MARYLAND DEPARTMENT OF TRANSPORTATION

FY25-26 CROSSING SAFETY PROGRAM

MARYLAND GRADE CROSSING CLOSURE STUDY

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1. COVER PAGE

KEY PROJECT ELEMENTS

PROJECT TITLE	MARYLAND GRADE CROSSING CLOSURE STUDY
Applicant Name	Maryland Department of Transportation
Amount of Crossing Safety Program Funding requested under this NOFO	$ 1,400,000
Total amount of proposed non-Federal cost share	$ 350,000
Amount of non-Crossing Safety Program (RCE) Federal funding (if applicable) including pending awards)	$0
Total Project Cost	$1,750,000
Source(s) of proposed non-Federal cost share and other Federal funding (provide funding amount by source)	Maryland Transportation Trust Funds
Was a Federal grant application previously submitted for this Project? If yes – please specify the program; funding year; and project title of the previous application. Identify any differences between the applications.	No
City(ies) where the project is located	Baltimore City
County(ies) where the project is located	Counties of Allegany, Anne Arundel, Baltimore, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Garrett, Harford, Howard, Kent, Montgomery, Prince George's, Queen Anne's, Somerset, Talbot, Washington, Wicomico, Worcester,

State(s) where the project is located	State of Maryland
Congressional district(s) where the project is located	MD-01 MD-02 MD-03 MD-04 MD-05 MD-06 MD-07 MD-08
What percent of funding is spent in a Rural Area?	20%
Amount (if any) of funding request eligible for set-aside funds	Amount: Set-Aside(s):
Lifecycle Stage(s) proposed to be funded by this NOFO	☒ Project Planning; ☐ Project Development; ☐ Final Design; ☐ Right-of-Way Acquisition ☐ Construction ☐ Non-Capital
Current Lifecycle Stage and its anticipated completion date:	☒ Systems Planning; ☐ Project Planning; ☐ Project Development; ☐ Final Design; ☐ Right-of-Way Acquisition ☐ Construction ☐ Non-Capital Anticipated Date of Completion: Systems Planning - Complete
Is the Project located on real property owned by someone other than the applicant? If yes – list real property owners and the nature of the property interest.	Yes: CSX Transportation (ownership) Norfolk Southern Railway (NS) (ownership) National Railroad Passenger Corporation (Amtrak) (ownership) Maryland Midland Railway (MMID) (ownership) Canton Railroad (ownership) Tradepoint Rail (ownership) The Maryland and Delaware Railroad Company (MDDE) (ownership) The Winchester and Western Railroad Company (W&W) (ownership) The Eighteen Thirty Group, LLC (ownership) Maryland Transit Administration (MTA) (ownership) Delmarva Central Railroad (DCR) (ownership) Allegany County, Maryland (ownership)

Host Railroad/Infrastructure Owner(s) of Project Assets	Yes: CSX Transportation (ownership) Norfolk Southern Railway (NS) (ownership) National Railroad Passenger Corporation (Amtrak) (ownership) Maryland Midland Railway (MMID) (ownership) Canton Railroad (ownership) Tradepoint Rail (ownership) The Maryland and Delaware Railroad Company (MDDE) (ownership) The Winchester and Western Railroad Company (W&W) (ownership) The Eighteen Thirty Group, LLC (ownership) Maryland Transit Administration (MTA) (ownership) Delmarva Central Railroad (DCR) (ownership) Allegany County, Maryland (ownership)
Other impacted railroad(s) (including tenants)	Wheeling and Lake Erie Railway (WLE) Western Maryland Scenic Railway (WSMR) Delmarva Central Railroad (DCR) Walkersville Southern Railroad (WSRR)
If the applicant is a commuter railroad: list the intercity passenger and/or freight railroad service(s) utilizing the proposed project.	N/A
Has the applicant executed an agreement with the host railroad regarding the use of the railroad right-of-way where the project will be located consistent with 49 U.S.C. § 22905(C) (if applicable)?	Not Applicable: The project does not entail construction nor require access to railroad right-of-way.
Is the project currently programmed in ANY medium or long-range planning document? If yes – specify planning document.	Yes: Table 5-1 of Maryland State Rail Plan - Goal (Safe, Secure, and Resilient) Enhance the Highway-Rail Grade Crossing Safety Improvement Program and support grade crossing closures or grade separation. Table 6-2 of Maryland Highway-Rail Grade Crossing State Action Plan - Action Item 2.11 Explore the option to eliminate highway-rail grade crossings through crossing closures, consolidations, or grade separations
Is the project located on a potential corridor selected for the Corridor Identification and Development Program? If yes – specify the corridor(s).	Yes: The Closure Study area will encompass rights of way under possible consideration by Delaware Transit Corporation as the Diamond State Line Corridor for new passenger service on an existing alignment that would connect a point in eastern Maryland with Amtrak's Northeast Corridor in northern Delaware via central Delaware and the state capital at Dover.
Is the Project expected to need a waiver under FRA's domestic preference requirements?	No

2. PROJECT SUMMARY

The Maryland Department of Transportation (MDOT) requests federal funding through the Federal Railroad Administration's (FRA) Crossing Safety Program (also known as the Railroad Crossing Elimination (RCE) Program) to identify alternatives to improve vehicular-rail interaction and freight rail performance at highway-rail grade crossings throughout the State of Maryland. MDOT is seeking to conduct the Maryland Grade Crossing Closure Study (Closure Study) to direct state staff to the highway-rail grade crossings in greatest need for separation or closure. This study will support goals identified in the Maryland State Rail Plan and the Maryland Highway-Rail Grade Crossing State Action Plan by creating a safer, more secure, and reliable transportation system through support of grade crossing closures, consolidations, or separations. The Closure Study will evaluate approximately 1,200 public and private active highway-rail grade crossings to identify the best alternatives using a screening process to be developed as part of the Closure Study.

3. GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

The estimated total cost for the Closure Study is $1,750,000. The $1,400,000 requested federal Crossing Safety Program funding equals 80% of the total cost and MDOT commits to providing $350,000 funds from the Maryland Transportation Trust Fund to match the remaining 20% of the estimated costs. The $350,000 in MDOT matching funds will be provided entirely from state transportation revenues and will not include federal funds from any other sources. A letter of commitment from MDOT is included as Appendix B.

A summary of the proposed project tasks, estimated costs, and breakdown of federal Crossing Safety Program funds and matching non-federal funds is illustrated in Table 1: Project Funding By Task and Source.

TABLE 1. | **PROJECT FUNDING BY TASK AND SOURCE (NON-CAPITAL PROJECTS)**

COMPONENT / TASK	CROSSING SAFETY FEDERAL	OTHER FEDERAL	APPLICANT COST SHARE	OTHER FEDERAL COST SHARE	TOTAL
Project Administration and Management	$56,000	$0	$14,000	$0	$70,000
Location Screening	$320,000	$0	$80,000	$0	$400,000
Site Evaluations and Recommendations	$984,000	$0	$246,000	$0	$1,230,000
Future Funding Analysis	$40,000	$0	$10,000	$0	$50,000
Total	**$1,400,000**	**$0**	**$350,000**	**$0**	**$1,750,000**

4. APPLICANT ELIGIBILITY CRITERIA

The applicant meets the eligibility criteria defined by the Notice of Funding Opportunity (NOFO) – Section 3 (a). The lead applicant is MDOT, a unit of the State of Maryland.

5. PROJECT ELIGIBILITY CRITERIA

The applicant meets the eligibility criteria defined by the NOFO – Section 3 (d):

v. A group of related projects described in paragraphs (i) through (iv) that would collectively improve the mobility of people and goods; or

- The Closure Study will evaluate and prepare priority crossings throughout the State of Maryland as stated within the State Rail Plan and the Highway-Rail Grade Crossing State Action Plan. This includes identifying potential grade separations or closures (i), track relocations (ii), improvement or installation of protective devices, signals, signs or other measures to improve safety related to (i) and (ii), and finally other means including technological solutions (iv).

vi. The planning, environmental review, and design of an eligible project described in paragraphs (i) through (v).

