

ATTACHMENT 1 –EAST SIDE ROAD CAUSEWAY AND BRIDGE
RESILIENCY IMPROVEMENT PROJECT
APPLICATION
AUGUST 18, 2023

SUBMITTED BY MAINE DEPARTMENT OF TRANSPORTATION

Project Narrative

I. Basic Project Information	
Project Title	East Side Road Causeway and Bridge Resiliency Improvement Project
Lead Applicant	The Maine Department of Transportation (MaineDOT) is the lead and sole applicant. MaineDOT is a cabinet-level state agency with primary responsibility for statewide transportation by all modes of travel. MaineDOT employs approximately 1,600 people and expends or disburses more than \$675 million per year, including federal, state, and local funds. MaineDOT’s mission is to support economic opportunity and quality of life by responsibly providing customers the safest and most reliable transportation system possible, given available resources.
Facility	<input checked="" type="checkbox"/> highway project eligible for assistance under this title; <input type="checkbox"/> public transportation facility or service eligible for assistance under chapter 53 of title 49; <input type="checkbox"/> facility or service for intercity rail passenger transportation (as defined in section 24102 of title 29); or <input type="checkbox"/> port facility, including that: <ol style="list-style-type: none"> a. connects a port to other modes of transportation. b. improves the efficiency of evacuation and disaster relief; or aids transportation. (23 U.S.C. 176(d)(5)(C)).
Project Description	<p>This project will directly improve the resilience of East Side Road in Addison, Maine, using climate adaptation measures and nature-based solutions. This project will reduce the number of flooding events, mitigating interruptions in service, by elevating the roadway and the associated bridge above highest astronomical tide (HAT). Additionally, an increase in the size of the existing Lot Norton Bridge over Knowles Brook (Bridge #3754) will increase the flow capacity, allowing for more naturalized tidal flows, enhanced flood storage capacity, and increased habitat connectivity for aquatic organisms. Additional adaptive capacity includes restabilizing roadside slopes with riprap and vegetation to protect against potential failure due to coastline erosion. Existing guardrail will also be updated to modern crash standards, improving the overall safety of the project area.</p> <p>East Side Road is the primary route connecting northern and southern</p>

portions of the rural town of Addison. Addison is in Washington County, Maine. Despite being an hour east of popular tourist destinations like Bar Harbor and Acadia National Park, Washington County is consistently the poorest county in Maine. Speckled with small rural communities like Addison, Washington County and the greater Downeast Region of Maine are consistently underserved areas vulnerable to the effects of climate change. The existing roadway is on a causeway crossing a low-lying tidal creek/marsh complex. The project area is vulnerable to sea level rise and extreme high tides due to its location directly adjacent to tidal Pleasant Bay and its tributary, Knowles Brook (Figure 1).



FIGURE 1: PROJECT LOCATION RELATIVE TO PLEASANT BAY AND KNOWLES BROOK.

The causeway includes the Lot Norton Bridge (#3754) over Knowles Brook, located approximately 300 feet east from its confluence with Pleasant Bay. The existing crossing structure is a 13 foot-11inch by 9 foot-5-inch aluminum multi-plate pipe arch culvert installed in 1993. The culvert has a rating of 4, with large spalls, heavy scaling, wide cracks– noted in concrete portions. The pipe itself is documented as in generally fair/poor condition due to a few individual holes through the sides at the downstream end. Riprap around both ends has settled slightly exposing the top plates of the pipe. End bevel plates are slightly folded in at each end. No additional investment has been made since the initial construction of the causeway/bridge 30 years ago. The causeway is currently prone to flooding from both the inland brook and the seaward bay during coastal storm surge and extreme high tide events (Figure 2). This condition will continue to worsen with projected sea level rise.



FIGURE 2: FLOODING OF EAST SIDE ROAD DURING HIGH WATER CONDITIONS (DECEMBER 22, 2022). ADDISON, MAINE. COURTESY OF MAINEDOT.

Roadway flooding can only be mitigated by increasing the elevation of approximately 600-ft of the causeway between adjacent upland tie-in points. Roadway flooding is not exacerbated by inadequate hydraulic capacity of the existing culvert; however, the current crossing structure has been identified as a partial tidal flow restriction. As such, increasing hydraulic capacity of the replacement structure will result in increased hydrologic and habitat connectivity between the river and the tidal marshes. Increasing tidal exchange in the marshes will improve their capacity to buffer extreme tidal and climate-based water level fluctuations.

Based on its condition, the Lot Norton Bridge (#3754) is included in MaineDOT’s current 2023-2026 workplan for replacement; however, resiliency considerations were not fully incorporated into programmed funding. As such, the costs related to its previously considered replacement are not included in this grant application. The funding request includes causeway improvements and the differential between in-kind and resilient bridge replacement.

<p>Funding Category</p>	<p><input checked="" type="checkbox"/> Resilience Improvement</p> <p><input type="checkbox"/> Community Resilience and Evacuation Routes</p> <p><input type="checkbox"/> At-Risk Coastal Infrastructure</p>
<p>Previous Experience with Receipt</p>	<p>MaineDOT is a very experienced, thorough, and responsible recipient of previous TIGER, FASTLANE, INFRA, CHBP, BUILD and RAISE grant funding. USDOT can rely on MaineDOT to fully fund and begin</p>

and Expenditure of Federal-aid Highway Program Funds	construction well prior to the obligation of funds date and complete the Project without risk. MaineDOT expends or disburses more than \$675 million per year, including federal, state, and local funds. All funding received is allocated as per MaineDOT’s three-year work plan.	
Location	Physical	<p>Start: East Side Road, Mile 1.46, Addison, ME 04606 Coordinates: 44°36’10”N 67°44’17”W</p> <p>End: East Side Road, Mile 1.75, Addison, ME 04606 Coordinates: 44°35’53”N 67°44’15”W</p>
	Description	<p>East Side Road runs parallel to Pleasant Bay between the rural communities of Addison and South Addison (Figure 3). The project area consists of a 1.3-mile section of East Side Road that includes the Lot Norton Bridge in Addison, Maine. Approximately 0.4 miles of the project area is a causeway crossing tidal marsh. The existing bridge spans Knowles Brook 300 feet east from the confluence of the brook and Pleasant Bay.</p>

