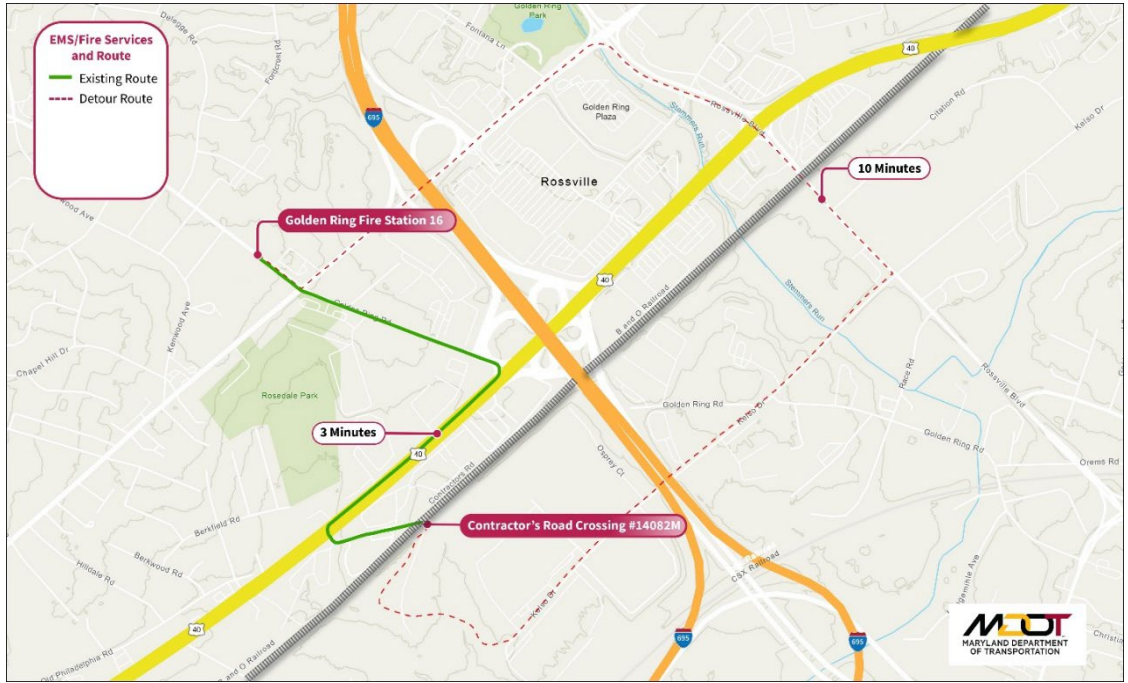


Figure 6 – Alternate Detour Route for Contractor’s Road Crossing

**(F) Improves access to communities**

Currently, the residential community located near the project’s rail crossings is bordered by the Redhouse Creek to the west and Batavia Park to the east. The community cannot readily access the project’s rail crossings. The Chesaco Avenue overpass above the CSXT line is the main access to Pulaski Highway. However, future pressures on housing demand will create increased needs for network connectivity and redundancy. To this end, the planning study component of the project aligns with future growth needs of the community by improving the transportation network in the immediate vicinity of CSXT Railroad line through grade crossing consolidation.

**(G) Provides economic benefit**

Several businesses operate adjacent to the project highway-rail grade crossings and for some, these crossings provide the only means of access (Table 10). These businesses are located in the Rosedale Industrial Park, one area in the Chesapeake Enterprise Zone. Under Track 3- the implementation of safety enhancement, it will reduce safety costs in the short term, improve the efficiency of freight deliveries, and minimize operational risk for all businesses in the area. Track 1 – project planning provides an even greater value proposition, as it sets in motion plans for the consolidation of rail crossings to improve the transportation network. These improvements will provide the pre-requisite infrastructure to support future investments by facilitating expansions in existing businesses and attracting new opportunities.