- The Closure Study is primarily a project planning study that will evaluate the safety issues at highway-rail grade crossings across the State of Maryland and determine the best course of action and alternatives.

6. DETAILED PROJECT DESCRIPTION

MDOT is seeking federal funding to support the evaluation of all highway-rail grade crossings within the State of Maryland. The purpose of this Closure Study is to identify and prioritize the crossings with the greatest need and to accomplish the greatest impact to improve safety. Roadways which interact with the rail network in Maryland are owned, operated and maintained by various jurisdictional entities including MDOT, the City of Baltimore, and the State's 23 counties and 156 municipalities. According to the FRA Crossing Inventory Database, there are approximately 1,200 highway-rail grade crossings in Maryland, of which only about 8% are identified as being on MDOT's State Highway Administration's (SHA) roadways (see Figure 1: Grade Crossing Distribution by Type).

6.1. BACKGROUND OF TRANSPORTATION CHALLENGES

MDOT has completed significant efforts to support a comprehensive project to close, separate, or consolidate grade crossings all over the state. These efforts include the completion of several system-wide plans that inform highway-rail grade crossing improvements and ongoing improvements to Geographic Information Systems (GIS) with the purpose of completing the Closure Study. This includes: Maryland State Rail Plan, Maryland Highway-Rail Grade Crossing Station Action Plan, (Maryland State Rail Plan, page 288), and the Maryland State Freight Plan. As a result of these initiatives, MDOT now has an extensive collection of data and insights related to at-grade crossings. However, without a unified decision-making framework, staff are required to make isolated, case-by-case decisions about individual at-grade crossings. The Closure Study will create a process to utilize existing data to identify and prioritize crossings based on crossing risk and feasibility of closure/consolidation/separation. The Closure Study will help MDOT develop these criteria which then will be replicated in the future with updated data as progress is made on the crossings identified in the Closure Study. The outcomes of the Closure Study will enable MDOT to more effectively prioritize and manage available state and federal funding for projects where closure or separation is being considered, ensuring that resources are invested in locations with the greatest need and potential benefit.

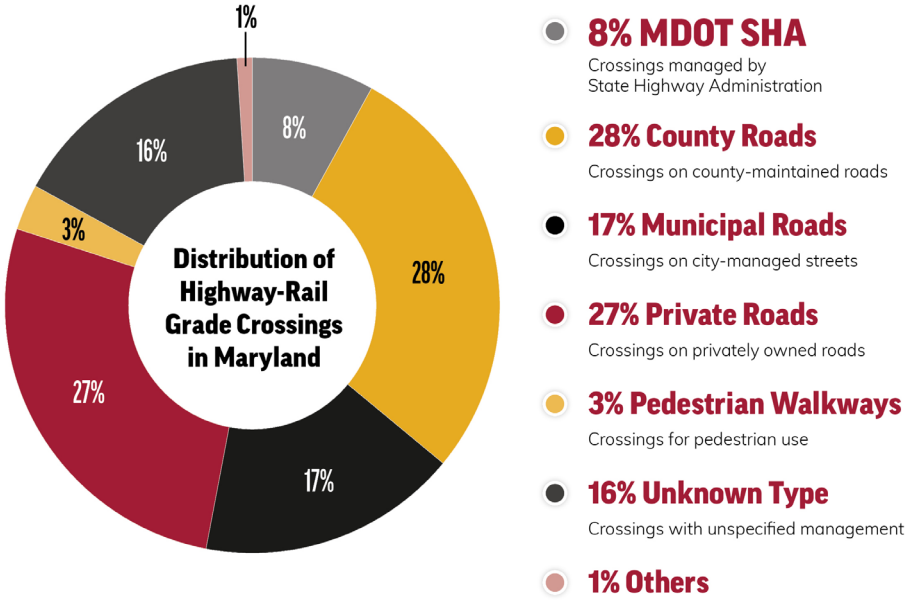


FIGURE 1. | **GRADE CROSSING DISTRIBUTION BY TYPE**

Maryland continues to improve safety at crossings, primarily through the federal Railway-Highway Crossing (Section 130) Program, which funds crossing safety improvements. To better utilize these federal dollars and non-federal sources, MDOT proposes the Closure Study to more efficiently and effectively accomplish safety improvements. Within Maryland there are 1,209 grade crossings, of which 660 are on public roadways (see Figure 1). According to FRA safety records, 14 fatalities and 119 injury incidents resulted from collisions at highway-rail grade crossings between 2004 and 2024. In the most recent five-year period, between January 1, 2021 and December 31, 2025, there were 0 reported fatalities and 28 reported injury incidents in Maryland's highway-rail grade crossings. Figure 3 demonstrates the location of crashes across the State of Maryland.

Currently, of the 660 public highway-rail grade crossings in Maryland, 53% include active signal systems with gates and flashing lights (including two with four quadrant gates), 34% include active signal systems with flashing lights, and 13% include stop signs or no protection.[1] Almost 50% of Maryland's public crossings are in five jurisdictions: Carroll, Frederick, Washington, and Baltimore counties; and Baltimore City. Figure 2 illustrates the number of crossings by county.

As illustrated by Figure 2, a majority of at-grade crossings are located in the higher density jurisdictions of Baltimore County, Montgomery County, and Baltimore City. Montgomery County is over-represented in crashes per the number of crossings, with 33 crashes occurring at Montgomery County's 11 public crossings between 2005 and 2024, including 4 fatalities and 6 injuries. The majority of highway-rail crashes in Baltimore County occurred at active crossings with gates and flashing lights. Crashes in Prince George's County are evenly distributed among crossings with active and passive controls.

6.2. CURRENT AND PROPOSED RAILROAD OPERATIONS AND SERVICE FREQUENCY

Railroad operations in Maryland are diverse and include passenger and freight services. These include the National Railroad Passenger Corporation's, herein referred to as Amtrak, intercity services and Maryland Area Rail Commuter (MARC) commuter services, as well as high-density freight traffic moving through the state and to or from the Port of Baltimore on Class I railroads. Additionally, Short Line and Regional railroads operate within the State at lower traffic densities and speeds. Freight traffic levels on Maryland's rail network vary according to demand, ranging from multiple daily frequencies on high density main lines to less than daily service on low density rural routes served by Short Line operators. Excursion passenger railroads operate on a seasonal basis, with varying frequencies according to weather and scheduled events.

