MARYLAND DEPARTMENT OF TRANSPORTATION

Maryland Trespassing Safety Study

Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program Discretionary Grant Application

May 2024

Submitted to: United States Department of Transportation Federal Railroad Administration
Submitted by: The Maryland Department of Transportation

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1. Project Narrative

1.1. Cover Page

Project Applicant	Maryland Department of Transportation (MDOT)
Co-Applicants	None
Amount of CRISI Program Funding Requested under this NOFO	$800,000
Amount of Proposed Non-Federal Match	$200,000
Other Sources of Federal funding, if applicable	N/A
Source(s) of Proposed Non-Federal Match	State funding from the Maryland Transportation Trust Fund
Total Project Cost	$1,000,000
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, and identify any differences between the applications.	No
City(-ies), County(ies), State(s) Where the Project is Located	The Project will entail study of active railroad rights throughout Maryland, with lines in twenty counties, plus the City of Baltimore. There are no active rights of way in Calvert, St. Mary's, or Talbot Counties
Is the Project located in a Rural Area?	The project encompasses the entire State of Maryland, in rural and urbanized areas. It is expected that areas of particular concern for trespassing fatalities and injuries will be in urban areas of the State.
Congressional District(s) Where the Project is Located	1st, 2nd, 3rd, 4th, 5th, 6th, 7th, and 8th, Congressional Districts of Maryland
Application Track(s) proposed to be funded by this NOFO	Track 1 – Systems Planning
Lifecycle Stage(s) proposed to be funded by this NOFO	The requested funding would support Systems Planning to identify locations where fatalities and injuries associated with trespassing are of particular concern, and potential projects and strategies to address these concerns.
Current Lifecycle Stage and anticipated completion of current Lifecycle Stage?	Systems Planning activities would initiate the project by June 2025, with anticipated completion of the project by July 2026.
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 proposed interest.	• 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) • The Accomack-Northampton Transportation District Commission (ANTDC) (ownership) • Allegany County, Maryland (ownership)
Other impacted railroads	None
Tenant railroads, if applicable	• CSX Transportation • Norfolk Southern Railway (NS) • Wheeling and Lake Erie Railway (WLE) • The National Railroad Passenger Corporation (Amtrak) • Maryland Transit Administration MARC Train commuter rail service • The Maryland and Delaware Railroad Company (MDDE) • Western Maryland Scenic Railway (WSMR) • Delmarva Central Railroad (DCR) • Walkersville Southern Railroad (WSRR)
If applicable, is a U.S.C. 22905-compliant Railroad Agreement executed or pending?	N/A. 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.	Yes, the Maryland State Rail Plan of 2022 provides that MDOT will work with stakeholders to prevent trespassers from entering railroad rights of way and enhance trespasser prevention efforts through education, planning, partnerships with law enforcement and railroads, and infrastructure.
Is the project located on a potential corridor selected for the Corridor Identification and Development Program?	Yes, the project 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 this a project eligible under 49 U.S.C. 22907(c)(2) that supports the development of new intercity passenger rail service routes including alignments for existing routes?	No
Is this a project eligible under 49 U.S.C. 22907(c)(11) that supports the development and implementation of measures to prevent trespassing and reduce associated injuries and fatalities?	Yes
If yes to the previous question, is this project located in a county with the most pedestrian trespasser casualties as identified in the Federal Railroad Administration's National Strategy to Prevent Trespassing on Railroad Property?	No
Is the application seeking consideration for funding under the Maglev Grants Program?	No

1.2. Project Summary

The Maryland Department of Transportation is submitting this application to seek $800,000 in Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program Discretionary Grant funding for the Maryland Trespassing Safety Study (Study) to perform an assessment of trespassing on active railroad rights-of-way across the state. The Study will entail extensive stakeholder coordination, collection and analysis of data, development of an online geospatial tool to identify areas of concern, and investigation of best practice case studies. This Study will develop a program of approaches of varying cost and complexity as a "toolbox" for reducing injuries and fatalities associated with trespassing on railroad property and providing a safe transportation network in Maryland.

The Federal Railroad Administration's (FRA) online Trespass and Suicide Dashboard identifies seventy-three (73) reported injuries and eighty-nine (89) reported fatalities related to railroad trespassing in Maryland between 2013 and 2022. The top locations for which these data were reported are within Prince George's County, Baltimore County, Baltimore City, and Montgomery County, mostly involving trains operated by CSX. The Maryland State Rail Plan of 2022 (Rail Plan) notes that most railroad-related fatalities in Maryland are related to trespassing on railroad property. Among the next steps described within the Rail Plan's Rail Service and Investment Program includes the commissioning of a study to investigate best practices to prevent railroad trespassing fatalities and recommend measures to reduce trespasser fatalities on Maryland's rail network.

1.3. Grant Funds, Sources and Uses of Project Funds

As provided by section B(1)(c) of the NOFO, the CRISI Grant program includes at least $32,724,132 of total grant funding as a Trespassing Measures Set-Aside. This funding recognizes the USDOT's recognition of the concerns associated with railroad trespassing injuries and fatalities across the nation and provides an opportunity to fund this Study to enable MDOT to begin addressing safety concerns associated with trespassing on railroad property from a statewide perspective. The estimated total cost for the Maryland Trespassing Safety Study $1,000,000. The $800,000 in requested federal CRISI Program funding does not exceed 80% of the total cost, and MDOT commits to providing $200,000 funds from the Maryland Transportation Trust Fund to match the remaining 20% of the estimated costs. The $200,000 in MDOT matching funds will be allocated toward the Study from 100% state funding derived from revenues collected by the State of Maryland to support its transportation program and will not include federal funding from other sources.

In late 2022, MDOT re-established the Maryland Operation Lifesaver program. With an investment of about 160 volunteer hours, the program provided rail safety presentations to over 300 people and reached approximately 4,000 people at special events statewide. Before this outreach, MDOT had not targeted railroad trespassing as a safety concern. Building upon the efforts of Operation Lifesaver, the Maryland Trespassing Safety Study will be a first step toward a comprehensive statewide approach in addressing railroad trespassing injuries and fatalities in Maryland. As such, there have been no quantifiable activities that could be considered in-kind contributions toward project costs, nor specific expenditures associated with trespassing prevention projects that could be considered matching funds as provided by 49 U.S.C. 22907(c)(5) and (11). The requested CRISI Program funding, along with a 20% match of state funds, will fund a Study to support MDOT in addressing railroad trespassing across Maryland with extensive stakeholder coordination, data analysis, case study reviews, project identification, and development of strategies and safety solutions.

Non-Federal Funding: MDOT will contribute $200,000 of the total cost of $1,000,000 associated with this CRISI application. A summary of the proposed project components, estimated costs, and breakdown of federal CRISI grant and matching non-federal funds is illustrated in Table 1.