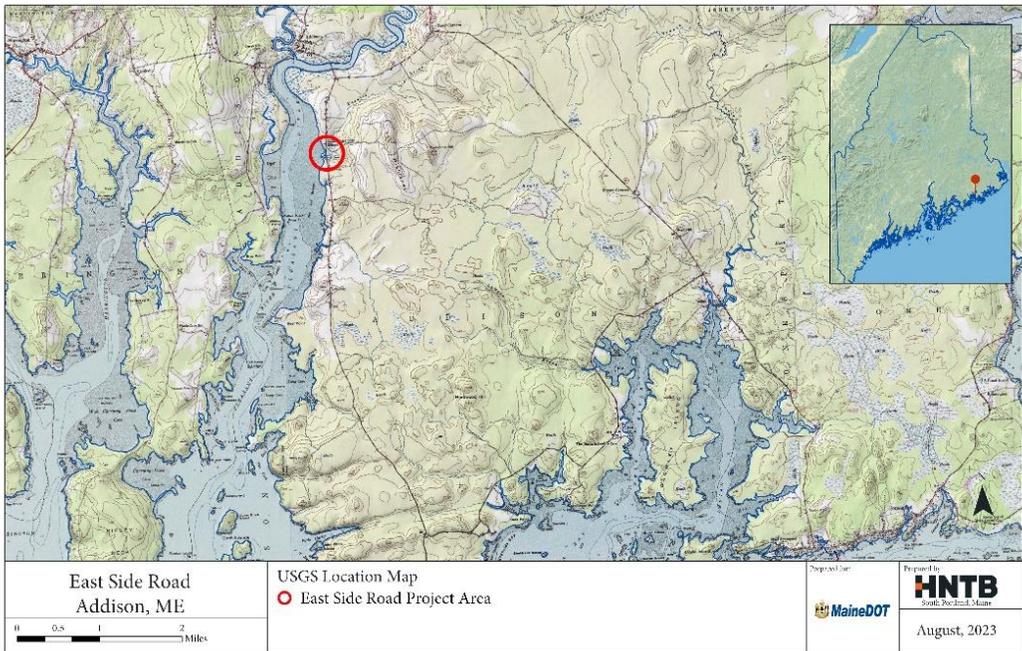


FIGURE 3: USGS LOCATION MAP OF GREATER PROJECT AREA.

a)	<p>The project is included in Census Tract 9564 in Washington County, Maine. The tract is identified as a Historically Disadvantaged Community in areas of Transportation, Health, and Economy through USDOT’s Transportation</p>
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Disadvantaged Census Tracts tool (Figure 4).¹

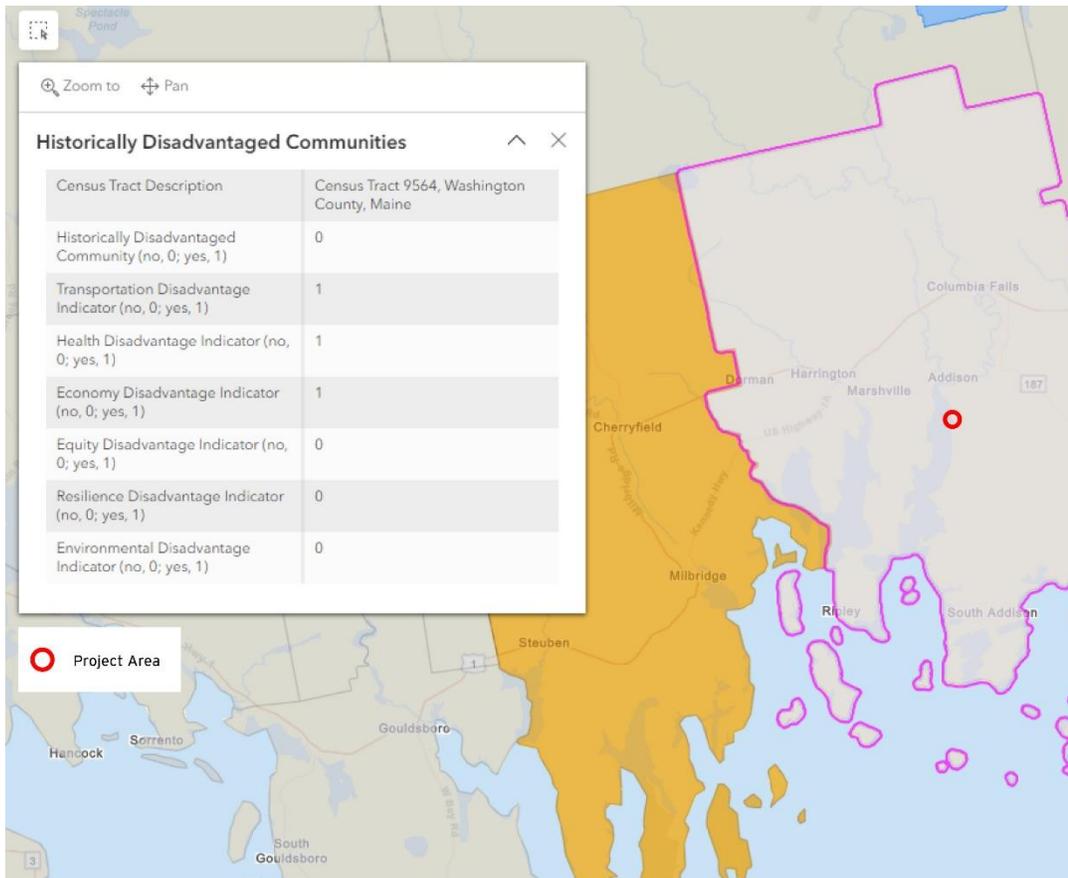


FIGURE 4: HISTORICALLY DISADVANTAGED CENSUS TRACT ENCOMPASSING THE PROJECT AREA.¹

b)

The project is not currently identified in any local, regional, or state Resilience Improvement Plan (RIP). While some communities in Maine are creating RIPs, Addison, South Addison, and MaineDOT do not have these in place as of this submittal date.

c)

Federal Emergency Management Administration (FEMA) flood maps identify the project area as located within the Pleasant Bay floodplain (Figure 5).² The existing Lot Norton Bridge is also at risk of flooding from the Knowles Brook floodplain, as has been recorded during previous flooding events.