1 FRA Crossing Inventory Data (accessed May 18, 2026)

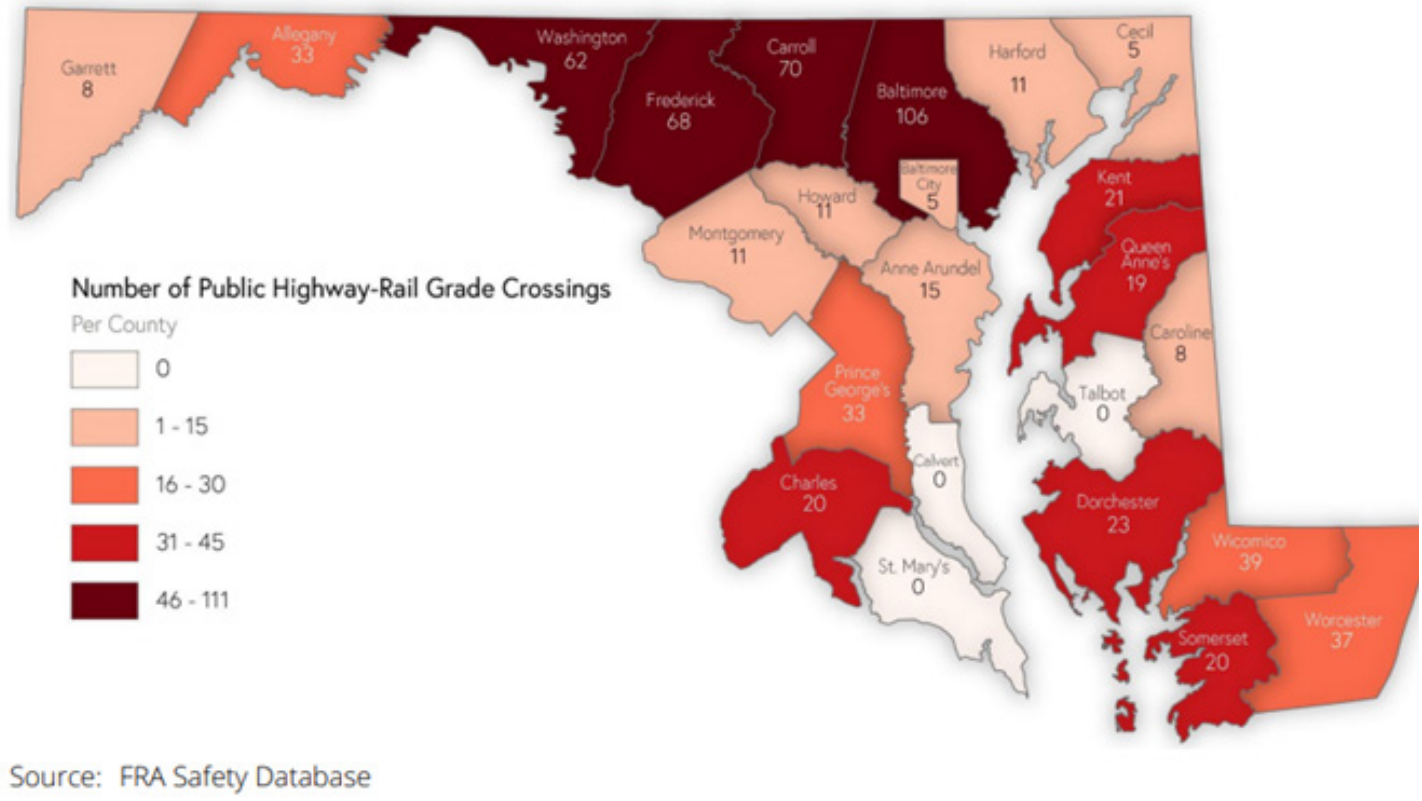


FIGURE 2. | **PUBLIC HIGHWAY-RAIL GRADE CROSSINGS IN MARYLAND**

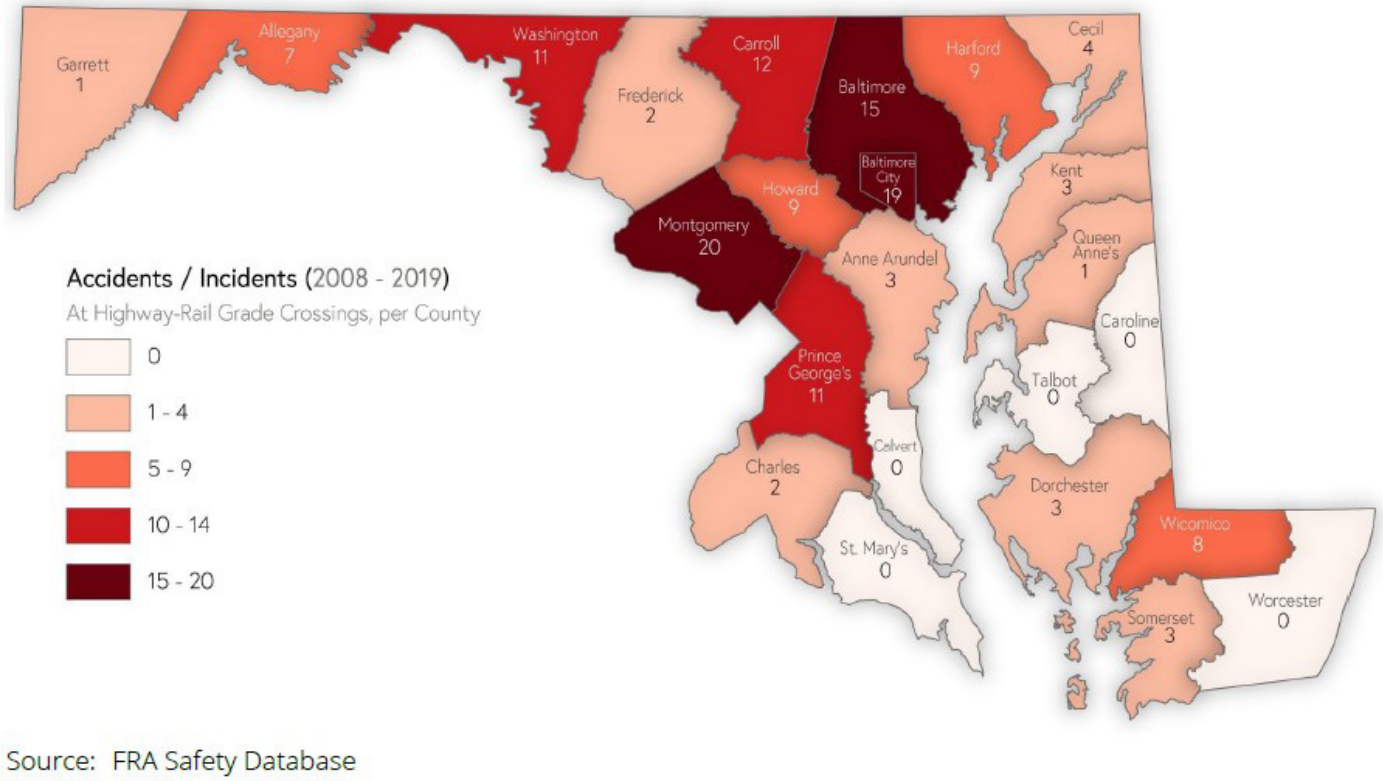


FIGURE 3. | **HIGHWAY-RAIL GRADE CROSSINGS CRASHES IN MARYLAND**

Passenger services operated by MARC and Amtrak are more predictable and more readily quantified. Table 2 provides a summary of Amtrak passenger services operating in Maryland in 2024. The Maryland Transit Administration's (MTA's) MARC Train commuter rail service links Union Station in Washington DC with Baltimore and other locations in Maryland, operating its Camden Line and Brunswick Line services on CSX trackage and its Penn Line service on Amtrak's Northeast Corridor.

The Maryland State Rail Plan of 2022 includes proposals for expanding passenger rail services in Maryland, dependent upon capital investment in infrastructure and equipment. Increasing the frequency, speed, and service area of passenger operations could present a potential increase in risks for injuries and fatalities associated with at-grade crossings. The Closure Study deliverables will provide MDOT with tools to assess crossings and risks of increased traffic and train speeds and new operating patterns with the implementation of future projects to expand passenger services.

TABLE 2. | **AMTRAK PASSENGER SERVICE IN MARYLAND (2019)**

ROUTE NAME	ORIGIN	DESTINATION	FREQUENCY	2024 RIDERSHIP (ENTIRE ROUTE)
ROUTE OF THE NORTHEAST CORRIDOR (STOPPING AT ROCKVILLE AND CUMBERLAND STATIONS				
Capital Limited [1]	Chicago, IL	Washington, DC	Daily	163,135
NORTHEAST CORRIDOR ROUTES				
Acela Express[2]	Washington, DC	New York, NY and Boston, MA	16 Roundtrips	3,238,119
Northeast Regional[3]	Washington, DC	New York, NY and Boston, MA	13 Roundtrips	13,996,090
STATE SUPPORTED ROUTES ON THE NORTHEAST CORRIDOR				
Virginia Northeast Regional[4]	Roanoke, Newport News, Norfolk, Richmond VA	New York, NY and Boston, MA	6 Roundtrips	1,389,840
Carolinian[5]	Charlotte, NC	New York, NY	Daily	347,357
Vermonter[6]	Washington, DC	St. Albans, NY	Daily	109,072
LONG DISTANCE ROUTES ON THE NORTHEAST CORRIDOR				
Cardinal[7]	Chicago, IL	New York, NY	Three Rounds Trips per Week	92,954
Crescent[8]	New Orleans, LA	New York, NY	Daily	303,085
Palmetto[9]	Savannah, GA	New York, NY	Daily	345,342
Silver Meteor[10]	Miami, FL	New York, NY	Daily	332,840
Silver Star[11]	Miami, FL	New York, NY	Daily	388,083