TABLE 1: MARYLAND TRESPASSING SAFETY STUDY PROJECT FUNDING TABLE

Task	Task Name/Project Component	Cost	Percentage of Total Cost	Source of funds and citation, as applicable
1	Conduct targeted outreach to railroads, State agencies, Metropolitan Planning Organizations, local jurisdictions, law enforcement and emergency service agencies to identify concerns and data sources.	$300,000	30%	CRISI request: $240,000 (80%) Non-Federal match: $60,000 (20%)
2	Compile and analyze available trespassing data from various sources, including review of locations identified in satellite imagery.	$150,000	15%	CRISI request: $120,000 (80%) Non-Federal match: $30,000 (20%)
3	Identify priority areas of concern ("hot spots"), trends, and demographic or geographic conditions contributing to safety concerns.	$150,000	15%	CRISI request: $120,000 (80%) Non-Federal match: $30,000 (20%)
4	Perform case studies to review engineering, enforcement, and education strategies	$200,000	20%	CRISI request: $160,000 (80%) Non-Federal match: $40,000 (20%)
5	Develop safety solutions and strategies as a set of mitigation measures ("toolbox") to address trespassing safety concerns	$200,000	20%	CRISI request: $160,000 (80%) Non-Federal match: $40,000 (20%)
	Total Project Cost	$1,000,000	100%	CRISI request: $800,000 (80%) Non-Federal match: $200,000 (20%)
	Federal Funding Requested in this Application (CRISI Program Request)	$800,000	80%	
	Non-Federal Funding (State)	$200,000	20%	
	Amount (if any) of funding request eligible for set-aside funds as described in section B(1) of the NOFO of March 29, 2024	$800,000	80%	
	Portion of Total Project Costs Spent in a Rural Area, if applicable	$150,000	15%	CRISI request: $120,000 (80%) Non-federal match: $30,000 (15%)
	For Highway-rail grade crossing and trespass prevention projects only. 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)?	$0	0%	

1.4. Applicant Eligibility Criteria

The applicant meets the eligibility criteria defined by 49 U.S.C. § 22907 (b)(1). The lead applicant for this grant is the Maryland Department of Transportation (MDOT), a unit of Maryland state government. MDOT has a system for procuring property and services under a federal award as provided by this NOFO that supports the provisions in 2 CFR 200 Subpart D – Procurement Standards at 2 CFR 200.317-326 and 2 CFR 1201.317. As a state agency, MDOT does not engage in lobbying activities.

1.5. Project Eligibility Criteria

The Study is eligible under the following categories described under Section C(3) of the Notice of Funding Opportunity:

- **C(3)(a)(x). The development and implementation of a safety program or institute designed to improve rail safety.** The Study will initiate comprehensive statewide stakeholder outreach and coordination, data collection and analysis to develop a tool that may be used to identify areas of concern, identification of best practices for addressing trespassing concerns, and compilation of options of varying cost and complexity for addressing trespassing upon railroad property in Maryland.
- **C(3)(a)(xi). The development and implementation of measures to prevent trespassing and reduce associated injuries and fatalities.** Trespassing on railroad property in Maryland leads to more injuries and fatalities than incidents at highway-rail grade crossings. The Study will serve as an early step in a comprehensive statewide approach toward reducing injuries and fatalities related to trespassing on active railroad property in Maryland in pursuit of MDOT's goal of providing a safe transportation network. Information compiled and analyzed with this effort will equip MDOT with the tools needed for a comprehensive approach toward addressing trespassing on railroad property in the interest of protecting human life and reducing the delays and costs associated with trespassing incidents incurred upon railroad companies and law enforcement and emergency service providers across the state.
- **C(3)(a)(xii). Any research that the Secretary considers necessary to advance any particular aspect of rail-related capital, operations, or safety improvements.** This first step in MDOT's approach to reducing trespassing injuries and fatalities on railroad property will undertake the research and analysis to develop the tools needed to identify trends and areas of concern, as well as appropriate stakeholders in each instance. MDOT will then assess best practices for addressing trespassing on railroad property, and compile an assortment of approaches for reducing trespassing injuries and fatalities that range from education and enforcement programs, lower-cost capital projects like fencing and signage, to higher-cost construction projects that would provide a safe means of moving pedestrian traffic across railroad property or providing safe access between parking facilities or residential areas and recreational, educational, and commercial areas along a safe path removed or separated from railroad property.

The Maryland Trespassing Safety Study focuses entirely upon trespassing on active railroad property in Maryland and qualifies for funding from the $32,724,132 in CRISI Grant funding set-aside by FRA specifically to provide support for projects addressing trespassing measures.

1.6. Detailed Project Description

Background and Challenges

The Maryland Department of Transportation is applying for $800,000 in CRISI Grant funding to support its Maryland Trespassing Safety Study. Ensuring a safe, secure and resilient transportation system is a statewide transportation goal identified in MDOT's "2040 Maryland Transportation Plan" and reflected in the Maryland State Rail Plan of 2022.

Trespassing on railroad property remains a concern across the United States, and the Federal Railroad Administration (FRA) has worked with railroads, state and local governments, and other stakeholders to elevate concerns about the dangers of trespassing on railroad property. The FRA has engaged in research, data analysis, collaboration on a national level with stakeholders like Operation Lifesaver, Inc. (OLI) to increase awareness of the dangers of railroad trespassing, national workshops to update stakeholders on right of way fatalities, and law enforcement outreach that included a state-by-state compilation of trespassing laws.

According to FRA's "National Strategy to Prevent Trespassing on Railroad Property" Report to Congress (Report) of October 2018, the benefits of reducing trespassing accidents can be measured in lives saved, injuries reduced, and train delays avoided. Trespassing accidents can leave a lasting effect on individual lives and families impacted by loss of life or serious injury. The FRA Report noted that a Class I railroad had reported that each trespassing accident involving a train strike required about four (4) hours to complete initial investigation and restore traffic. The FRA data for the period of 2012 to 2016 indicate that 9,363 reported trespassing accidents incurred a societal cost of $43.2 billion in fatalities and injuries and more than $56 Million in travel time delays.

Other costs associated with trespassing accidents are not necessarily captured when assessing impacts. These include the costs of emergency services responding to accidents as well as the costs of investigations. Accident response and investigation can lead to delays to motorists and their passengers, as well as commercial vehicles moving freight or providing services. Trespassing accidents negatively affect trespassers and their families, as well as railroad crews and emergency responders.

FIGURE 1: RAILROAD STRUCTURES CAN INVITE TRESPASSING

Data from 2013 to 2022 indicate that trespassing fatalities in the United States represent sixty-six percent (66%) of total fatalities related to trespassing and highway-rail grade crossing incidents. For the same period, trespassing injuries in the United States represents forty percent (40%) of the total injuries related to trespassing and highway-rail grade crossing incidents. The FRA's "National Strategy to Prevent Trespassing on Railroad Property" Report to Congress of October 2018 reported that, on average, three people were killed or injured each day while trespassing on railroad property in the United States. Between November 2013 and October 2017, 4,242 pedestrians were killed or injured while trespassing on railroad property, with an additional 1,175 incidents identified as suicides. During this time, approximately fourteen percent (14%) of all trespasser casualties occurred in ten counties in California, Florida, Illinois, and Texas.