¹ <https://usdot.maps.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a>).

² <https://msc.fema.gov/portal/search?AddressQuery=Maine>

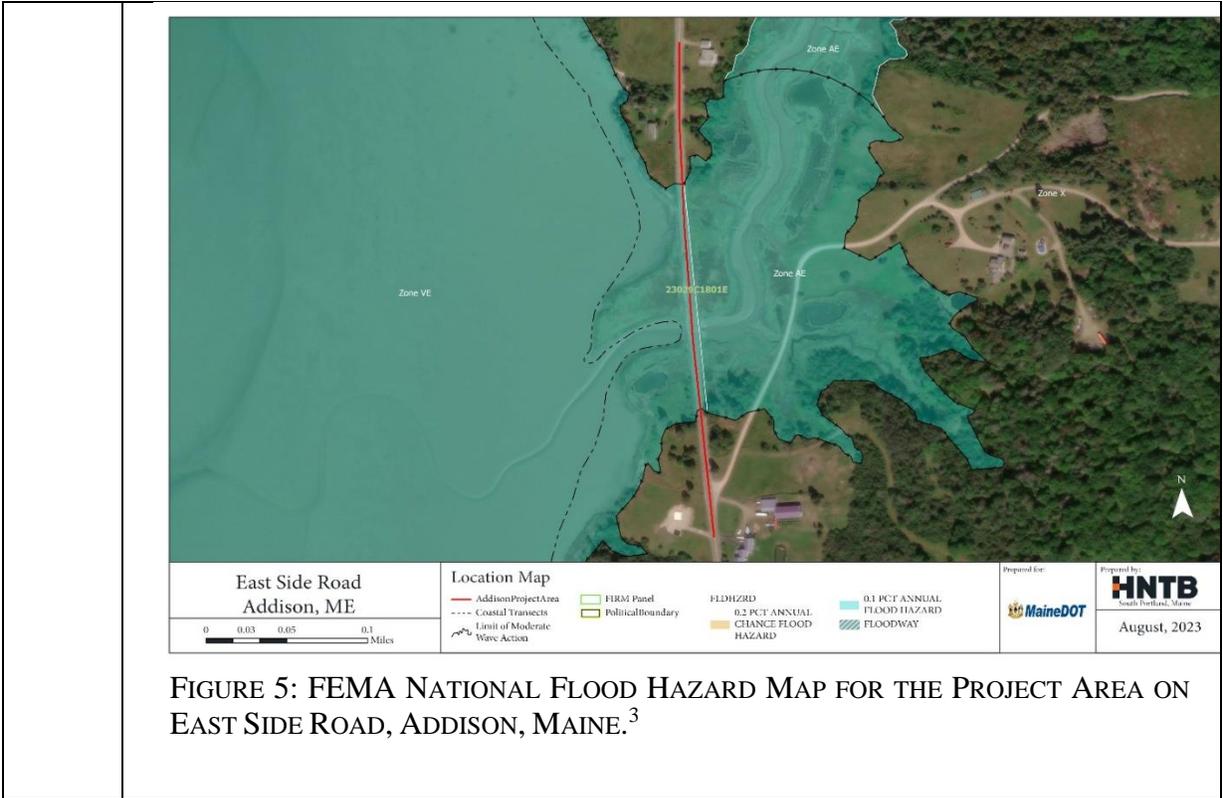


FIGURE 5: FEMA NATIONAL FLOOD HAZARD MAP FOR THE PROJECT AREA ON EAST SIDE ROAD, ADDISON, MAINE.³

³ <https://msc.fema.gov/portal/search?AddressQuery=Maine>

d)