1 https://www.railpassengers.org/site/assets/files/3445/26.pdf
2 https://www.railpassengers.org/site/assets/files/3480/1.pdf
3 https://www.railpassengers.org/site/assets/files/3453/5.pdf
4 https://vapassengerrailauthority.org/wp-content/uploads/2025/01/Website-2024-Ridership-Report-1.pdf
5 https://www.railpassengers.org/site/assets/files/3456/66.pdf
6 https://www.railpassengers.org/site/assets/files/3450/4.pdf
7 https://www.railpassengers.org/site/assets/files/3448/18.pdf
8 https://www.railpassengers.org/site/assets/files/3443/52.pdf
9 https://www.railpassengers.org/site/assets/files/3457/48.pdf
10 https://rpav1.railpassengers.org/site/assets/files/3459/19.pdf
11 https://www.railpassengers.org/site/assets/files/3458/16.pdf

6.3. TRAIN COUNTS BY RAIL OPERATOR

Amtrak's Intercity Passenger Rail operations are described in Table 2 with train frequency and ridership described for each corridor. In addition to this there are three commuter lines operated by MARC along existing rail corridors. These corridors include the Penn Line which runs along the Amtrak Northeast Corridor, with 58 daily trains; the Brunswick Line which runs along a CSX freight corridor with 18 daily trains, and the Camden Line which runs along another CSX freight corridor with 21 daily trains..

6.4. PRIMARY EXPECTED PROJECT OUTCOMES

The Closure Study will create future grade-crossing projects with stronger outcomes and more effective partnerships between roadway owners and rail operators. By creating a consistent, data-driven process, the Closure Study will deliver planning efforts which identify the most critical at-grade crossing improvements needed to reduce safety incidents and enhance the efficient movement of goods and people.

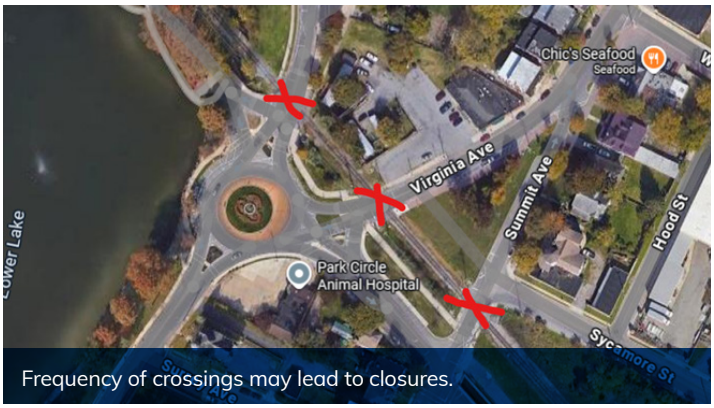
Details of these efforts are laid out in the Maryland State Rail Plan's subplan, the Maryland Highway-Rail Grade Crossing State Action Plan. Efforts for evaluating and prioritizing grade crossings are specifically described in Section 5.3.1 Prioritization Tool Identification. The primary tool that MDOT currently uses is the Grade Crossing Accident Prediction System (GXAPS) which is a limited tool that doesn't include safety, economic and community benefits, which will be addressed by the Closure Study and aligns with MDOT's Vision. This Closure Study will expand and improve upon the framework described in the State Action Plan to develop an evaluation tool tailored to the needs of State of Maryland that utilizes the most up to date available data. This will move Maryland forward to improve ongoing congestion with freight trains and roadway users seeing improved outcomes with the most needed highway-rail grade crossings identified for future closure or separation.

6.5. EXPECTED USERS AND BENEFICIARIES

The Closure Study will evaluate approximately 1,200 highway-rail grade crossings, identify priority needs, and develop site evaluations and recommendations for improving safety. The users of the crossings include the general traveling public on public and private right-of-way that cross rail corridors as well as freight and inter-city passenger rail operators utilizing the rail corridors. Since the Closure Study is identified as being part of the Project Planning Life Cycle stage, the complete picture of final users and benefits will be refined in the scope of work and is anticipated to include many transportation stakeholders, in addition to MDOT, such as:

- Amtrak
- CSX Transportation (CSX)
- Canton Railroad (CTN)
- Delmarva Central Railroad (DCR)
- Local County/Municipal Agencies
- MARC Train (Maryland Transit Administration commuter rail service)
- Maryland Midland Railway (MMID)
- Metropolitan Planning Organizations (MPOs)
- Norfolk Southern Railway (NS)
- The Maryland and Delaware Railroad Company (MDDE)
- Walkersville Southern Railroad (WSRR)
- Western Maryland Scenic Railroad (WMSR)

Findings of the Closure Study will be communicated with the railroads and roadway owners/local jurisdictions to support future implementation.



Frequency of crossings may lead to closures.

Volumes of trains x vehicles = high exposure may lead to Grade Separation.

Blocked crossings to a dead-end street may lead to alternative access.

FIGURE 4. | **HIGHWAY-RAIL GRADE CROSSINGS EVALUATION CONSIDERATIONS**

6.6. STATEMENT OF WORK

TASK 1: PROJECT ADMINISTRATION AND MANAGEMENT

Subtask 1.1 Project Administration: The Closure Study expands upon existing efforts by MDOT, described in the State Action Plan, in undertaking coordination and planning efforts to identify the most pressing highway-rail grade crossing concerns and selecting the appropriate improvements for addressing them, preferably closure, consolidation, or grade separation. As a Statewide planning project undertaken by MDOT with the support of the MTA and other stakeholders, there are no agreements required for execution between MDOT and other parties, including railroad property or infrastructure owners, before the Study may proceed. There are no preceding projects underway whose completion is required to initiate the proposed Study. Although no other parties are committed to providing funding or other commitments toward the Study, MDOT will perform all tasks required for the Closure Study through a coordinated process, which will involve affected railroad owners, operators, and partners, including:

- Amtrak
- CSX
- Counties
- CTN
- DCR
- FRA
- MARC Train
- MDDE
- MMID
- MPOs
- Municipalities
- NS
- WMSR
- WSRR

MDOT understands and has extensive experience in leading federally funded projects. MDOT will act as the lead and implement entity to facilitate the coordination of all activities necessary for the Closure Study. MDOT will:

- If not held prior to award, participate in a kickoff meeting with FRA;
- Complete necessary documentation to execute Grant Agreement with FRA;
- Utilize an open-end Architectural & Engineering (A&E) contract procured by the MTA to secure consultant services to perform the Study components and will complete the necessary steps to hire a qualified consultant/contractor to perform the required scope of work;
- Hold regularly scheduled Closure Study meetings with FRA;
- Inspect and approve work as it is completed;
- Participate in other coordination, as needed;
- Submit to FRA all required deliverables and documentation on-time and according to schedule, including periodic receipts and invoices;
- Review and approve invoices as appropriate for completed work;
- Perform close-out audit and issue close-out report;
- Comply with all FRA reporting requirements; and
- Notify FRA of changes to this Agreement that require written approval or modification to the Agreement.

Subtask 1.2 Project Management Plan: MDOT will prepare a Project Management Plan (PMP), that describes how the Closure Study will be implemented and monitored to ensure effective, efficient, and safe delivery of the Closure Study on time and within budget. The PMP will describe, in detail, the activities and steps necessary to complete the tasks outlined in this Statement of Work.

The PMP will include a schedule and budget for the work to be performed. MDOT will submit the PMP to FRA for review and approval. MDOT will implement the Closure Study Project as described in the approved PMP. MDOT will not begin work on subsequent tasks until FRA has provided written approval of the PMP. FRA will not reimburse the Recipient for costs incurred in contravention of this requirement.

MDOT understands that the FRA may require update(s) to the PMP and/or budget and schedule. MDOT will submit any such updates to FRA for review and approval, and will coordinate any follow-up actions with FRA.