More rail-related injuries and fatalities in Maryland from 2013 to 2022 involved trespassing on railroad property than highway-rail grade crossing incidents. While MDOT recognizes the importance of highway-rail grade crossing safety outreach, enforcement, and engineering solutions, data suggest that trespassing on railroad property presents a greater safety challenge across the state. For the period of 2013 to 2022, there were seventy-three (73) injuries, or fifty-seven percent (57%), related to trespassing and fifty-four (54), or forty-three

percent (43%), related to highway-rail grade crossing incidents. There were eighty-nine (89) fatalities, or ninety-three percent (93%), related to trespassing and seven (7) fatalities, or seven percent (7%), related to highway-rail grade crossing incidents for the same period. Table 2 shows the comparison between trespassing and highway-rail grade crossing casualties (injuries and fatalities) in Maryland from 2013 to 2022.

TABLE 2: TRESPASSING AND HIGHWAY-RAIL GRADE CROSSING CASUALTIES IN MARYLAND 2013-2022

Year	MD Injuries					MD Fatalities				
	Trespassing	Highway-Rail Grade Crossings	Total per Year	Trespassing Injuries as Percentage of Total	Highway-Rail Grade Crossing Injuries as Percentage of Total	Trespassing	Highway-Rail Grade Crossings	Total per Year	Trespassing Fatalities as Percentage of Total	Highway-Rail Grade Crossing Fatalities as Percentage of Total
2013	4	14	18	22%	78%	8	2	10	80%	20%
2014	8	5	13	62%	38%	10	0	10	100%	0%
2015	9	7	16	56%	44%	9	1	10	90%	10%
2016	6	3	9	67%	33%	14	1	15	93%	7%
2017	7	3	10	70%	30%	12	0	12	100%	0%
2018	8	9	17	47%	53%	6	1	7	86%	14%
2019	11	5	16	69%	31%	7	0	7	100%	0%
2020	5	3	8	63%	38%	11	2	13	85%	15%
2021	12	5	17	71%	29%	7	0	7	100%	0%
2022	3	0	3	100%	0%	5	0	5	100%	0%
Total	**73**	**54**	**127**	**57%**	**43%**	**89**	**7**	**96**	**93%**	**7%**

The United States Department of Transportation (USDOT) employs the Value of a Statistical Life (VSL) as a factor in conducting economic analysis of accidents where human life is affected. The current VSL is $13.2 Million. Applying the VSL to the five (5) trespassing fatalities in Maryland in 2022 results in an economic impact of $66 Million, exclusive of any other factors or considerations like emergency response or delays. If the current VSL is applied to all eighty-nine (89) Maryland trespassing fatalities from 2013 to 2022, that impact increases to about $1.175 billion.

Railroads operate through diverse geographical areas that include densely populated urban areas and rural areas of less dense population. Rail traffic is greater in more highly populated areas due to the increased demand for freight and passenger rail traffic to serve the population, and this increases the likelihood of trespassing injuries and fatalities. Trespassing enforcement in rural areas presents a challenge due to the difficulty for law enforcement officers and railroad police to monitor and access remote rights of way. It is estimated that there are about 1,035 centerline miles of active railroad lines in Maryland. When compared in Geographic Information Systems (GIS) software to the Urbanized Area boundaries released by the United States Census Bureau after the 2020 census, about 880 miles, or eighty-five percent (85%) of the total, are located within urbanized areas of the state. Estimated miles in rural areas is about 155, or fifteen percent (15%) of total mileage. Reducing railroad trespassing incidents in Maryland will benefit the entire state, but the ratio of urban railroad mileage versus rural suggests that addressing trespassing incidents will have a positive impact upon more densely populated areas in the state.

Current and Proposed Railroad Operations in the Project Area

Railroad operations in Maryland are very diverse and include passenger and freight services ranging from Amtrak's intercity services and MARC commuter services to high density freight traffic moving through the state and to or from the Port of Baltimore on Class I railroads. Short Line and Regional railroads operate at lower traffic densities and lower 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 more seasonal basis, with varying frequencies according to weather and scheduled events. Passenger services operated by MARC and Amtrak are more predictable and more readily quantified. Figure 2 below provides a summary of Amtrak passenger services operating in Maryland in 2019.

FIGURE 2: AMTRAK PASSENGER SERVICE IN MARYLAND (2019)

Route Name	Origin	Destination	2019 Weekday Frequency	2019 Ridership (entire Route)
Route off the Northeast Corridor (Stopping at Rockville and Cumberland Stations)				
Capitol Limited	Chicago, IL	Washington, D.C.	Daily	209,578
Northeast Corridor Routes				
Acela Express	Washington, D.C.	New York, NY and Boston, MA	16 Roundtrips	3,577,455
Northeast Regional	Washington, D.C.	New York, NY and Boston, MA	13 Roundtrips	8,018,088
State Supported Routes on the Northeast Corridor				
Virginia Northeast Regional	Roanoke, Newport News, Norfolk, Richmond, VA	New York, NY and Boston, MA	6 Roundtrips	924,657
Carolinian	Charlotte, NC	New York, NY	Daily	244,779
Vermonter	Washington, D.C.	St. Albans, VT	Daily	99,280
Long Distance Routes on the Northeast Corridor				
Cardinal	Chicago, IL	New York, NY	Three Days per Week	108,935
Crescent	New Orleans, LA	New York, NY	Daily	295,180
Palmetto	Savannah, GA	New York, NY	Daily	345,342
Silver Meteor	Miami, FL	New York, NY	Daily	353,466
Silver Star	Miami, FL	New York, NY	Daily	389,995

The 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 over CSX trackage and its Penn Line service over Amtrak's Northeast Corridor. Figure 3 below provides a summary of MARC commuter services operating in Maryland in 2019:

FIGURE 3: MARC COMMUTER SERVICE FREQUENCIES (2019)

Penn Line	
Host Railroad	Amtrak Northeast Corridor
Weekday Trains (2019)	57 (less frequent service to points north of Baltimore)
Reverse Commute Service	Available
Midday Service	Available
Weekend Service	Available

Brunswick Line	
Host Railroad	CSX
Weekday Trains (2019)	18 (less frequent service to points west of Germantown)
Reverse Commute Service	Unavailable
Midday Service	Limited Availability
Weekend Service	Unavailable

Camden Line	
Host Railroad	CSX
Weekday Trains (2019)	21
Reverse Commute Service	Available
Midday Service	Unavailable
Weekend Service	Unavailable

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 railroad trespassing. The Study deliverables will provide MDOT with tools to assess trespassing activity and risks of increased traffic and train speeds and new operating patterns with the implementation of future projects to expand passenger services.

Freight rail traffic varies according to route and traffic demands. High density freight corridors in Maryland host multiple frequencies each day, including the CSX routes along the Atlantic Seaboard and to the west from Washington and Baltimore via Cumberland and the NS Crescent Corridor route in Washington County. Lower density routes in Maryland, such as the Maryland Midland Railroad, host service on a daily or near-daily basis. Light density short line operators like The Maryland and Delaware Railroad Company, which operates four lines on Maryland's Eastern Shore, may operate trains on a less-than-daily basis according to customer demand.