**Table 10 – Businesses Affected by Activities at the Highway-Rail Grade Crossings**

Name of Crossing	Dependent Businesses	Adjacent Businesses
DOT #140828M - Contractors Road	Cossentino Construction	DAP Products GT Mid Atlantic Jesco Equipment Carter Rental – The CAT Rental Store
DOT #140829U - Schaefers Lane	Elite Pools Maryland Paving Company	Northeastern Supply Inc.
DOT #140831V - Batavia Farm Road	24 Hour Mobile Truck Repair O’Maley Lumber Company Gray & Son- Rosedale Asphalt Plant	Pyramid Insulation, Marksman Construction, Cuddy and Associates, Marine Plumbing and Heating, ISE Logistic Ventures, A/I/DATA
DOT #140833J - 68th Street	EnviroServe Victory Diesel Repair	Eastern Truck and Trailer Corporation ck and Trailer Repair Center Inc

**(H) Uses contracting incentives to employ local labor, to the extent permissible under federal law.**

MDOT often encourages contractors to prioritize hiring local residents for projects funded by the state. This policy aims to create job opportunities for Maryland residents and support local economies. However, the specific requirements for local hiring may vary depending on the type of project. The Project Planning phase will be managed by MDOT which adheres to its Disadvantaged Business Enterprise (DBE) Program. MDOT operates a Disadvantaged Business Enterprise (DBE) program, which requires contractors to make a good faith effort to hire businesses owned by minorities, women, and other disadvantaged groups. This program promotes local hiring by encouraging participation of local small businesses in transportation projects.

## 12. Selection Criteria

The project will provide grade crossing improvements to four private crossings which span 1.87 miles along the CSXT rail line in Rosedale, MD. Track 3 – construction will result in safety improvements at all four crossings. Track 1 -project planning seeks the consolidation of all four crossings and when implemented, will result in improvements in safety, travel time savings, environmental benefits, and vehicle operating costs.<sup>21</sup>

<sup>21</sup> Results are based on a GradeDec Risk Analysis, which assumes grade separation occurs at 68<sup>th</sup> Street and Contractors Road, and closures occur at Batavia Farm Road and Schaefers Lane. Refer to Appendix B.

## Safety

Both phases of the project will result in safety benefits:

- Track 2/3 activities include installing cantilevered and/or mast-mounted flashing light signals, bells, and automatic roadway gates. These improvements will reduce crashes by 67 percent with the inclusion of automatic gates.<sup>22</sup> GradeDec estimates safety benefits of \$17.9 million over a 30-year period (refer to Appendix B).
- Track 1's grade crossing consolidation would eliminate safety risk. Grade crossing elimination and consolidation is highly effective at improving safety, as described previously.<sup>23</sup> The long-term separation or closure of these crossings would remove train-truck conflicts entirely. GradeDec estimates safety benefits of \$22.1 million over a 30-year period (refer to Appendix B).

## Climate Change and Sustainability

Eliminating grade crossings entirely, as proposed in the Track 1 activities, reduce emissions over the 30-year period.<sup>24</sup> In addition, the implementation of safety gates will improve traffic management and reduce vehicles' idling time. This project aligns with MDOT's Carbon Reduction Strategy to 'promote strategies to modernize rail infrastructure in the Maryland State Rail Plan', as these highway-rail grade crossing improvements having been identified as a priority project in the State's Rail Plan.

## Equity and Justice40

The USDOT Equitable Transportation Community Explorer identifies Census Tract 24005450100 in Baltimore County, Maryland, as ranking in the 100th percentile for the Disadvantaged Communities Index, due to significant social, environmental and transportation vulnerabilities.<sup>25</sup> The community's proximity to hazardous sites, high-volume roads, and risk management plan facilities are among the significant factors that add to its environmental burden.<sup>26</sup> <sup>27</sup> Transportation insecurity reflects the community's 98th percentile ranking in the traffic safety risk category.

Based on the Justice40 Rail Explorer, all four crossings lie in the USDOT Transportation Disadvantaged Census Tract.<sup>28</sup>

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<sup>22</sup> Crash Modification Clearinghouse, CMF 488: Install automatic gates at crossings that previously has passive controls, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=488>

<sup>23</sup> FRA, Highway Rail Crossing Handbook (3<sup>rd</sup> Edition), <https://railroads.dot.gov/gxhandbook>

<sup>24</sup> Based on GradeDec results which estimates a value of \$1,022 over the 30-year period of analysis.