Subtask 1.3 Project Closeout: MDOT will perform a close-out audit to ensure contractual compliance and submit a Final Performance Report, which should describe the cumulative activities of the Closure Study, including a complete description of MDOT's achievements with respect to the objectives and milestones.

TABLE 3. | **LIST OF TASK 1 DELIVERABLES (NON-CAPITAL PROJECTS)**

TASK 1 DELIVERABLES	
1.1	Project Management Plan
1.2	Final Performance Report

TASK 2: LOCATION SCREENING

MDOT shall perform field and office tasks required to collect information deemed necessary to identify rail and roadway system alternatives to improve vehicular/rail interaction and freight rail performance at selected highway-rail grade crossings throughout the State of Maryland. Specific subtasks include:

Subtask 2.1 Prioritization Methodology: Develop prioritization methodology using available data, findings from the Maryland State Rail Plan and State Action Plan, and stakeholder feedback to evaluate various crossing parameters and characteristics of Maryland's grade crossings to determine and recommend grade separation feasibility, consolidation, or closure. The methodology will use data and methods similar to what is presented in the Texas Department of Transportation's (TxDOT) Statewide Crossing Study (2011) with modifications to reflect Maryland's priorities and needs. Data sources will include sources such as field data collected by MDOT, FRA, Maryland Department of Planning (MDP), State Highway Administration (SHA), aerial imagery, and state and local planning documents.

Subtask 2.2 Grade Crossings Screening: Perform an initial screening of all active public and private highway-rail grade crossings throughout the State using documented methodology.

Using a standardized and documented methodology, this screening will analyze crossings and develop an index score, ranking crossings using attributes such as high crash rates, high-risk factors (blocked crossings, multiple tracks, delays, exposure, etc.), and traffic trends that may affect future risk and/or lower the costs of transporting goods. Furthermore, the screening will identify crossings with elevated risk profiles and those where improvements may enhance safety and freight mobility. Figure 4 demonstrates some of the potential changes to highway-rail grade crossings that will be identified as part of the Closure Study.

Subtask 2.3 List of Prioritized Grade Crossings: A risk-based prioritization approach will be applied to approximately 1,200 at-grade crossings statewide. This process will refine the screened list to identify a subset of 20 to 25 priority locations for further evaluation. Selection criteria will include safety performance (e.g., crash history), future risk potential, implementation feasibility, cost considerations, and anticipated timelines.

TABLE 4. | **LIST OF TASK 2 DELIVERABLES (NON-CAPITAL PROJECTS)**

TASK 2 DELIVERABLES	
2.1	Prioritization Methodology
2.2	Screening of All Active Public & Private Grade Crossings
2.3	List of Prioritized 20-25 Grade Crossings Locations/Projects

TASK 3: SITE EVALUATION & RECOMMENDATIONS

At each of the identified 20-25 grade crossing locations, MDOT shall engage stakeholders and develop a site evaluation and recommendation including near, mid, and/or long-term solutions, as appropriate for each location, and associated cost estimate.

Subtask 3.1 Stakeholder Plan and Coordination List and Feedback Outcomes: MDOT will identify applicable stakeholders throughout the state and get their input, feedback and foster communication to build trust, achieve common goals, and create a plan that will improve the safety and mobility of people and goods throughout Maryland.

Subtask 3.2 Site Evaluations: Detailed site evaluations will be conducted for each prioritized crossing location. These evaluations will build upon the initial screening results and incorporate field observations and additional data collection. Key assessment elements will include rail and roadway geometry, traffic volumes, land use context, proposed development, environmental and historic resources, right-of-way constraints, and stakeholder input. The evaluations will also assess safety and mobility impacts, network connectivity, and community considerations. Additionally, if deemed necessary, a diagnostic review meeting

may be performed with the appropriate stakeholders to discuss existing conditions and develop site recommendations (Subtask 3.3).

Subtask 3.3 Site Recommendations: MDOT will recommend a range of solutions for the identified 20-25 highway-rail grade crossing locations. This may include recommendations for crossing closures, new traffic control devices, upgrades to existing devices, alternate access (consolidation), or grade separations.

TABLE 5. | **LIST OF POTENTIAL IMPROVEMENT TYPES (NEAR, MID, AND LONG TERM SOLUTIONS)**

CATEGORY	POTENTIAL IMPROVEMENT TYPE
Near-Term	Traffic control device installation or upgrade
Mid-Term	Geometric improvements; closure/consolidation
Long-Term	Grade separation study, closure/consolidation study

Each solution will include an associated cost estimate. This process may be done via a diagnostic team review, where the regulatory authority (MDOT), roadway owner, railroad owner/operator, and any other identified stakeholders, will meet onsite to discuss the existing conditions, crash history, future development, etc. in order to make recommendations for safety improvements.

TABLE 6. | **LIST OF TASK 3 DELIVERABLES (NON-CAPITAL PROJECTS)**

TASK 3 DELIVERABLES	
3.1	Stakeholder List and Feedback
3.2	Site Evaluations
3.3	Recommendations for the Prioritized 20-25 Grade Crossing Locations/Projects

TASK 4: FUTURE FUNDING ANALYSIS

MDOT will develop a future funding plan that outlines specific strategies, goals, and a timeline for implementing the recommendations of the Closure Study, aligned with available and anticipated funding opportunities. This plan will serve as a framework to guide sound transportation investments and ensure that the study acts as a catalyst for securing funding and advancing safe freight mobility throughout the State of Maryland. By moving forward with grade crossing closures and consolidations where feasible, and by implementing targeted grade crossing improvements, MDOT will be able to enhance safety, improve system performance, and more effectively prioritize long term investment needs.

TABLE 7. | **LIST OF TASK 4 DELIVERABLES (NON-CAPITAL PROJECTS)**

TASK 3 DELIVERABLES	
4	Future Funding Plan for the Prioritized 20-25 Grade Crossing Locations/Projects

6.7. ENVIRONMENTAL INFORMATION

The Closure Study is identified as a Project Planning Lifecyle effort and does not currently have environmental work included. As the 20-25 final highway-rail grade crossings are identified for improvements or closure, MDOT will complete environmental inventories, as required. Future funding analysis as part of the Closure Study will inform future environmental compliance needs.

6.8. GRADE CROSSINGS SCREENING

The Closure Study is currently focused on the Project Planning Lifecycle to identify and determine the best solutions for the highest need grade-crossing locations. Improvements may include: crossing closure, grade separation with underpass or overpass, improvements to safety with devices, geometrics, and other infrastructure to reduce crashes.

A list of at-grade crossings with the identified details can be found in Appendix A – Railroad Crossings Inventory Data.

6.9. HIGHWAY-RAIL GRADE CROSSING SAFETY INFORMATION AND EDUCATION PROGRAM

MDOT is not seeking funds for crossing safety information or an education program at this time.

7. PROJECT LOCATION

The Closure Study area is anticipated to review locations across all State of Maryland counties with highway-rail grade crossings. With approximately 1,200 highway-rail grade crossings the evaluation is spread throughout rural and urban areas, with 20% of roadways designated as rural. Appendix A includes the full list of grade crossings to be evaluated as part of the Closure Study. This includes latitude and longitude for each location and the FRA location number. Figure 5 demonstrates the location of the crossing that will be evaluated as a part of the Closure Study by county.