Expected Outcomes or Benefits

The Study will lead to an improvement in railroad safety by identifying trespassing concerns in specific areas and the conditions leading to trespassing incidents. The first component of the Study includes extensive stakeholder outreach and coordination that will include traditional stakeholders like operating railroads, Metropolitan Planning Organizations (MPOs), and law enforcement agencies, but also stakeholders like the National Park Service, whose C&O Canal National Park is located alongside the CSX main line between Washington DC and Cumberland MD and attracts large numbers of visitors who cross or encounter the railroad property during visits and the Maryland Department of Natural Resources, owner of Patapsco State Park near Baltimore City through which the CSX Old Main Line Subdivision passes. Through extensive coordination and outreach with stakeholders, MDOT will gain immediate partnerships with many varied organizations with an interest in reducing railroad trespassing.

Compiling and analyzing data related to trespassing incidents, economic, and environmental conditions to create a visualization tool will allow MDOT to more precisely identify and target areas of high trespassing activity. Analysis and selection of case studies will help MDOT to determine strategies with which to build its "toolbox" of alternatives for addressing trespassing safety. These strategies could include educational tools like Operation Lifesaver presentations to audiences such as schools and community associations, and enforcement tactics like "safety blitz" actions with local law enforcement agencies and railroad police forces.

Educational and enforcement strategies represent lower-cost, more immediate approaches, but the Study will also identify engineering solutions of varying cost and complexity that could be selected for development with federal grant funding to reduce trespassing risks at specific locations. Such engineering solutions could range from lower cost projects like installation of signage and pedestrian pathways at locations where access to station platforms poses a risk of injury or fatality, to medium cost approaches like installation of security fencing along railroad rights of way with high trespassing activity. They can also include higher-cost structural solutions such as grade-separated access across railroad rights of way along roadways, within residential or recreational areas with high pedestrian traffic, at stations, or locations where a railroad right of way separates commercial or recreational areas from parking and other transportation services.

The most immediately apparent benefit of undertaking outreach, enforcement, or engineering projects to address trespassing concerns is a reduction in human fatalities and injuries. In determining the economic benefits of funding expenditures, the USDOT currently applies a Value of a Statistical Life (VSL) of $13.2 Million for one human fatality. Employing this factor in analysis, eliminating just one trespassing fatality in Maryland would have a positive economic benefit of $13.2 million. Improved safety conditions along railroad rights of way enhance safety in the areas that adjoin the railroad corridor, creating safer, more secure neighborhoods and reducing risks to the overall population, including disadvantaged populations concentrated in urban areas where the majority of Maryland's rail infrastructure and service is concentrated.

Reduction in trespassing incidents will reduce railroad delays associated with trespasser strikes along railroad property in Maryland. Trespasser incidents disrupt railroad operations by shutting down traffic for emergency response and investigation. Passenger delay and impacts to railroad crews incur costs, as does the deployment of emergency services, and idling diesel locomotives increase emissions. Reduction in delays associated with trespassing activity could also reduce the impacts upon nearby roadways in the form of blocked highway-rail grade crossings. Reduced train delay could also reduce emissions from idling diesel locomotives and minimize or eliminate potential safety concerns for neighborhoods along railroad rights of way.

The FRA's "National Strategy to Prevent Trespassing on Railroad Property" Report to Congress of 2018 summarizes an effort to capture the cost of train delays associated with trespassing from 2012 to 2016. Trespasser strikes. Assuming two hundred (200) passengers per train with a value of $20.40 per hour of each passenger's time, a value of $637.26 per hour for freight, and a wage rate of $31.57 per hour for railroad crews, FRA calculated a value for delays to rail traffic. The cost of passenger train delays across the nation over the period of 2012 to 2016 was calculated at $34.1 million, and that of freight delays at $21.9 million. Reducing delays associated with trespassing incidents by utilizing the tools and deliverables of the Study to identify trespassing concerns and target resources effectively will allow for reducing the financial impact of trespassing injuries and fatalities for the operating railroads as well as costs to the public sector.

The benefit of the MDOT Study is a safety benefit generated by reducing injuries and fatalities related to trespassing on railroad property. As provided by the NOFO, a Benefit Cost Analysis is attached as Appendix B.

FIGURE 4: PEDESTRIAN WARNING SIGNS AT A MARC PENN LINE STATION

Expected Users and Beneficiaries of the Project

The tools and deliverables produced by the Study will serve many users, including MDOT, as well as other public agencies like Maryland Transit Administration, State Highway Administration, Maryland Office of Planning, Department of Natural Resources, Metropolitan Planning Organizations, and local jurisdictions. Other beneficiaries could include agencies engaged in land use or transportation planning, and elected officials. All operating railroads and railroad property owners in Maryland would be potential users of Study tools and deliverables. Owner-operators of railroad property in Maryland include:

- CSX Transportation (CSX)
- Norfolk Southern Railway (NS)
- Amtrak (ATK)
- MARC commuter rail service
- Canton Railroad (CTN)
- Tradepoint Rail (TPR)
- Maryland Midland Railway (MMID)
- The Maryland and Delaware Railroad Company (MDDE)

Non-operator railroad property owners in Maryland include:

- MTA
- Allegany County
- Eighteen Thirty Group, LLC (George's Creek)
- Accomack Northampton Transportation District Commission

Railroads operating under trackage rights or lease/operating agreement include:

- CSX
- NS
- Wheeling and Lake Erie Railroad
- Western Maryland Scenic Railroad (WMSR)
- Delmarva Central Railroad (DCR)
- MDDE
- Walkersville Southern Railroad

Project Components and Elements

The Maryland Trespassing Safety Study comprises five components, resulting in a comprehensive list of stakeholders across the state and targeted stakeholder outreach, data compilation and analysis to develop tools for identifying priority areas of concern ("hot spots"), trends, and demographic or geographic conditions contributing to safety concerns, and review of case studies to identify best practices in engineering, enforcement, and educational approaches, and creation of a "toolbox" of solutions and strategies for addressing trespassing safety concerns. The components of the Study are as follows:

Component 1 – Targeted Outreach
The Study team will conduct targeted outreach with railroads, State agencies, Metropolitan Planning Organizations, local jurisdictions, law enforcement and emergency service agencies, and other stakeholders to identify concerns and data sources.

Component 2 – Compile and Analyze Available Trespassing Data
The Study team will collect and review data from various sources, including review of locations identified in satellite imagery. Sources may include data collected from FRA, law enforcement agencies, railroads, local jurisdictions, and adjacent property owners, among other stakeholders. Data and imagery will be analyzed to identify trespassing patterns and trends, and compiled in MDOT's GIS database to create an online dashboard for visualizing trespassing incidents and the conditions that may be contributing to trespassing at those locations.

Component 3 – Identify Priority Areas of Concern
The Study team will utilize geospatial information to develop an online GIS-based dashboard to visually identify areas along rail lines in Maryland where trespassing activity is prevalent for further assessment to determine the appropriate coordination and response for addressing trespassing at these locations.

Component 4 – Case Studies
Based upon conditions identified around Priority Areas of Concern, the Study team will review engineering, enforcement, and education strategies undertaken by FRA, other State Departments of Transportation,

railroads, MPO's, law enforcement agencies, and others to identify best practices for addressing trespassing concerns at specific areas or under certain conditions.