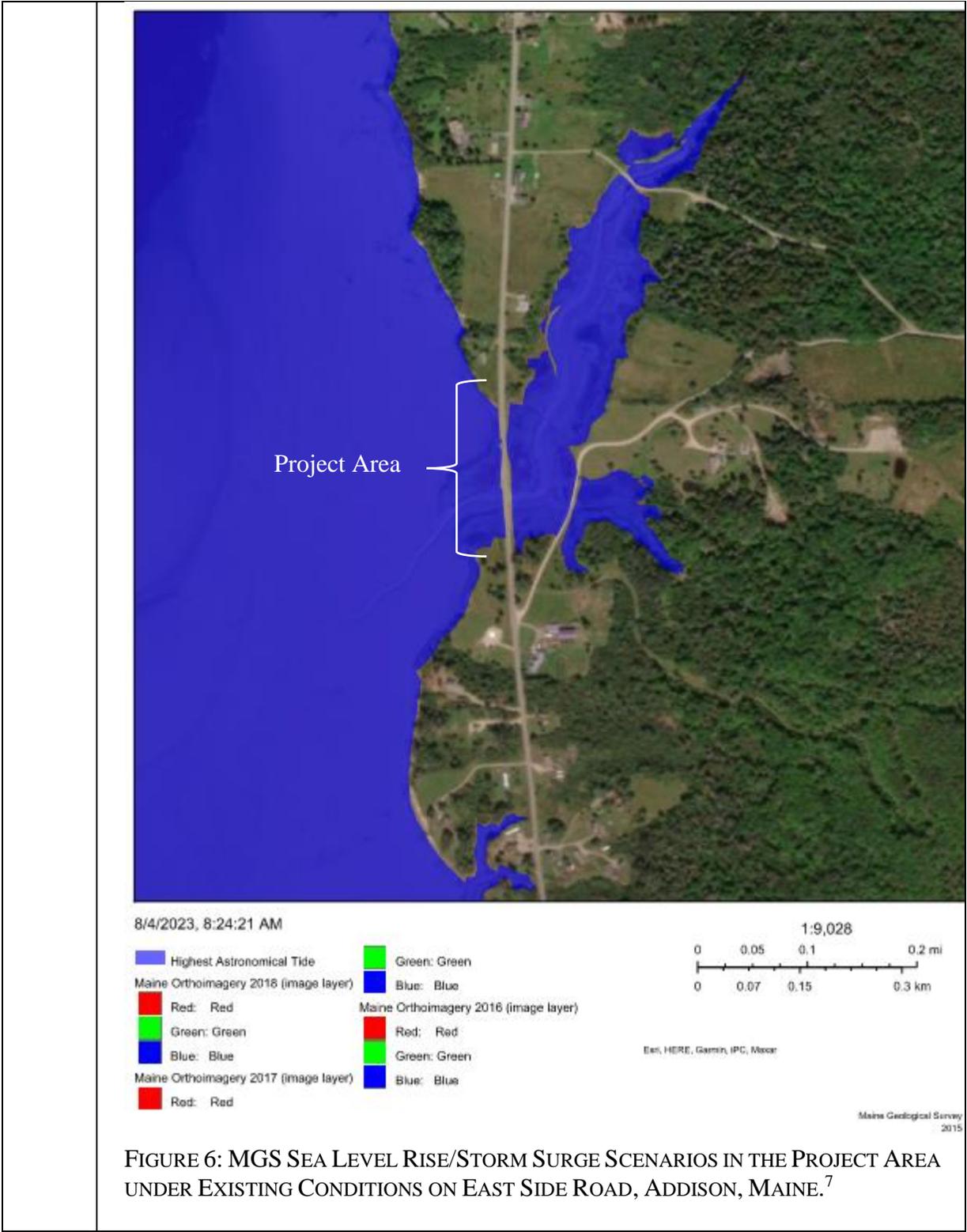
The causeway and bridge are below current mean higher high water according to the Maine Geological Survey (MGS) Sea Level Rise/Storm Surge Viewer.⁴ This dataset approximates the potential inland extent of inundation from several scenarios (1.2, 1.6, 3.9, 6.1, 8.8 and 10.9 feet) of sea level rise or storm surge along the Maine coastline on top of the HAT. That HAT layer displays the maximum predicted astronomical high tide for the current National Tidal Datum Epoch (1983-2001). The sea level rise scenarios were developed by using available long-term sea level rise data from Portland, Bar Harbor, and Eastport tide gauges and the US Army Corps of Engineers Sea-Level Change Curve Calculator⁵ and sea level rise scenarios established by NOAA et al. in 2017⁶, prepared for the US National Climate Assessment. Scenarios include low, intermediate low, intermediate, intermediate high, high, and extreme sea level rise at the 50% confidence interval. The data were developed with a static (“bathtub”) inundation model that uses LiDAR topographic data as a base digital elevation model, and first adjusts HAT tidal predictions to consider variability in elevation datums along the Maine coastline, and then adds the storm surge/sea level rise scenarios to that initial starting elevation. The primary purpose of these data is to help inform storm surge and sea level rise vulnerability assessments and community planning.

Based on the most recent projections, permanent inundation is expected to overtake the surrounding portions of East Side Road starting at 3ft of sea level rise. Figure 6 shows current extents of HAT and Figure 7 shows the extent of expected permanent inundation at 3.9+ ft of sea level rise, which is the elevation used in MaineDOT’s Bridge Design Guidance. Coastal storm surge events are expected to increase the frequency and severity of road closures as sea level rises.

⁴ <https://coast.noaa.gov/slr/#/layer/slr/0/-7540566.428209165/5558910.403820061/16/satellite/12/0.8/2050/interHigh/midAccretion>

⁵ https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html

⁶ <https://coast.noaa.gov/slr/#/layer/slr>



⁷ https://www.maine.gov/dacf/mgs/hazards/slr_ss/index.shtml



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Maine Geological Survey
2015

FIGURE 7: MGS SEA LEVEL RISE/STORM SURGE SCENARIOS UNDER HAT +3.9 FT OF SEA LEVEL RISE IN THE PROJECT AREA ON EAST SIDE ROAD, ADDISON, MAINE.⁸

⁸ https://www.maine.gov/dacf/mgs/hazards/slr_ss/index.shtml

II. Grant Funds, Sources and Uses of all Project Funding

III. Merit Criteria

1	Vulnerability and Risk	<p>Most climate models project that Maine will continue to get wetter over the next century as increased heating from climate change intensifies the hydrologic cycle. Maine has experienced an increase in the average number of heavy precipitation events per year, sea levels, and storm surge frequency.⁹</p> <p>As described in Section I, the project area currently experiences inundation associated with coastal storm surge and extreme high tide events. The existing structure lies within the NOAA identified Current Mean Higher High Water and is expected to experience more frequent closures as sea levels rise. The most recent reported closure due to flooding occurred on December 22, 2022, following a severe rainstorm in the region. The resulting storm surge overtopped the causeway and bridge by nearly a foot its highest elevation.</p> <p>The Maine Flood Hazard Map, powered by FEMA, lists the project area as a special flood hazard area (SFHA) with high flood risk.¹⁰ Additionally, the causeway and bridge are in a VE flood zone, indicating a greater than 1% chance of flooding and an additional hazard associated with storm waves. VE flood zones have a 26% chance of flooding over 30 years.¹¹</p>
a)	Exposure	<p>Flooding of the existing roadway occurs due to a combination of the low elevation of the existing causeway, current extreme weather patterns and sea level rise. Based on NOAA sea level rise projections, ocean levels are predicted to continue to increase, resulting in higher tides and storm surges. This project will mitigate the risk of flooding by elevating the roadway. The number and severity of roadway flooding events will increase parallel with these processes due to the low elevation of the roadway on either side of the existing bridge.</p>
b)	Sensitivity	<p>The causeway is currently highly sensitive to the impacts of flooding from high tides and storm surge. In a flood event, the current response is a mounted sign warning motorists of the depth of water over the road (Figure 8). Additionally, continued wave activity has eroded the roadside slope along the northwest side of the bridge, threatening slope stability with each flooding event.</p>