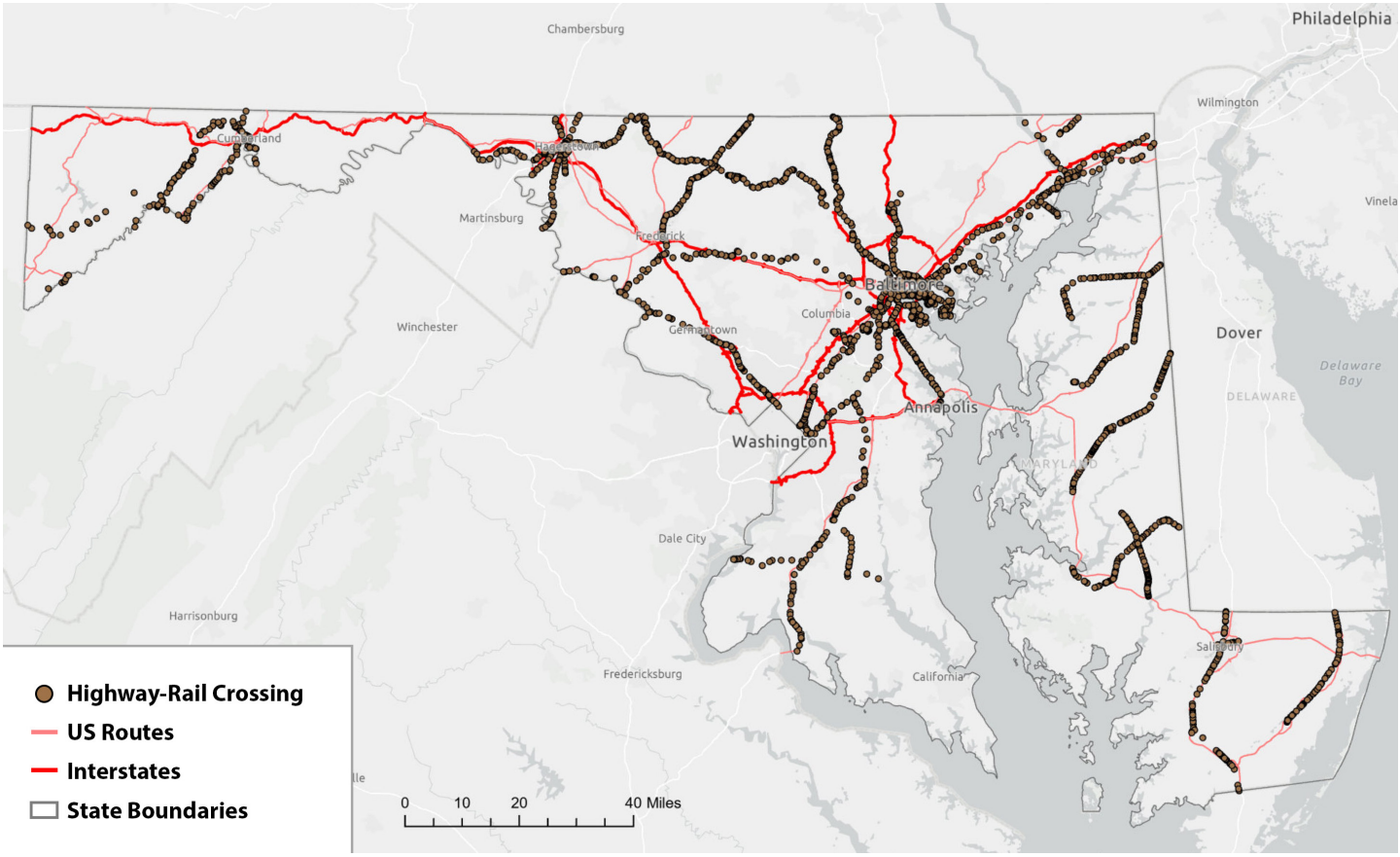


FIGURE 5. | HIGHWAY-RAIL GRADE CROSSINGS IN MARYLAND

8. EVALUATION AND SELECTION CRITERIA

8.1. PROJECT READINESS

As a Planning Project (non-capital project) undertaken by MDOT with the support of MTA and other stakeholders, there are no agreements required for execution between MDOT and other parties, including railroad property or infrastructure owners, before the Study may proceed. It is also a non-capital project and therefore, does not require any environmental clearance, such as the National Environmental Policy Act (NEPA). Also, there are no preceding projects underway whose completion is required to initiate the proposed Study. Furthermore, MDOT will utilize an open-end A&E contract procured by the MTA to secure consultant services to perform the Study components and will complete the necessary steps to hire a qualified consultant/contractor to perform the required scope of work.

Given these factors, MDOT is able to obligate and implement the Lifecycle Stage for this funding request shortly after award notification.

8.2. TECHNICAL MERIT

The Closure Study is the result of significant work by the State of Maryland to complete comprehensive systems planning and with the proposed Crossing Safety federal funding work will begin the Project Planning Lifecycle Stage, as defined by the FRA. The Closure Study scope includes activities to evaluate the safety of the state's at-grade highway-rail crossings, consider the best alternatives, and develop conceptual plans for the topmost necessary crossing separations, closures, and improvements. This does not require environmental documentation as required by the National Environmental Policy Act (NEPA) but will help to inform future NEPA actions.

MDOT will utilize an open-end A&E contract procured by the Maryland Transit Administration (MTA) to secure consultant services to perform the Study components. The consultant selected by MDOT and MTA to perform the Closure Study will prepare and submit a scope of services and cost estimate within fifteen (15) days of request for review by the Study Team. Review and approval of the scope and budget, including revisions requested by the Study Team, will be complete within fifteen (15) days. The approved scope and budget will be reviewed under MTA's standard contract management program and Notice to Proceed (NTP) for the consultant task issued within thirty (30) days.

Once work is initiated by the selected consultant, the Closure Study will proceed according to the approximate timelines outlined in the schedule, with anticipated completion within a 24 month period. The schedule is provided in Table 8.

As a planning project undertaken by MDOT with the support of MTA and other stakeholders, the Closure Study has no agreements that are required for execution between MDOT and other parties, including railroad property or infrastructure owners, before the Closure Study may proceed. There are no preceding projects underway whose completion is required to initiate the Closure Study. The Maryland Grade Crossing Closure Study is the first step in MDOT undertaking coordination and planning efforts to identify the most pressing grade crossing concerns and selecting the appropriate improvements for addressing them. Although no other parties are committed to providing funding or other commitments toward the Study, MDOT has received or anticipates letters of support from railroads operating in Maryland, including:

- Amtrak
- CSX
- CTN
- DCR
- DLLR
- MDOT State Highway Administration (SHA)
- MARC Train
- Maryland Governor Wes Moore
- MDDE
- MMID
- NS
- WMSR
- WSRR

These letters of support are attached as Appendix C.

The Study Team has the experience required to effectively oversee and complete the Study. They have a proven track record of delivering large, complex studies and planning projects within budget and on schedule, including the Freight Rail Chestertown Line: Worton Track Safety Project (CRISI), Warner Street Highway-Rail Grade Crossing Project (RCE/ Crossing Safety Program), numerous FHWA Section 130 funded grade crossing design and construction projects, the Maryland State Rail Plan of 2022, the Maryland State Freight Plan of 2022, and the Maryland Highway-Rail Grade Crossing State Action Plan of 2022.

The State of Maryland has identified the needs associated with the Closure Study through the development of multiple planning documents. This includes the Maryland State Rail Plan (Chapter 2), the Maryland Highway-Rail Grade Crossing State Action Plan (Appendix G in the Maryland State Rail Plan), and the Maryland State Freight Plan in Section 6.1.2.

Funding is committed by MDOT as non-federal match to complete the funding with awarded Railroad Crossing Elimination funding. Support from other entities is not anticipated.

Legal Capacity: MDOT and MTA staff have the legal capacity to carry out project contracting and oversight, minimize and mitigate risks, and conform to federal requirements for progress reporting. The Study Team will request recurrent (monthly) updates from technical consultants covering the scope, schedule, budget, and performance to proactively address risks, describe cost and schedule impacts, assess mitigation options, and documenting resolutions of risks. The Study Team will also hold recurrent meetings (monthly) with technical consultants to review schedule and status of tasks required to complete each component of the Study.

Financial Capacity: MDOT has a strong record of delivering similar projects utilizing previous financial contributions. Additionally, by working closely with rating agencies and maintaining financially prudent criteria regarding the Maryland Transportation Trust Fund, the department has one of the highest credit ratings given to transportation agencies.

Technical Capacity: The Study Team staff possess the technical qualifications and experience to lead and perform technical oversight to successfully execute the Study within the proposed budget and time period.