Component 5 – Develop Safety Solutions and Strategies
The Study team will select from case studies and other resources a collection of approaches for addressing trespassing on railroad property. These could range from lower cost outreach, educational and enforcement efforts, medium cost projects like installation of signage, lighting, or fencing, to higher cost approaches like engineering and construction projects to prevent pedestrian access to railroad property. Options would be assembled as a "toolbox" of mitigation measures to be selected according to factors such as local conditions, stakeholder input, railroad requirements, or state or federal requirements to address trespassing safety concerns.

Performance Measures

MDOT proposes the following performance measures for the Study:

- Completion of Comprehensive stakeholder catalog
- Completion of Geospatial visualization tool
- Completed list of defined areas of concern under current conditions
- Completed list of strategies and safety solutions toolbox
- Reduction in injuries/fatalities after countermeasures are funded and implemented

A. Grade crossing information, if applicable

The Study will identify areas of concern and approaches to prevent trespassing on active railroad rights of way across Maryland. While MDOT recognizes that highway-rail grade crossings can often serve as access points to railroad property and that trespassing incidents often occur in proximity to highway-rail grade crossings, the project does not focus upon any particular highway-rail grade crossings, nor address specific locations along the state's rail network. The project may identify highway-rail grade crossings in proximity to areas where trespassing events are of a specific concern to warrant further assessment to identify a safety project, enforcement measures, or education outreach as a follow up action.

B. Heavily traveled rail Corridor information, if applicable

The Study will include assessment and consideration of trespassing along passenger rail routes in Maryland, including long distance, Regional and Acela services on Amtrak's heavily traveled, higher frequency, higher-speed Northeast Corridor and *Capitol Limited* service operating on CSX-owned tracks between Washington, Pittsburgh, and Chicago via Cumberland, MD. The Study will also include MTA's MARC Train commuter rail services operating over CSX-owned tracks along the Brunswick Line between Washington DC's Union Station and Martinsburg, WV, with a branch serving Frederick MD, the Camden Line between Washington DC's Union Station and Camden Station in Baltimore City, and over the Amtrak Northeast Corridor from Washington to Pennsylvania Station in Baltimore City, the Martin Airport MARC Station, and Perryville, MD. Since this application requests CRISI Grant Program funding under Track 1 – Systems Planning and Project Planning to support MDOT's Study to assess trespassing incidents and activity across the state and will not focus upon a specific rail line or location where a project might impact a heavily traveled rail corridor.

C. PTC information, if applicable

The proposed Study does not include deploying PTC equipment or applications in new corridors or along corridors where PTC systems and technology are in use.

D. Workforce development and training information, if applicable

The Maryland Trespassing Safety Study would not provide workforce development and training opportunities on its own. However, the Study would identify opportunities for educational outreach and enforcement in multiple areas and potential design and construction projects that would, in turn, create opportunities for contractors to hire and train staff to perform roles in these various areas of expertise.

E. Trespassing injury and fatality prevention and reduction

The Maryland Trespassing Safety Study will assess trespassing on active railroad property across the state as a first step in identifying concerns and potential methods of addressing these concerns. While trespassing on railroad property in Maryland is a concern, other jurisdictions within the nation experience more casualties related to trespassing than any in Maryland. The United States counties identified by the FRA's "National Strategy to Prevent Trespassing on Railroad Property" of October 2018, reported to the United States Congress, identifies ten counties located in California, Florida, Illinois, and Texas with the most railroad trespasser pedestrian casualties (including fatalities and injuries, but not suicides). The Maryland Trespassing Safety Study will address railroad trespassing specifically within Maryland.

The MDOT Study will incorporate into its approach the steps identified in the FRA's "Community Trespass Prevention Program" at a statewide level through identifying areas of concern across the state where further analysis will be needed. The Study entails identification of stakeholders from a broad perspective, including agencies like the Maryland Department of Natural Resources and the United States National Park Service, and increased partnerships between MDOT and varied stakeholders with an interest in railroad safety. Data collected from law enforcement agencies, railroads, and other stakeholders will be analyzed, along with other information like land use data, geographical and environmental information, and other stakeholder input. From an assessment of case studies to identify best practices for addressing trespassing concerns, the most appropriate and effective response for addressing the causes of trespassing in each situation will be selected. With the implementation of responses to trespassing concerns, MDOT or other stakeholders could evaluate their effectiveness in reducing or eliminating trespassing incidents.

The Study will identify strategies for law enforcement agencies to undertake future trespassing enforcement but will not include outreach or enforcement activities nor funding for law enforcement wages to undertake enforcement. Future enforcement efforts, and associated wages, identified by the Study could be candidates for grants or other federal funding made available for the purpose.

Data collected for the Study will be analyzed and incorporated into MDOT's Geographical Information Systems (GIS) databases so that the Priority Areas of Concern may be identified in a visualization tool from which locations and conditions that may contribute to trespassing activity may be clearly identified.

F. Emissions Reductions information, if applicable
The Study does not propose rehabilitating, remanufacturing, procuring, or overhauling locomotives, nor a specific transportation construction project or service enhancement, and is not proposed to address emissions reduction.

G. Community Emergency Plans, if applicable
The Study does not include an outreach campaign to reduce suicide by railroad, but such a program could be identified as an approach for inclusion in the MDOT toolbox resulting from the Study.

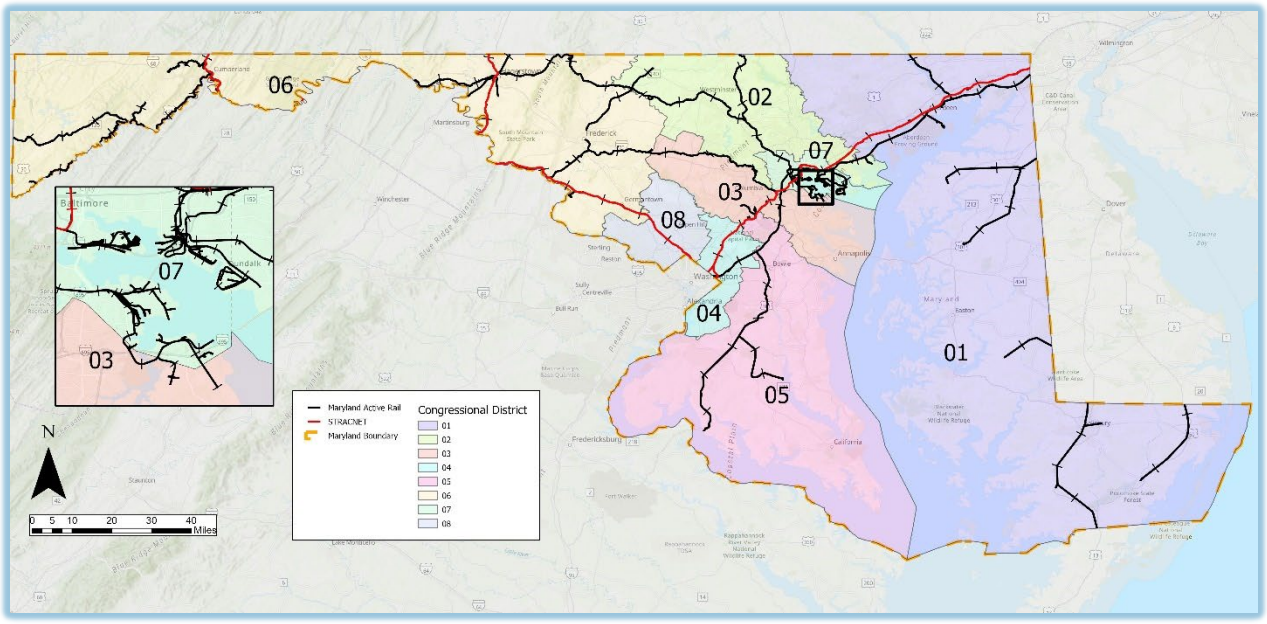
H. Maglev Grants Program Magnetic Levitation Projects, if applicable
The Study would not utilize funding allocated for Maglev projects.