⁹ https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/GOPIF_STS_REPORT_092320.pdf

¹⁰ <https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=3c09351397764bd2aa9ba385d2e9efe7>

¹¹ <https://www.fema.gov/glossary/zone-ve-and-v1-30>



FIGURE 8: SIGN WARNING OF FLOODING OF EAST SIDE ROAD DURING HIGH WATER CONDITIONS (DECEMBER 22, 2022). ADDISON, MAINE. COURTESY OF MAINEDOT.

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c)	Adaptive Capacity	<p>In its existing condition, this section of East Side Road has little capacity to adapt to future changes in sea levels or storm surge frequency. The same is true of the Lot Norton Bridge. Proposed structure sizing and raising the road profile will mitigate the hazard of flooding and accommodate increased hydrologic and habitat connectivity, adding adaptive capacity through the project area. The road and associated bridge will be raised above astronomical high tide, reducing sensitivity to the flooding events. Increasing the size of the crossing over Knowles Brook will increase the flow capacity, allowing for more naturalized flows. With increased naturalization of flows, the adjacent tidal wetlands will have an increased capacity to mitigate higher flows and diffuse storm surges. Increasing the road elevation will also reduce travel times during outages and maintain connections with the community of South Addison and the essential services in Addison Town Center. Additional adaptive capacity includes restabilizing roadside slopes with riprap to protect against potential failure due to coastline erosion. Existing guardrail will also be updated to modern crash standards, improving the overall safety of the project area.</p>
2	Criticality to Community	<p>East Side Road is a primary corridor between the communities of Addison and South Addison. The project causeway and associated bridge are vital portions of the corridor, essential for connecting services between these communities and beyond. South Addison is a primarily residential community that lacks critical facilities, such as emergency response services. Critical facilities including Addison Volunteer Fire Department Station 1, the Addison Town Office, and the Addison Post Office require an extensive detour to reach if the causeway is impassable due to flooding or damage. The</p>

importance of the causeway as a connector between the community and critical facilities was revealed after an individual reported that several years ago, the causeway and bridge were impassible during a high-water event, forcing emergency responders to make a 17-mile detour (Figure 9), resulting in a major delay and subsequent loss of life. As the potential for outages due to flooding increases due to climate change, the likelihood of interruptions of service between the community of South Addison and critical facilities also increases. This project aims to mitigate the potential of interruptions in service by elevating the roadway and reducing the impact of flooding events on the causeway.



FIGURE 9: EAST SIDE ROAD DETOUR MAP.

3

Design Elements

The foremost design element is the raising of the causeway to surpass HAT +3.9 feet, resulting in a finished elevation of 12.1-feet.¹² The raising of the road at Knowles Brook by two feet will be accomplished using a minimum 16-foot span concrete box. MaineDOT anticipates the box to have a lifespan of 75 years, as is industry standard. The concrete box was chosen over design elements with similar life expectancy due to its resiliency to tidal seawater. The use of an aluminum arch identical to the existing structure could present corrosion issues due to the saltwater exposure. Additionally, the flat bottom of a large span concrete box is more conducive to stream simulated design, improving aquatic organism passage and habitat connectivity.

¹² <https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=4c22efe50ee24459a502e619f8965a84>

4	Public Engagement, Partnerships and Collaboration	<p>MaineDOT will use its Public Involvement Management Application (PIMA) for virtual and/or hybrid public engagement during program development and implementation. MaineDOT was an early adopter of virtual public involvement during COVID-19 when in-person meetings were restricted for public health reasons. Beyond the pandemic, MaineDOT has opted to continue using PIMA as its primary vehicle to distribute information as well as collect public comment. The number of people accessing the project-specific websites and the number of comments received are significantly higher using PIMA. In addition, people from all corners of the state can access this virtual platform and the level of customer satisfaction with this engagement method is high.</p> <p>Maine Geological Survey will be included as partner on the project to ensure best management practices in coastal stabilization are applied and anticipate any geologic concerns. Additional partnerships are identified through corresponding letters of support.</p>
5	Equity and Justice40	<p>The project area is identified as disadvantaged by the Climate and Economic Justice Screening Tool (CEJST) (Figure 10).¹³ Addison is included in Census Tract 9564, which meets the burden threshold for energy cost and the associated socioeconomic threshold for low income.</p> <p>MaineDOT’s virtual public involvement process together with direct conversations with local populations will provide the opportunity to proactively minimize impacts to potentially affected community-based organizations, businesses, and residents during project planning. PIMA is particularly effective in engagement of rural populations, for which travel to traditional in-person meetings can pose a barrier. PIMA is used not only to collect comments on projects, but also to reflect how such input is taken into consideration in decision-making and keep the public informed during construction.</p>