8.3. PROJECT BENEFITS

8.3.1. IMPROVE SAFETY AT HIGHWAY-RAIL GRADE CROSSINGS

The Closure Study will improve safety at 20-25 highway-rail grade crossings with a focus on the crossings with high crash rates, high-risk factors (blocked crossings, multiple tracks, delays, exposure, etc.), and traffic trends that may affect future risk and/or lower the costs of transporting goods. The Closure Study will identify: Near-Term Improvements such as traffic control device installation or upgrade; Mid-Term Improvements such as geometric upgrades, as well as closure/consolidation of crossings; and Long-Term Improvements such grade separation studies, and closure/consolidation studies for the most complex highway-rail grade crossings.

This planning effort will ensure that the greatest safety impact is met with the most effective strategies to ensure the greatest reduction in crashes and improved safety risks at approximately 1,200 at-grade crossings. Some crossings may be improved sooner based on the near term benefits identified and overall needs, which also may be eligible for the Railway-Highway Crossings (Section 130) Program funds. The Closure Study will support the overall best management and use of the Section 130 funds.

8.3.2. PROPOSES TO GRADE SEPARATE, ELIMINATE OR CLOSE ONE OR MORE HIGHWAY-RAIL GRADE CROSSINGS

The Closure Study will evaluate all 1,200 highway-rail grade crossings in the State of Maryland and determine a priority list of approximately 20-25 grade crossings to prioritize locations that have the highest safety needs. This will then be used to determine a list of priority projects for further project development and concept design. This will result in approximately two dozen highway-rail grade crossing closures or separations that will improve safety where there is the highest need. Additionally, through the screening process, MDOT will be able to identify other lower-priority crossings that can be closed or consolidated.

8.3.3. IMPROVES MOBILITY OF BOTH PEOPLE AND GOODS

The Closure Study will support the future improvement of mobility for both people on the State's roadways and intercity passenger/commuter rail but also freight on the State's 728 miles of rail track, owned by nine (9) railroad operators employing 728 people. This includes 5.0 million tons of goods on 92,800 train cars originating in Maryland, and 36.4 million tons of goods on 415,000 cars terminating in Maryland.[2]

According to the Maryland State Rail Plan (page 2-50), while all of Maryland's economy depends on the movement of freight, certain sectors are particularly dependent, including manufacturing, retail and wholesale trades, transportation and warehousing, construction, utilities, mining, and agriculture. Collectively, these industries contribute to 23.8% of the state's economic output. Of the industries particularly reliant upon freight transport, manufacturing is the largest in terms of GDP, followed by retail and then wholesale trade.

By closing or grade separating 20–25 highway rail grade crossings, mobility for freight operators and for passengers on intercity and commuter rail systems will significantly improve. Roadway traffic operations will improve, and reducing crash related closures will help minimize delays, and, where new infrastructure allows, operators may also be able to increase train speeds. This will improve the experience for American Families as roadway users at highway-rail grade crossings and improved service for commuter and intercity passenger rail riders.

8.3.4. REDUCES EMISSIONS

The Closure Study will prepare plans for the closure or separation of 20-25 highway-rail grade crossings, thereby reducing the amount of time that vehicles are required to stop and wait for passing trains. According to the Argonne National Laboratory, personal vehicle idling uses more than 6 billion gallons of fuel at a cost of more than $20 billion to consumers and business each year. For each vehicle left idling at a highway rail grade crossing, the average fuel consumption rate is approximately 0.17 gallons per hour.

8.3.5. PROTECTS THE ENVIRONMENT

The Closure Study will evaluate the closure or separation of highway-rail grade crossings with meaningful environmental benefits by reducing vehicle idling and associated emissions. When vehicles are forced to stop for passing trains, long queues can develop, leading to increased fuel consumption and higher emissions of pollutants such as carbon dioxide (CO_2), nitrogen oxides (NO_x), and particulate matter. By eliminating or

2 AAR.org/Maryland

grade-separating these crossings, traffic will flow more continuously, minimizing stop-and-go conditions and improving overall air quality in surrounding communities. This is particularly impactful in areas with frequent train activity or high traffic volumes, where cumulative emissions from idling will significantly degrade local environmental conditions.

In addition, reducing conflicts between rail and roadway users will lead to quieter, safer, and more sustainable transportation corridors. Grade separations and targeted closures will decrease noise pollution caused by train horns, braking vehicles, and congestion, improving quality of life for nearby residents and sensitive land uses such as schools or parks. These improvements can also support broader environmental goals by encouraging more efficient land use and transportation patterns and enhancing resilience within the transportation network. Overall, the Closure Study will provide a data-driven foundation for investments that align transportation efficiency with environmental stewardship.

8.3.6. PROVIDES COMMUNITY BENEFIT, INCLUDING NOISE REDUCTION

The Closure Study will provide significant community benefits, including noise reduction, by equipping MDOT staff with the data and tools needed to prioritize 20–25 highway rail grade crossings for closure or separation out of the approximately 1,200 statewide. These future improvements will reduce the likelihood of collisions between trains and vehicles and will enable trains to operate more efficiently, with fewer instances where horns must be used for safety.

8.3.7. IMPROVES ACCESS TO EMERGENCY SERVICES

The Closure study will improve access to Emergency Services by providing much needed data to MDOT staff for the closure or separation of 20-25 highway-rail grade crossings. This means that police, fire and medics will have improved and immediate access across railroad tracks that typically act as a barrier. Communities with railroad tracks separating their neighborhoods will see improvements in emergency services response times for those highway-rail grade crossings that are chosen for separation facilities.

8.3.8. IMPROVES ACCESS TO COMMUNITIES

Too often, communities face long delays with freight trains crossing through towns and cities along highway-rail grade crossings. Blocked crossings are often frustrating for drivers, as well as transit passengers, people walking and biking, and those accessing daily life amenities and activities on opposite sides of the track. Additionally, impatient community members may chose unsafe crossing due to blockages (either climbing through or under trains that block a highway-rail grade crossing) that will be resolved with improvements from the Closure Studies efforts. As described in 8.3.7 Improves Access to Emergency Services, these highway-rail grade crossings become daily barriers and reminders of the industrial corridors traveling through their communities. By closing or separating 20-25 highway-rail grade crossings, the Closure Study will provide MDOT staff with the tools to choose critical crossing locations that will improve access to schools, businesses, health care facilities, and emergency services.

8.3.9. PROVIDES ECONOMIC BENEFITS

The Closure Study will lead to the implementation of highway-rail grade crossing separation and closure across the State of Maryland. At-grade crossings frequently introduce unpredictable delays for roadway users, freight carriers, and transit services, leading to lost time, higher operating costs, and reduced productivity. By removing these conflicts, vehicles will maintain consistent travel speeds, reducing fuel consumption and vehicle wear while improving travel time reliability. For freight and commercial traffic, these improvements translate directly into reduced shipping costs, more dependable delivery schedules, and enhanced competitiveness for local businesses and logistics hubs. Collectively, these travel efficiency gains will produce measurable economic

value at both the corridor and statewide levels.

In addition, reducing at-grade crossings enhances safety and lowers the significant economic costs associated with crashes and incidents. Rail–vehicle collisions, though relatively infrequent, tend to be severe and can result in costly emergency response, property damage, legal expenses, and long-term disruptions to both rail and roadway networks. Eliminating these risks through closures or grade separation reduces these potential liabilities while also minimizing disruptions that ripple through the broader economy. Improved safety and reduced congestion will also support adjacent property values and catalyze economic development by making surrounding areas more accessible, attractive, and predictable for investment. For a statewide program, the cumulative effect across 20–25 locations will deliver a strong return on investment through a combination of cost savings, increased productivity, and long-term economic resilience.

9. PROJECT IMPLEMENTATION AND MANAGEMENT

MDOT will implement the planning study through a structured project management framework led by the MDOT Office of Planning, Programming, and Project Delivery (OPPPD), which will serve as the lead administrative and technical authority. A dedicated Program Director will oversee the study, supported by a multidisciplinary project team and technical consultants procured through existing MDOT contracting mechanisms.

The Closure Study will be governed by a PMP that establishes responsibilities, schedules, deliverables, performance measures, and reporting protocols, ensuring alignment with FRA requirements and grant agreement provisions.