The Project Statement of Work, Schedule, and Budget are included as Appendix A.

1.7. Project Location

The scope of the Maryland Trespassing Safety Study will encompass all active rail lines throughout the state. The state's rail lines vary in levels and types of traffic, with some hosting high density passenger and freight services and others hosting lower density freight traffic and excursion passenger services. Two high traffic corridors owned and operated by CSX are included in the Strategic Rail Corridor Network of rail lines designated as most important to national defense. There are twenty-three (23) counties in Maryland, with Baltimore City as a distinct jurisdiction as well. Of these twenty-four (24) jurisdictions, only three counties, Calvert, St. Mary's, and Talbot, are without active railroad lines. As a statewide effort, the study will include all Maryland Congressional Districts, 1st through 8th. Figure 5 depicts the active rail network in Maryland, with Congressional Districts and STRACNET Corridors.

FIGURE 5: MARYLAND RAIL NETWORK WITH CONGRESSIONAL DISTRICTS AND STRACNET CORRIDORS



The Study encompasses multiple segments of all active rail lines in Maryland, representing over 1,000 centerline miles in Geographic Information Systems (GIS) files. As provided by section D2(a)(vi) of the NOFO, geospatial data identifying the latitude and longitude coordinates for the active rail routes in the state have been identified Table 3, Table 4, Table 5, and Table 6.

TABLE 3: GEOSPATIAL DATA FOR AMTRAK AND MARC LINES IN MARYLAND

Amtrak				
Line Identifier	Starting Point		Ending Point	
	Latitude	Longitude	Latitude	Longitude
Mid-Atlantic Division	39.648113	-75.788513	38.916840	-76.939919
MARC				
Line Identifier	Starting Point		Ending Point	
	Latitude	Longitude	Latitude	Longitude
Old Main Line Subdivision (Frederick Branch)	39.372813	-77.390860	39.412460	-77.405529

TABLE 4: GEOSPATIAL DATA FOR CSX LINES IN MARYLAND

CSX Transportation				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Baltimore Terminal	39.298620	-76.548790	39.22346	-76.711381
Capital Subdivision	38.931602	-76.958858	39.22346	-76.711381
Capital Subdivision	38.910379	-76.931774	38.949732	-76.938469
Cumberland Subdivision	39.560397	-78.429609	39.55307	-78.434119
Cumberland Subdivision	39.586635	-78.736438	39.599232	-78.741226
Cumberland Subdivision	39.324118	-77.721908	39.329808	-77.681409
Cumberland Terminal Subdivsion	39.599232	-78.741226	39.657248	-78.765941
Hanover Subdivsion	39.720764	-76.845269	39.264283	-76.631203
Hanover Subdivsion	39.652029	-77.720917	39.719979	-77.478678
Herbert Subdivision	38.696325	-76.848115	38.547731	-76.700173
Keystone Subdivision	39.657248	-78.765941	39.722984	-78.772585
Landover Subdivision	38.924983	-76.901011	38.910602	-76.932058
Lurgan Subdivision	39.615585	-77.867062	39.720924	-77.678199
Metropolitan Subdivision	39.273752	-77.536577	39.329967	-77.679816
Old Main Line Subdivsion	39.273667	-77.534395	39.372679	-77.166195
Philadelphia Subdivision	39.671423	-75.788595	39.302373	-76.536719
Pope's Creek Subdivision	38.356643	-76.972783	39.00772	-76.779025
Mountain Subdivision	39.419369	-79.483481	39.477086	-79.067923
Mountain Subdivision	39.451176	-78.960533	39.656191	-78.763519
Thomas Subdivision	39.401657	-79.166365	39.473142	-79.075191
Thomas Subdivision	39.27467	-79.364687	39.334671	-79.269458
Thomas Subdivision	39.259456	-79.427122	39.255600	-79.398793
Thomas Subdivision	39.461167	-79.008864	39.459869	-79.005265

TABLE 5: GEOSPATIAL DATA FOR NS LINES IN MARYLAND

Norfolk Southern Railway				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Hagerstown District	39.432655	-77.797909	39.650500	-77.722061
Lurgan Branch	39.650500	-77.722061	39.721702	-77.754176
Port Road Branch	39.557229	-76.076271	39.561058	-76.074448
Mid-Atlantic Division	39.287976	-76.559082	39.24766	-76.457833
Baltimore Consolidated Terminal	39.287976	-76.559082	39.277166	-76.560780

TABLE 6: GEOSPATIAL DATA FOR SHORT LINES, EXCURSION OPERATORS, AND MILITARY TRACKAGE IN MARYLAND

The Maryland and Delaware Railroad Company				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Centreville Secondary Track	39.034482	-76.034804	39.344702	-75.763929
Chestertown Secondary Track	39.250442	-76.085644	39.309370	-75.822676
Cambridge Secondary Track	38.619630	-75.883943	38.662893	-75.709599
Snow Hill Secondary Track	38.172502	-75.387425	38.451209	-75.227231
Delmarva Central Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Delmarva Secondary	38.001199	-75.545058	38.456118	-75.578183
Wiilards Industrial Track	38.378388	-75.589271	38.381140	-75.525814
Maryland Midland Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
East Subdivision	39.717200	-77.484247	39.480850	-76.822190
Frederick Secondary Track	39.516772	-77.325906	39.673063	-77.157107
Winchester and Western Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Hagerstown District	39.598695	-77.790131	39.6374	-77.735296
Virginia Division	39.569165	-77.831952	39.598695	-77.790131
Canton Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
N/A	39.257086	-76.541066	39.301478	-76.516166
Tradepoint Rail				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
N/A	39.214438	-76.480875	39.235352	-76.466220
Western Maryland Scenic Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
N/A	39.648417	-78.764007	39.669133	-78.905865
Walkersville Southern Railroad				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
Frederick Secondary Track	39.444726	-77.401242	39.516772	-77.325906
United States Department of Defense				
Line Identifier	**Starting Point**		**Ending Point**	
	Latitude	**Longitude**	**Latitude**	**Longitude**
APG Track	39.466084	-76.108915	39.501220	-76.163978

1.8. Evaluation and Selection Criteria

Project Readiness

As a Systems Planning project, the Maryland Trespassing Safety Study scope does not include Preliminary Engineering (PE) activities or environmental documentation as required by the National Environmental Policy Act (NEPA). 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 Study will prepare and submit a scope of services and cost estimate within fifteen (15) days from request for review by the Study team. Review and approval of the scope and budget, including revisions requested by the MDOT 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.