¹³ <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>

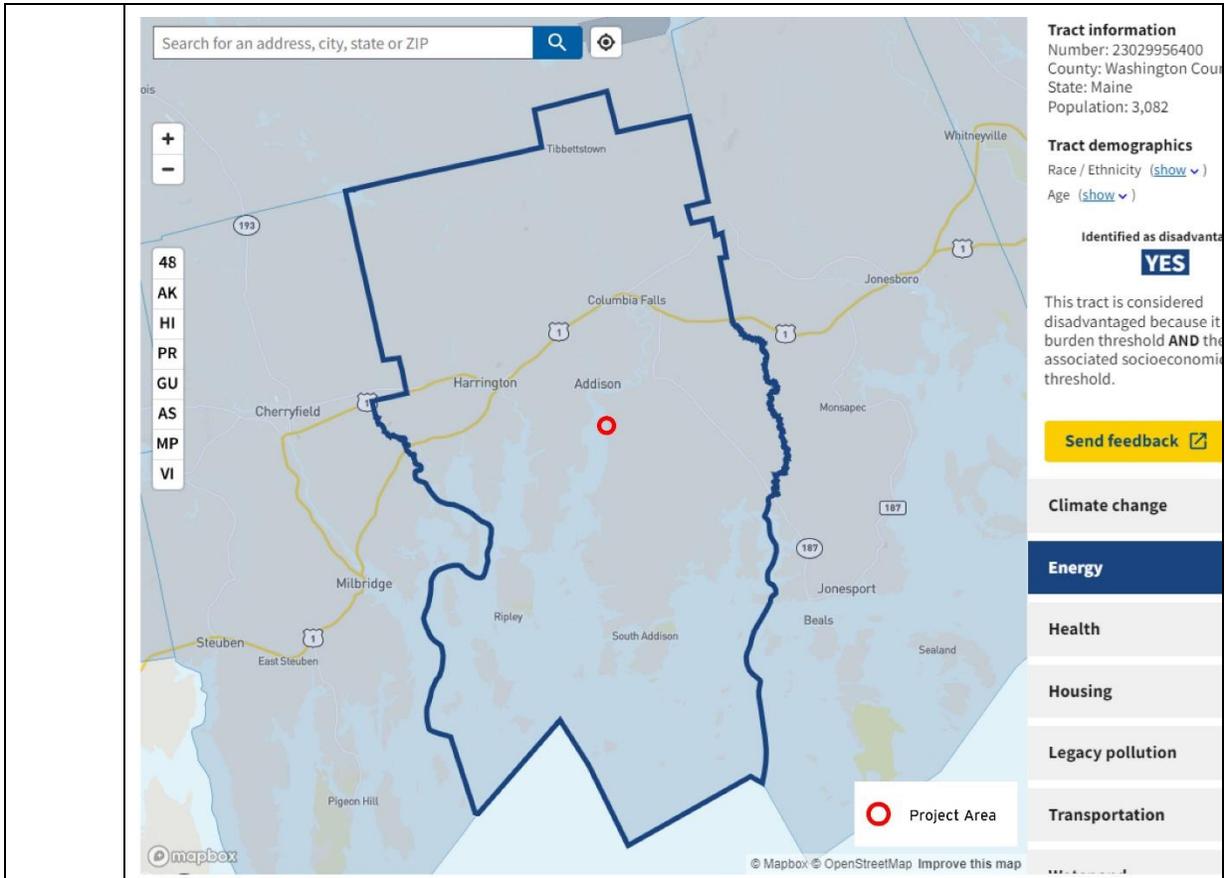


FIGURE 10: CLIMATE AND ECONOMIC JUSTICE SCREENING TOOL (CEJST) RESULTS FOR THE PROJECT AREA.

<p>6</p>	<p>Climate and Sustainability</p>	<p>Improving and maintaining the roadway to increase resiliency to extreme weather events and sea level rise will contribute to the reduction of greenhouse gas emissions from vehicles. Reductions in emissions will be realized from reduced vehicle miles traveled should closure of the bridge due to flooding force an extensive detour, as is reported by MaineDOT and individuals in the area. During road closures, an additional 17 vehicle miles are required from abut to abut of the climate vulnerable portion of East Side Road and 12 miles from Addison Town Center and South Addison. (Figure 9). Satellite imagery identifies potentially shorter routes; however, the suitability of these alternatives varies, including an unmaintained dirt road and another causeway across Knowles Brook. Identified detours also involve multiple intersections, which includes accelerating and decelerating that is not involved when the causeway is operational.</p> <p>The causeway and the surrounding area are also within a Class A hurricane evacuation zone (Figure 11). Class A zones are described by Maine Emergency Management Agency as generally most at risk of flooding and storm surge.¹⁴ These designations contribute to the importance of maintaining access for egress and access during</p>
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¹⁴ <https://storymaps.arcgis.com/stories/4fb502bf0ea6467693ff4191a1859e92>

severe weather events.

The project is located within the habitat of several Federal and State endangered species, including Atlantic salmon, short-nosed sturgeon, and Atlantic sturgeon. Increasing the hydrologic and hydraulic capacity of the existing large culvert will enhance aquatic organism passage, promoting and protecting the biodiversity of the marine environment.

Generally, this project provides needed investment in long-term solutions for resilient transportation infrastructure. The project prioritizes public safety in terms of traveler safety and mobility for citizens vulnerable to the multifaceted effects of climate change.