Key elements include:

- Defined scope, schedule, and budget baseline.
- Clearly delineated roles among MDOT staff and consultants.
- Integrated risk management and reporting procedures.
- Compliance protocols for federal requirements.

Project Contracting Arrangements: The Closure Study will utilize existing MDOT/MTA Architectural & Engineering on-call contracts procured through standard, federally compliant MDOT processes. Consultants will support technical analysis, deliverables, schedule, and risk tracking.

Contract Oversight and Control: MDOT will implement strong oversight through program-level monitoring, monthly progress meetings, and structured deliverable review processes to ensure compliance and quality.

Change Order Management: All scope, schedule, or budget modifications will follow formal change control procedures, including documentation, justification, cost/schedule impacts, and alignment with FRA requirements.

Risk Management: A formal risk register will be maintained and updated monthly. Risks will be identified, tracked, mitigated, and assigned to responsible parties. Schedule and budget controls will track critical path activities and ensure timely delivery.

Federal Reporting: MDOT will submit quarterly progress reports, federal financial reports, and a final performance report. A close-out audit will ensure full compliance and documentation of achievements.

2 CFR 200.206(b) Factors: MDOT has strong financial systems, demonstrated performance history, effective management practices, audit compliance, and qualified technical staff. In terms of qualifications, MDOT has successfully delivered complex statewide planning efforts, including major rail, freight, and safety programs.

The team has extensive experience managing consultants and complying with federal requirements. Furthermore, MDOT is an experienced direct recipient of FRA funding.

Based on the scope of work and on similar projects previously completed, MDOT anticipates finishing the project within 24 months of executing a project agreement between MDOT and FRA. The anticipated schedule is provided in Table 8.

TABLE 8. | **PROJECT SCHEDULE (NON-CAPITAL PROJECTS)**

TASK		DELIVERABLE	DUE DATE
Task 1: Project Administration & Management	**1.1**	Project Management Plan	Month 1
	1.2	Final Performance Report	Month 24
Task 2: Location Screening	**2.1**	Prioritization Methodology	Month 3
	2.2	Screening of All Active Public & Private Grade Crossings	Month 5
	2.3	List of Prioritized 20-25 Grade Crossings Locations/Projects	Month 7
Task 3: Site Evaluation & Recommendation	**3.1**	Stakeholder Plan and Coordination Outcomes	Month 11
	3.2	Site Evaluations	Month 11
	3.3	Recommendations for the Prioritized 20-25 highway-rail grade crossing locations	Month 17
Task 4: Future Funding Analysis		Future Funding Plan for the 20-25 highway-rail grade crossing locations	Month 20

9.1. TEAM ORGANIZATION

MDOT will lead the Closure Study utilizing MTA's resources in close coordination with operating railroads, local agencies, and other stakeholders. The Rail Safety Program Manager in the Office of Rail and Intermodal Freight (ORIF) within OPPPD will be designated as Program Director, and the Rail Safety Grants Manager within ORIF will be designated as Project Manager. These two roles will be responsible for oversight and implementation. The Closure Study will be managed by a dedicated team composed of MDOT staff, supported by on-call consultant staff. The Closure Study team will be responsible for project contracting, oversight, and change order management. Figure 6 illustrates organization of the Study Team. As Grantee, MDOT will coordinate with all stakeholders to ensure that federal grant regulatory standards are met through the life of the Study. Operating railroads in Maryland will play a strong role in the Closure Study team, and MDOT will coordinate throughout the Closure Study with all operating railroads, including Amtrak, MARC, Class I operators CSX and NS, regional or local carriers like Maryland Midland Railroad and Delmarva Central Railroad, and excursion operators Western Maryland Scenic Railroad and Walkersville Southern Railroad.

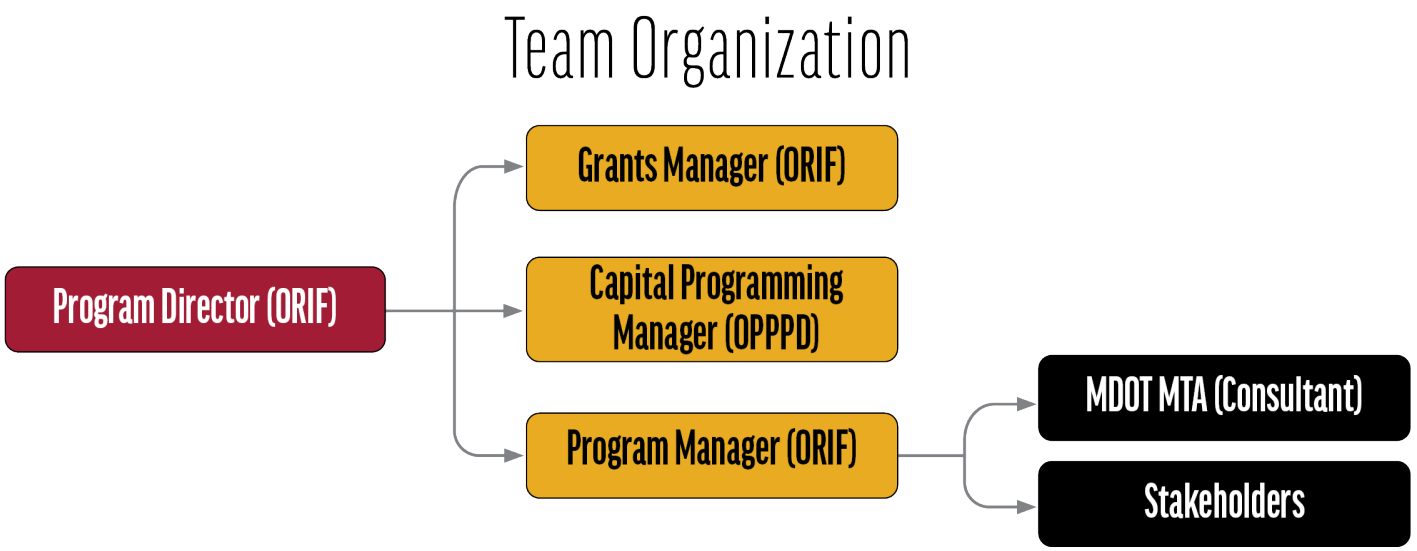


FIGURE 6. | **MDOT CLOSURE STUDY TEAM ORGANIZATION**

9.2. PROJECT CONTRACTING AND OVERSIGHT

The Closure Study will utilize an existing MTA Architectural and Engineering on-call contract for consultant technical support. These contracts are awarded through the standard MDOT procurement process and managed by MTA according to all relevant state and federal requirements. The technical consultant will be responsible for managing risk through monthly updates of scope, schedule, budget, and performance. These updates will identify project risks, describe cost and schedule impacts, propose mitigation measures, determine the party responsible for mitigation, and document when the risk is resolved. The Closure Study team will request recurrent (monthly) updates from technical consultants to review the schedule and status on the components and deliverables of the Closure Study. These meetings will involve the technical consultant and Closure Study Team, who will help to address risk and mitigation strategies. The technical consultant will be responsible for developing the risk register and master budget and schedule. The technical consultant will be required to update the schedule and budget monthly. The schedule will account for items such as review and comment periods, deliverables, milestones, and the critical path which will be distinguishable from non-critical activities. It will also depict activities, descriptions, durations, start and finish dates, and the logical relationships between activities.

9.3. FEDERAL REPORTING

ORIF, led by the Program Director, will submit the required FRA progress reports, including FRA quarterly progress reports, federal financial quarterly reports, and the final performance report.

9.4. PAST EXPERIENCE

As described in the “Evaluation and Selection Criteria” section, the MDOT team has the technical qualifications, resources, and experience to successfully complete the Closure Study. MDOT has demonstrated that it can deliver large and complex planning studies like the Maryland State Rail Plan of 2022, the Maryland State Freight Plan of 2022, and the state’s Highway-Rail Grade Crossing State Action Plan of 2022. MDOT staff are highly experienced in managing consultant staff engaged under contract to provide technical support and also experienced in extensive stakeholder coordination for planning efforts and studies.