

Maine Department of Transportation FY 2024 Competitive Highway Bridge Program Off-System Bridge Investment Project Project Narrative



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PROJECT NARRATIVE

I. BASIC PROJECT INFORMATION – DESCRIPTION, LOCATION, AND PARTIES

1. Project Description

The State of Maine Department of Transportation (MaineDOT) is requesting \$38,784,000 in FY24 Competitive Highway Bridge Program (CHBP) grant funding for the Off-System Bridge Bundle Project (“Project.”)

The Project consists of the replacement of eleven (11) bridges across rural areas of central Maine (Figure 1). These rural bridges are crucial for connecting otherwise geographically isolated communities. According to the National Bridge Inventory (NBI), all eleven (11) bridges are in poor condition (Attachment A). Additionally, five (5) of the bridges are considered scour critical, meaning their foundations are either unstable under potential scour conditions or field reviews have identified existing scour instabilities. Another three (3) bridges are currently stable under existing scour conditions but require action to protect their foundations. Furthermore, all these bridges are geometrically undersized in both width and length according to today’s design standards.

Due to their isolation and rural nature, these bridges experience low traffic volumes, which makes it challenging to prioritize them for funding within the broader scope of MaineDOT’s infrastructure needs. Consequently, they often fall to the bottom of the priority list and continue to deteriorate. These bridges are essential for regional and state roadway networks, connecting people with everyday necessities and essential services such as places of employment, schools, grocery stores, and medical care. Notably, three (3) of these bridges serve dead-end roads, making them even more critical for the residents who rely on them. Without replacement or rehabilitation these bridges are at risk of further deterioration to the point of closure, resulting in severe adverse connectivity, environmental, economic, and social impacts to the surrounding communities.

The closure of any of these bridges will result in a delay of the delivery of emergency services and will increase vehicle miles traveled (VMT) through use of detour routes. By improving safety, efficiency, and reliability of the movement of people and freight over these bridges, reducing the

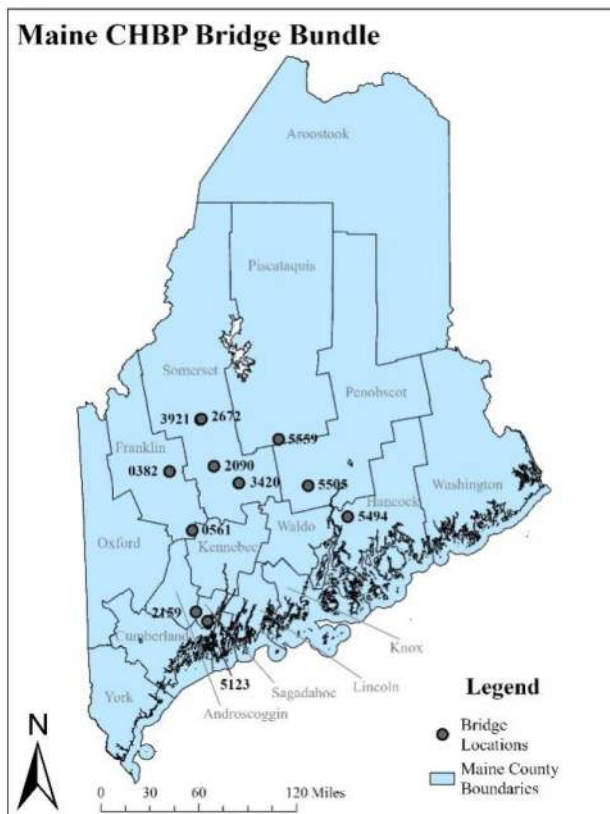


Figure 1. CHBP Bridge Bundle Locations

number of bridges in poor condition, and leveraging MaineDOT's non-Federal financial contributions, the Project will advance all six (6) goals of the FY24 CHBP as established in the January 13, 2025, Notice of Funding Opportunity – 693JJ325NF00010.