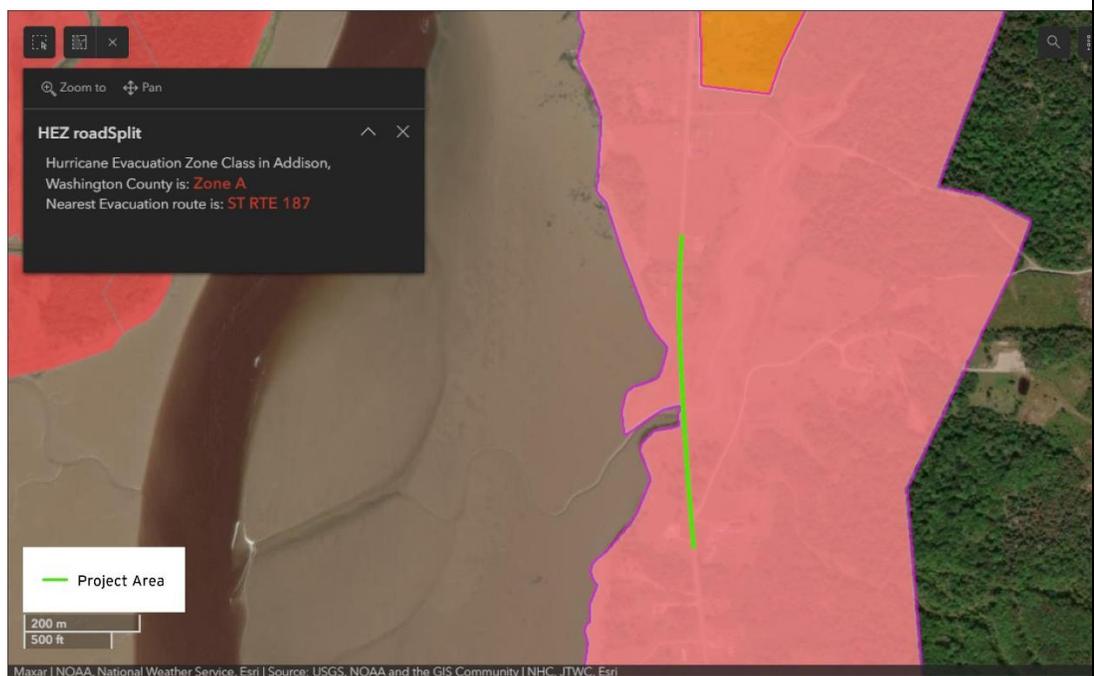


FIGURE 11: MAINE HURRICANE EVACUATION ROUTE, EAST SIDE ROAD, ADDISON, MAINE.

7	Schedule and Budget	<p>Due to the project containing elements beyond the scope of the PROTECT Program preliminary internal meetings have already begun for improvements of Lot Norton Bridge. Grant funding of \$4,046,800 is requested for only the construction phase of the project. A detailed schedule follows (Table 1).</p> <p style="text-align: center;">TABLE 1: EAST SIDE ROAD RESILIENCY IMPROVEMENT PROJECT SCHEDULE.</p> <table border="1" data-bbox="769 457 1451 688"> <thead> <tr> <th style="text-align: center;">Milestone</th> <th style="text-align: center;">Date</th> </tr> </thead> <tbody> <tr> <td>Project Kickoff (bridge only)</td> <td>May 2023</td> </tr> <tr> <td>PSE Submission</td> <td>August 2025</td> </tr> <tr> <td>Advertise</td> <td>September 2025</td> </tr> <tr> <td>Begin Construction</td> <td>November 2025</td> </tr> <tr> <td>Construction Complete</td> <td>June 2027</td> </tr> </tbody> </table> <p>Preliminary public meetings are expected to begin before the end of 2023. Construction is expected to be awarded and break ground concurrent with the award of PROTECT FY22 obligation. The anticipated completion date for the project is June 30th, 2027.</p> <p>MaineDOT is requesting \$4,046,800 in funding through the PROTECT grant program, which represents an 80% share of eligible project costs. The entirety of the budget includes costs specifically pertaining to resiliency improvement of the road and Knowles Brook crossing. MaineDOT seeks to use funding provided by the PROTECT Program to bridge the gap between the in-kind replacement of this crossing and the project as proposed, a differential of \$4,046,800 including PE through construction. A breakdown of the project budget follows in Table 2.</p> <p>Addressing resiliency needs concurrently with the replacement of Lot Norton Bridge is an intentional decision to reduce transportation impacts on the surrounding community and realize economies of scale during construction. Due to the importance of the roadway for connectivity for the residents of South Addison, minimizing road closings by combining project construction is vital.</p>	Milestone	Date	Project Kickoff (bridge only)	May 2023	PSE Submission	August 2025	Advertise	September 2025	Begin Construction	November 2025	Construction Complete	June 2027
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Project Kickoff (bridge only)	May 2023													
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TABLE 2: EAST SIDE ROAD PROJECT DETAILED BUDGET BY COMPONENT.

Fund Sources	Previously Incurred		Post Grant Award				Fund Source Totals	Total Project Cost %		
	PE/ROW	Previously Incurred %	PROTECT Eligible	Construction/CE	Post Grant Award %	Non PROTECT Elements			Construction/CE	Post Grant Award %
FHWA Formula	\$577,920	80.0%		\$0	0.0%		\$1,213,200	80.0%	\$1,791,120	24.5%
MaineDOT	\$144,480	20.0%		\$1,011,700	20.0%		\$303,300	20.0%	\$1,459,480	20.0%
Grant	\$0	0.0%		\$4,046,800	80.0%		\$0	0.0%	\$4,046,800	55.5%
Private	\$0	0.0%		\$0	0.0%		\$0	0.0%	\$0	0.0%
Fund Stage Totals	\$722,400			\$5,058,500			\$1,516,500			
Total Project Cost									\$7,297,400	100.0%