As a planning 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. There are no preceding projects underway whose completion is required to initiate the proposed Study. The Maryland Trespassing Safety Study is the first step in MDOT undertaking coordination and planning efforts to identify trespassing concerns and selecting the appropriate tools 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:

- Maryland Midland Railway (MMID)
- CSX Transportation (CSX)
- Norfolk Southern Railway (NS)
- The Maryland and Delaware Railroad Company (MDDE)
- Walkersville Southern Railroad (WSRR)
- Delmarva Central Railroad (DCR)
- Western Maryland Scenic Railroad (WMSR)
- Canton Railroad (CTN)
- Amtrak
- MARC Train (Maryland Transit Administration commuter rail service)
- Maryland Congressional Delegation
- Maryland Governor Wes Moore

These letters of support are attached as Appendix C.

Technical Merit

- **Statement of Work**
  A Statement of Work (SOW) commensurate with FRA and program standards has been developed to deliver the intended Study scope and deliverables and progress the Systems Planning Lifecycle. More information may be located in Appendix A: Statement of Work, including specific Study components and deliverables.

- **Technical Qualifications and Experience of Key Personnel**
  The MDOT 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 Worton MD CRISI construction project, 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 Safety Action Plan of 2022

- **Private Sector Participation**
  As a first step in addressing railroad trespassing injuries and fatalities, the Study would be supported by federal CRISI grant funds with a 20% match in state funding from the Maryland Transportation Trust Fund. Projects and initiatives identified for implementation as a result of the Study could offer opportunity for private sector funding or in-kind contributions toward future education or enforcement programs or engineering projects.

Legal, Financial, and Technical Capacity

- **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 Project progress reporting. The Study team will request recurrent (monthly) updates from technical consultants covering the Project scope, schedule, budget, and performance to proactively address Project 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:** MDOT 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.

Deployment of Innovative Technology, Innovative Approaches to Project Delivery, and Use of Innovative Financing: Projects and initiatives identified for implementation as a result of the Study could create opportunities to implement innovative technology to support future trespassing prevention strategies. Close partnerships with stakeholders established by the Study could foster innovative and cooperative approaches toward delivery pf projects or outreach and enforcement strategies and lay the groundwork for innovative financing opportunities.

Consistency with Planning Documents and Guidance Set Forth by USDOT, Including Those Required by Law or State Rail Plans: The Project is consistent with planning guidance and documents set forth by U.S. DOT, including those required by law or State rail plans developed under the Title 49, United State Code Chapter 227. The 2022 Maryland State Rail Plan identifies among the next steps described within the Rail Service and Investment Program the commissioning of a study to investigate best practices to prevent railroad trespassing fatalities and recommend measures to reduce trespasser fatalities on Maryland's rail network. Furthermore, the FRA has identified trespassing on railroad property as a national concern and set aside funding under the NOFO specifically to support trespassing safety projects.

Project Benefits

The project itself will not impact rail system operations or performance but will provide the tools MDOT needs to identify projects, opportunities for targeted enforcement and educational outreach, and strategies for addressing trespassing risks along railroad rights of way. Capital investments like grade separation projects or other pathways or barriers that discourage or prevent pedestrian access to railroad property will reduce trespassing incidents that result in delays and other operational impacts to passenger and freight trains. Utilizing the tools and deliverables of this Study will reduce trespassing incidents and the risk to human life and safety posed by railroad equipment, rolling stock, and structures. The reliability of the state's rail system and services will be improved by projects and/or education and enforcement strategies that are identified by the tools, and deliverables developed by this project by reducing risks of delay to rail traffic associated with trespassing incidents. Improvements in pedestrian safety to and within passenger stations will enhance access between rail stations and nearby pedestrian access routes, as well as transit services, bicycle paths, and other modes of transport that may exist in the area.

The products and deliverables of the Maryland Trespassing Safety Study will be developed so that data, information related to stakeholders, and information related to best practices and project costs may be updated. Periodic data updates and review of best practices and project costs will allow MDOT to utilize current data and information to assess conditions and reported incidents across the state. This data will help to assess performance of strategies or engineering projects implemented at areas of concern and identify new areas of concern as railroad traffic patterns evolve and changes in land use lead to new pedestrian traffic demands and potential new trespassing risks.

The cost of the Study will be relatively low in comparison to the benefits the Study tools and deliverables will provide MDOT and the State of Maryland. The Study is a low-cost first step toward identifying concerns about trespassing on railroad property and the preferred approach to target resources to reduce or eliminate trespassing injuries or casualties. As discussed in the attached Benefit Cost Analysis (Appendix B), the benefit of the Study is safety generated by reducing railroad trespassing fatalities.

Project Alignment with Administration Priorities

Safety
Safety is a primary goal of reducing trespassing incidents along railroad property. The Maryland Trespassing Safety Study will allow MDOT to address the impacts of trespassing on railroad property to the operating railroads, including commuter and intercity passenger services, as well as the communities and rural areas through which rail corridors pass. A reduction in trespassing risks reduces injuries and fatalities and improves safety conditions in surrounding areas, including residential neighborhoods and urbanized areas with high pedestrian activity and higher population densities. Fewer trespassing incidents translates to fewer opportunities for exposure of pedestrians to conflicts with railroad equipment or infrastructure that could lead to death or debilitating injury. The outcomes of the MDOT Study will support safety improvements along Maryland's rail network through trespassing education, enforcement, and safety projects to foster a safer rail network for the movement of freight and passengers and to reduce transportation related fatalities and serious injuries across the transportation system.

Equity and Justice40
The USDOT Justice40 Initiative is one of many initiatives implemented by the department to advance equity in the United States and ensure that 40% of certain federal investments is directed toward disadvantaged communities. The Maryland Trespassing Safety Study will address equity concerns by identifying locations where railroad trespassing is prevalent within areas experiencing transportation disadvantage in Maryland. The benefits of trespassing safety education, enforcement, or engineering projects include improved and safer pedestrian access, reduced risk of human exposure to rail traffic, equipment, and infrastructure and the accompanying reduced risks of fatalities or injuries in those areas. The reliability of rail services operating in those areas will also be improved due to decreased delay associated with trespassing incidents.