As shown in Table 1, all eleven (11) bridges are in poor condition and are over 50 years old, exceeding their original designed service life. The proposed replacement bridges will be designed with a 75-year service life. Additionally, Bridge #5505 in the Town of Carmel is already posted for load, limiting its usage for heavier commercial vehicles and utility delivery vehicles. Many of the bridges due to condition and low HL-93 Inventory load ratings risk future load postings as conditions worsen.

Table 1. Summary of Project Bridge Conditions.

NBI Number	Year Built ¹	Deck Rating	Superstructure Rating	Substructure Rating	Channel Rating	Culvert Rating	Bridge Condition	AADT	Truck AADT	Load Rating and Posting	Functional Class	Bypass Detour Length	Scour Rating
0382	1974	N	N	N	5	4	3 – Poor	101	5	A	09	100	4
0561	1950	4	4	4	6	N	3 – Poor	127	6	A	09	6	3
2090	1934	5	5	4	6	N	3 – Poor	599	30	A	08	0	3
2159	1936	4	6	4	7	N	3 – Poor	412	20	A	09	100	5
2672	1922	4	4	5	5	N	3 – Poor	196	9	A	09	0	4
3420	1936	5	5	4	7	N	3 – Poor	170	8	A	09	6	8
3921	1945	4	4	5	5	N	3 – Poor	180	9	A	09	100	3
5123	1920	4	4	5	6	N	3 – Poor	1089	54	A	09	1	8
5494	1951	5	5	2	6	N	3 – Poor	291	14	A	09	7	2
5505	1963	4	4	6	5	N	3 – Poor	600	30	A	09	3	4
5559	1954	4	4	5	5	N	3 – Poor	103	5	A	09	3	3

¹Red cells indicate substandard ratings.

2. Project Locations

The Project spans the central part of the state, including structures in seven (7) of Maine's counties – Androscoggin, Franklin, Hancock, Penobscot, Piscataquis, Sagadahoc, and Somerset Counties. Figure 2 labels the location of each structure, including NBI identification numbers and Historically Disadvantaged Communities.

The status of each bridge location relative to Census Urban/Rural Areas (CUA), Areas of Persistent Poverty (APP)/Historically Disadvantaged Communities (HDC) is summarized in Table 2. The proposed construction in these high-poverty areas will also help bolster local job rates. By allowing local contractors to staff their projects with community members, as indicated by conversations with contractors in the state, the project will provide much-needed employment opportunities.