<sup>25</sup> USDOT Equitable Transportation Community Explorer, ETC Explorer - State Results | USDOT Equitable Transportation Community (ETC) Explorer (arcgis.com)

<sup>26</sup> Risk Management Program (RMP) facility proximity measures how close people might lie to an active facility with a required Risk Management Plan.

<sup>27</sup> US EPA, EJScreen Indicators Overview – Risk Management Program (RMP) Facility Proximity, <https://www.epa.gov/ejscreen/ejscreen-indicators-overview-risk-management-program-rmp-facility-proximity>

<sup>28</sup> Justice 40 Rail Explorer, <https://www.transportation.gov/grants/dot-navigator/justice40-rail-explorer>





Figure 6 – Map of Project's Disadvantaged Communities - Justice 40 Rail Explorer

## Workforce Development, Job Quality, and Wealth Creation

Most crashes at the project crossings have been related to freight movements, with truck drivers being injured or even killed. This project will improve job quality and wealth creation during:

- Track 3's construction of near-term safety improvements. These will directly improve the occupational health and safety for truck drivers delivering goods, as well as employees that work at these facilities. Improved safety will improve work experience and job quality.
- The implementation of Track 1's grade crossing consolidation and elimination. Such improvements will enhance the transportation network and support the movement of goods to and from the Rosedale Industrial Park.

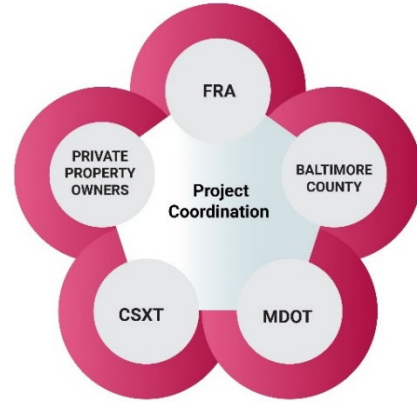
## 13. Project Implementation and Management

MDOT is responsible for coordinating all activities necessary for the project's implementation. State and local funding will be provided directly to CSXT to complete the design and construction of the project improvements. The federal funding will be provided to CSXT through MDOT on a reimbursable basis according to terms and conditions that will be outlined in the federal grant agreement. Both the MDOT and CSXT have extensive experience with meeting the requirements for the use of federal funds. Grade crossing elimination, consolidation and closure study activities will be incorporated with all stakeholders.

## Project Coordination

Figure 7. Project Coordination Overview

CSXT shall perform all tasks required for the project through a coordinated process with MDOT, which will involve affected railroad owners, operators, and funding partners, including FRA, CSXT, MDOT, Baltimore County, and Private Property Owners. The Grade Crossing elimination, consolidation and closure study activities will incorporate all stakeholders.



## CSXT Project Implementation/Management Capability

Delivery of projects on or before schedule, on or under budget, and of the highest quality is the top priority of CSXT. CSXT routinely employs processes and procedures necessary to ensure adequate technical, financial, and administrative oversight of large planning and capital projects. This includes management of consultants and contractors, compliance with FRA and other federal grant and reporting requirements, and regular meetings with MDOT staff.

This improvement project is anticipated to be completed under a construction and management agreement between the State of Maryland and CSXT.

## Maryland Department of Transportation Project Implementation/Management Capability

MDOT has a long history of successfully implementing rail projects. It has all the essential technical, administrative, and legal capabilities to successfully deliver the project. MDOT oversees a multi-billion dollar, six-year capital program.

MDOT routinely employs project management processes and procedures necessary to ensure adequate technical, financial, and administrative oversight of large planning and capital projects, including reporting and other federal requirements. MDOT regularly manages funding for grade crossing safety under the Section 130 Highway-Rail Grade Crossing Safety Program.

## Change-Orders and Risk Management

Risks for implementing this project are low, and the need for change orders is not expected. Neither train operations nor routine truck traffic are planned to be interrupted for this work. The work will be designed, managed, and constructed by CSXT staff, eliminating the need for Change Orders. The specified equipment will be familiar to CSXT, resulting in simplified installation and maintenance. MDOT will routinely inspect the progress of the installation work at the crossings to ensure that work is progressing and is of high quality. The MDOT staff will also field-verify that work is completed before releasing the final payment to CSXT.