8	Innovation	<p>The project will rely on interagency cooperation and the expertise of MGS to ensure best practices and the best project outcome regarding soils and coastal erosion.</p> <p>Innovative technologies to be implemented as part of the project include precast concrete and lightweight fill where applicable. Precast concrete is reliable and standardly used sustainable building material. Precast manufacturing can utilize recycled manufacturing materials reducing the overall waste of the project. Precast concrete is considered a more efficient product than concrete mixed on site and is cited to use fewer overall materials to produce.</p> <p>Lightweight fill would replace heavier in situ soils on the project site in locations such that the integrity of the improvements would not be compromised. Collaboration with Maine Geological Survey would help identify proper use of lightweight fill. The use of lightweight fill would reduce the impacts of potential settlement in the project area as the synthesized material reduces load on subgrade soils. The use of lightweight fill also reduces construction schedule when compared to preload. Reducing schedule helps with faster connectivity and reduces carbon emissions from construction. Settlement mitigation through lightweight fill is anticipated to increase the life span of the improvements done to the causeway. Using foamed glass aggregate as lightweight fill removes discarded glass bottles from the waste stream.</p> <p>Technologies like precast concrete and lightweight fill are highly reliable with comparable, if not surpassing, life spans of their standard counterparts. Implementing innovative technologies reaffirms MaineDOT’s commitment to reducing its carbon footprint, while also improving the resiliency of Maine’s transportation infrastructure.</p> <p>The sum of these innovative elements is a project that not only addresses current community resiliency needs but continues</p>
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		to provide reliable transportation connectivity for decades to come.
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IV. Economic Analysis

Benefit-Cost Analysis	<p>For this project, the benefit-cost ratio is 1.95, indicating that the benefits of the project will deliver a net positive result for the community and for the environment. The purpose of the Benefit Cost Analysis (BCA) is to enable FHWA to evaluate a project’s cost-effectiveness by comparing its expected benefits to its expected costs, relative to a scenario where the project is either not built or not built with resiliency as a focus. The BCA assigns monetary value to a variety of measures that are benefits to society to determine the sustainability and potential expected rewards of a project. For this project, the benefits considered are related to improving the climate adaptivity and resiliency of the bridge and roadway to maintain safe travel and protect against sea level rise. As is true for this project, a Benefit/Cost ratio of 1.0 or greater determines that the project is cost-effective. Results of the BCA are summarized in Table 3 and supporting calculations are provided as Attachment A.</p>
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TABLE 3: BENEFIT-COST ANALYSIS SUMMARY FOR RESILIENCY IMPROVEMENTS TO EAST SIDE ROAD IN ADDISON, MAINE.

	Total [#]	\$M
Benefits		
Travel Time Savings	\$834,582	\$0.8
Reduced Vehicle Operating Costs	\$515,781	\$0.5
Reduced Emissions Damage *	\$33,696	\$0.0
Avoided Emergency Vehicle Delay	\$10,573,345	\$10.6
Reduced Crash Costs	\$0	\$0.0
Avoided Rehab/Repair Costs	\$12,593	\$0.0
plus Residual Value	\$354,810	\$0.4
Net Benefits	\$12,324,807	\$12.3
Total Costs	\$6,324,461	\$6.3
B/C Ratio	1.95	1.95
Net Present Value	\$6,000,345	\$6.0

[#] in 2020 dollars

* includes carbon-related benefits discounted at 3%

V. FHWA Priority Considerations

1	Exceptional	The project area is in an area identified as disadvantaged by
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	<p>benefits under merit criteria #5 Equity and Justice 40</p>	<p>the Climate and Economic Justice Screening Tool (CJEST). Addison is included in Census Tract 9564, which meets the burden threshold for energy cost and the associated socioeconomic threshold for low income. In addition to these quantitative criteria, the project area is sparsely developed, rugged terrain. Due to the geography of the area, detour routes are limited and exceptionally long (17 miles from abutment to abutment or 12 miles from Addison Town Center to South Addison) causing significant impacts to residents and emergency services ability to travel. Infrastructure investments tend to occur on an as needed versus proactive basis.</p>
<p>2</p>	<p>Workforce Development, Job Quality, Wealth Creation</p>	<p>There is an array of seafood wholesalers in South Addison, including Caler Cove Lobster Company and The Lobster Trap. East Side Road is a vital route for wholesalers in South Addison to reach customers in Addison and across Maine. Increasing the reliability of this route expands the access of these businesses to a greater market. Inversely there are a variety of small “mom and pop” type variety and general stores in the South Addison area. Receiving goods for their stores via East Side Road is vital to the continued growth of these small businesses.</p> <p>Outages of East Side Road also inhibit job opportunities for residents of South Addison. Closure of East Side Road increases the travel time and hardship of South Addison workers to reach job opportunities in Addison and the U.S. Route 1 economic corridor to the north. Increasing the resiliency of East Side Road expands access to goods and job opportunities through increased reliability of the route.</p> <p>As an employer, Maine DOT is firmly committed to the principles of equal employment opportunity (EEO) and affirmative action. Maine DOT has both external and internal affirmative action/EEO action plans ensuring that federal and state EEO laws are complied with on all Maine DOT projects.</p>
<p>3</p>	<p>Construction Readiness</p>	<p>With the increasing number of road closures due to flooding and the criticality of the causeway to the surrounding communities, the project is on an accelerated schedule with construction of the bridge replacement anticipated to begin in November of 2025, well within the 10-month window for an anticipated FY 2022 PROTECT Program award. MaineDOT has begun environmental screening and preliminary design work associated with the programmed bridge replacement in-kind and will add re-sizing and roadway design as soon as funding is available.</p>

4	Funding Needs	<p>The in-kind replacement of Lot Norton Bridge (#3754) can occur under current budget conditions; however, current fiscal constraints limit the ability to increase the roadway elevation concurrent with the replacement and include resiliency improvements to the bridge itself. Due to the criticality of the causeway to the rural community's economic livelihood and safety, minimal closings of East Side Road are preferred. A proportionate economy of scale is realized by raising the roadway in conjunction with bridge replacement, increasing construction efficiencies by closing the project area once instead of twice. To be as efficient as possible with public dollars, MaineDOT requests the funding needed to raise the roadway concurrent to the bridge replacement to minimize overall cost and meet the resiliency needs of the community of Addison.</p>
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ATTACHMENT A

BENEFIT-COST ANALYSIS CALCULATIONS FOR MAINE DOT'S EAST SIDE ROAD RESILIENCY
IMPROVEMENT PROJECT IN ADDISON, MAINE.