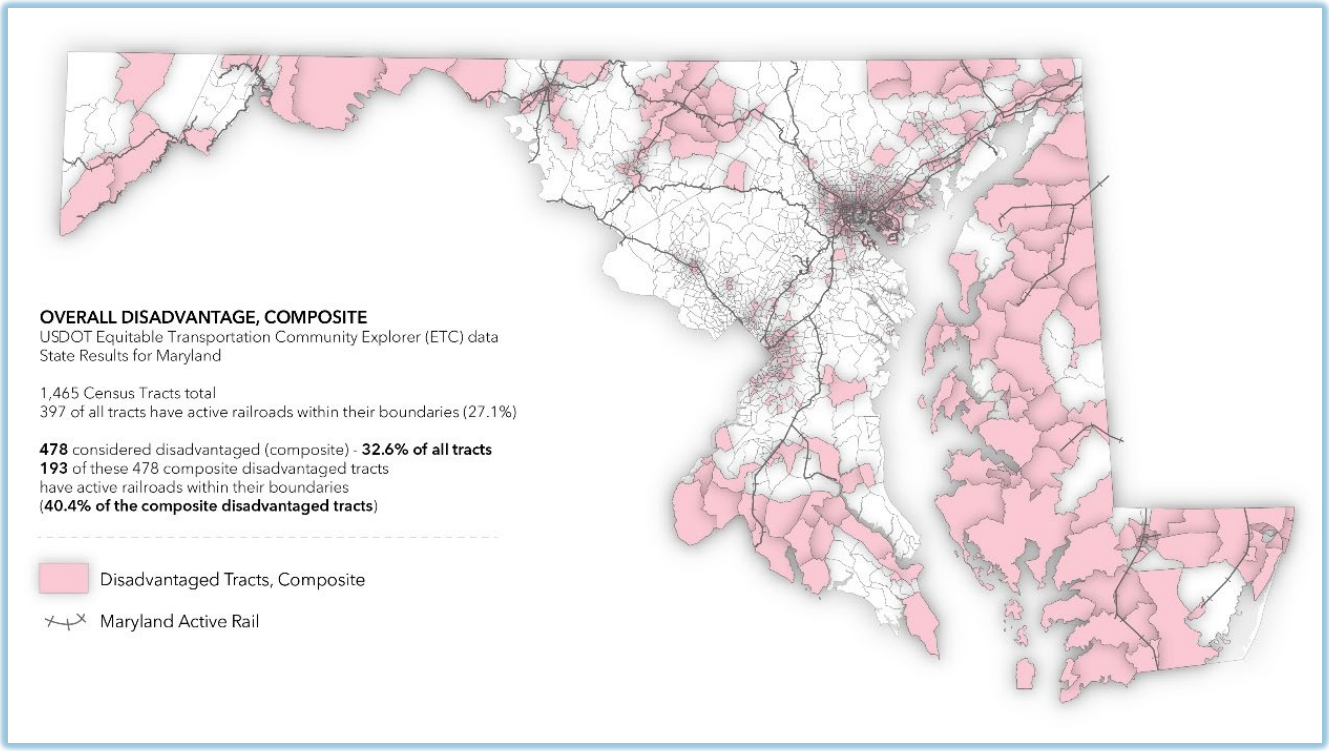
Based on the U.S. DOT Equitable Transportation Community (ETC) Explorer, active rail lines in Maryland are located in 397, or twenty-one percent (21%), of the 1,465 census tracts in the state. A breakdown of disadvantaged census tracts by category and the number of those census tracts in which active rail lines operate is provided in Table 7:

TABLE 7: DISADVANTAGED CENSUS TRACTS IN MARYLAND WITH ACTIVE RAIL LINES

Disadvantaged Components	Disadvantaged Census Tracts in Maryland	Disadvantaged Census Tracts in Maryland with Active Rail Lines	Percentage of Disadvantaged Census Tracts in Maryland with Active Rail Lines
Climate & Disaster Risk Burden	511	153	29.6%
Environmental Burden	507	200	39.4%
Health Vulnerability	511	164	32.1%
Social Vulnerability	511	174	34.1%
Transportation Insecurity	534	189	35.4%

Figure 6 provides a visual summary of the total disadvantaged census tracts statewide. Maps summarizing total disadvantaged census tracts for each of the Disadvantaged Components in Table 7 are attached as Appendix E.

FIGURE 6: SUMMARY OF TOTAL DISADVANTAGED CENSUS TRACTS IN MARYLAND

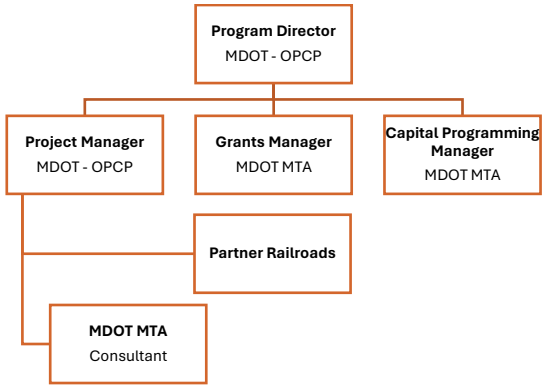


1.9. Project Implementation and Management

Team Organization

MDOT will lead the Maryland Trespassing Safety Study utilizing Maryland Transit Administration's (MTA) resources in close coordination with operating railroads, local agencies, other stakeholders. The Assistant Director for Rail and Intermodal Freight within the MDOT Office of Planning and Capital Programming (OPCP) will be designated as Program Director, and the Rail Safety Program Manager within OPCP will be designated as Project Manager. These two roles will be responsible for oversight and implementation. The Study will be managed by a dedicated team composed of MDOT staff, supported by on-call consultant staff. The Study team will be responsible for Project Contracting, Oversight, and Change Order Management. Figure 7 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 Study team, and MDOT will coordinate throughout the 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 7 : TEAM ORGANIZATION CHART



Project Contracting and Oversight

The 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 person and/or team responsible for mitigation, and document when the risk is resolved.

The Study team will request recurrent (monthly) updates from technical consultants to review the schedule and status on five Study components and deliverables. These meetings will involve the technical consultant and 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.

Federal Reporting

The MDOT Office of Planning and Capital Programming, 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.

Steps to Employ Small Businesses

Consultant contract holder MTA will utilize its Minority Disadvantaged Business Enterprise (M/DBE) Programs to facilitate the solicitation of fair contracting and subcontracting opportunities for small, women-owned and minority-owned businesses as part of the Project. MTA will include registered small, women-owned and minority-owned businesses in solicitation lists for contracted work. MTA will also make the effort to divide project tasks into separate contracting or subcontracting opportunities as feasible to enhance the participation of these small businesses. MTA will also encourage these small businesses to use available services and assistance provided by the Small Business Administration and the Minority Business Development Agency of the Department of Commerce. As evidence of MTA's continued efforts to provide fair opportunity to M/DBE firms, MTA's M/DBE participation goal for fiscal years 2023 to 2025 is set to 30%.

Past Experience

As mentioned in the "Evaluation and Selection Criteria" section, the MDOT team has the technical qualifications, resources, and experience to successfully complete the 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 Safety Action Plan of 2022. MDOT staff are very experienced in managing consultant staff engaged under contract to provide technical support, and also experienced in extensive stakeholder coordination for planning efforts and studies.

2. Appendices

a. Statement of Work
b. Benefit Cost Analysis
c. Letters of Support
d. Maryland Disadvantaged Census Tracts
e. Applications/Assurance/Certifications

Project Contact

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