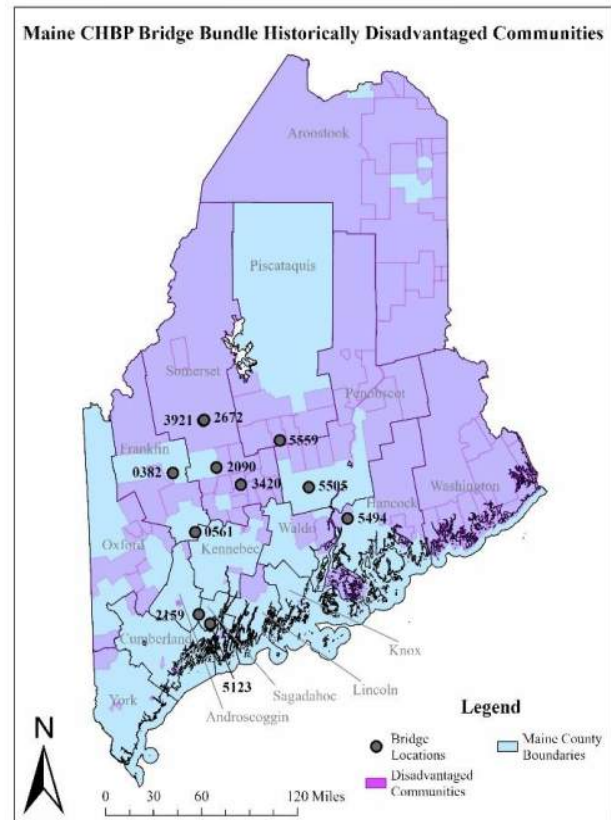


Table 2. Bridge Status Relative to CUA, APP, and HDC.¹

NBI Number	Census Tract	Census Urban Area	Area of Persistent Poverty	Historically Disadvantage Community	Total Population	Per Capita Income	Persons Below Poverty Level
0382	23-007-9701.1	No	No	No	1,983	\$49,934	7.5%
0561	23-007-9711.00	No	No	No	2,783	\$31,903	11.0%
2090	23-025-9663.00	No	No	No	1,816	\$28,808	11.5%
2159	23-001-0302.00	No	No	No	4,529	\$33,966	9.0%
2672	23-025.9653.02	No	Yes	Yes	1,706	\$32,294	17.2%
3420	23-025.9661.00	No	No	Yes	3,941	\$19,592	18.4%
3921	23-025.9653.02	No	Yes	Yes	1,706	\$32,294	17.2%
5123	23-023.9703.01	No	No	No	4,156	\$32,074	11.9%
5494	23-009-9653.00	No	No	Yes	4,974	\$31,101	11.4%
5505	23-019-0110.00	No	No	No	2,900	\$39,450	10.1%
5559	23-021-9606.00	No	Yes	Yes	2,187	\$26,007	23.5%

¹Sources: [DOT Grant Project Location Verification](#) and [American Community Survey \(ACS\) 2022 5-Year](#)
 Bold text indicates bridges within Historically Disadvantaged Communities.

Overall, the state's population is projected to grow by 2.6% from 2020 to 2030, with Androscoggin, (2.2%), Hancock (2.2%), Penobscot (0.9%), Franklin (0.6%), and Sagadahoc (0.6%) counties all anticipated to experience growth due to factors such as lower property and housing costs, increased remote work opportunities, rural employment (e.g., forestry, paper

mill, tourism), and desire for a rural lifestyle. The projected decrease in population for Piscataquis (-5.0%) and Somerset (-1.2%) counties risks being exacerbated due to a lack of adequate infrastructure such as safe, efficient, and reliable bridges.¹ Recent state legislation, *An Act to Implement the Recommendations of the Commission To Increase Housing Opportunities in Maine by Studying Zoning and Land Use Restrictions* (commonly referred to as LD 2003), allows for an increase in residential density and the elimination of single-family only residential zoning throughout the state, thus expanding housing potential in rural areas.² Finally, the Maine Department of Economic and Community Development's 2023 report, *State of Maine Housing Production Needs Study*, anticipates the need for between 6,620 – 9,610 new housing units in the Project counties by 2030.³ Increased residential density in rural areas will increase the need for improved infrastructure as well as the consequences of a transportation network disruption.

3. Lead Applicant

As the sole applicant, MaineDOT manages and funds all state-owned transportation assets. With approximately 1,600 employees, the Department disburses more than \$600 million annually, including Federal-aid highway program funds under Title 23 U.S.C. as well as state and local funds. MaineDOT performs extensive analysis of infrastructure conditions to prioritize projects for funding that have the most immediate impact and align with USDOT and state transportation goals. The Department has a proven history as a dependable recipient of previous TIGER, FASTLANE, BUILD, RAISE, INFRA, Culvert AOP, Rural, and CRISI grant funding. USDOT can rely on the Department to meet obligation and construction deadlines without risk.

4. Other Public and Private Parties

There are no other public or private parties or funders involved in delivering the Project.

II. PROJECT COSTS – GRANT FUNDS, SOURCES, AND USES OF ALL PROJECT FUNDING

MaineDOT requests \$38,784,000 in CHBP Grant funding. The Department will provide a 20% match towards the total project cost using Maine State Highway funding, Attachment B. All mandated budget forms have been uploaded to Grants.gov. The Project budget conforms with the January 13, 2025, NOFO, and upon award, given the Department's technical capacity and Federal grant experience, MaineDOT expects to satisfy applicable administrative and obligation requirements. See Attachment C for a full budget breakdown, all dollar amounts are provided as 2024 dollars. Although not required, the Department performed a Benefit-Cost Analysis (BCA) to better understand the fiscal impact of the project. The Bridge Investment Program (BIP) BCA Template was used as a reference. Important elements of Project funding include:

¹ https://www.maine.gov/dafs/economist/sites/maine.gov.dafs.economist/files/inline-files/Maine%20Population%20Outlook%20to%202030_5.pdf, p. 3

² <https://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP1489&item=9&snum=130>

³ https://mainehousing.org/docs/default-source/default-document-library/state-of-maine-housing-production-needs-study_full_final-v2.pdf, p. 56

- Non-Federal Match funding includes 20% state funding committed by MaineDOT from its State Highway Fund. A funding commitment letter accompanies the application. Project match funding will be sourced from State Funds.
- There have been no previously incurred expenses to date. According to the BCA the project has a projected benefit of \$902,359,528 over the 30-year analysis period (Attachment D). The Project has a benefit-cost ratio of at least 23:1 based on a Net Present Value (NPV) at a 10% discount rate over 30 years (Attachment D).
- Savings are realized primarily through coordination of construction and bridge closures requiring detours on surrounding roads. This limits greenhouse gas emissions and minimizes travel time interruptions. Reduced maintenance costs also contribute to cost savings.
- No funding is contingent upon satisfying a condition, nor is it available only during a set period.
- No funds other than the requested Grant funding are subject to Federal Limits.

1. Contingency

As with all previous Federal grants MaineDOT has applied for/received, sufficient contingency has been included in the budget to cover unexpected costs, cost increases, and/or inflation. MaineDOT closely monitors inflation in the construction sector and stays up to date on labor and material cost increases, leading to a 3% annual inflation rate applied to future Project costs.

2. Previously Incurred Costs

There are no previously incurred costs.

3. Maintenance Commitment

State of Maine's budget includes \$207.2 million in State Highway Funds for Fiscal Years 2025 and 2026 for operating and maintaining the state's transportation system. This funding formula is consistent with past and current efforts and is anticipated to continue.

4. Discretionary Funding Need

MaineDOT is unlikely to be able to fully self-fund the Project. The Department intends to bend the curve on their off-system bridge inventory; however, because the entire work plan budget is allocated, there is a great need for discretionary funding, which is described in MaineDOT's long range plan, *Working to Move Maine*. According to the American Road and Transportation Builders' Association (ARTBA), which analyzed and ranked 2024 Federal Highway Administration (FHWA) NBI data, Maine ranks fourth (4th) in the country for the percentage of structurally deficient bridges. The ARTBA data concluded that of the state's 2,518 bridges, 388 (15.4%) are now structurally deficient. This continues an alarming trend in which the state's ranking for structurally deficient bridges as a percentage of bridge inventory has moved up from seventh (7th) with 12.6% of bridges classified as structurally deficient in 2021.⁴

The population of Mainers aged 65 and older is expected to increase 37% between 2020 and 2030.⁵ As older individuals begin to drive less or reach an age where driving is no longer

⁴ <https://artbabridgereport.org/state/ranking>

⁵ https://www.maine.gov/dafs/economist/sites/maine.gov.dafs.economist/files/inline-files/Maine%20Population%20Outlook%20to%202030_0.pdf, p. 2

practical, the opportunity to grow gas tax receipts will continue to challenge State lawmakers. More fuel-efficient vehicles and electric vehicles (EVs) reduce tax receipts available to fund road and bridge improvements. Under the Infrastructure Investment and Jobs Act (IIJA) formula funding, Maine can expect to receive \$1.1 billion for Federal-aid highway apportioned programs, including \$135 million for bridge replacement and repairs over five (5) years.⁶ The increase in formula funding, although significant (28%), will by and large be offset by construction cost inflation fueled by tight labor and material markets. The amount is also insufficient to cover the state’s growing off-system bridge needs.⁷ Through MaineDOT’s off-system bridge bundling program, the department’s will apply its general approach, born of fiscal necessity, of doing the best with what is available. CHBP discretionary funding will help MaineDOT insulate the state from the effects of rising costs and improve bridge conditions throughout the state.

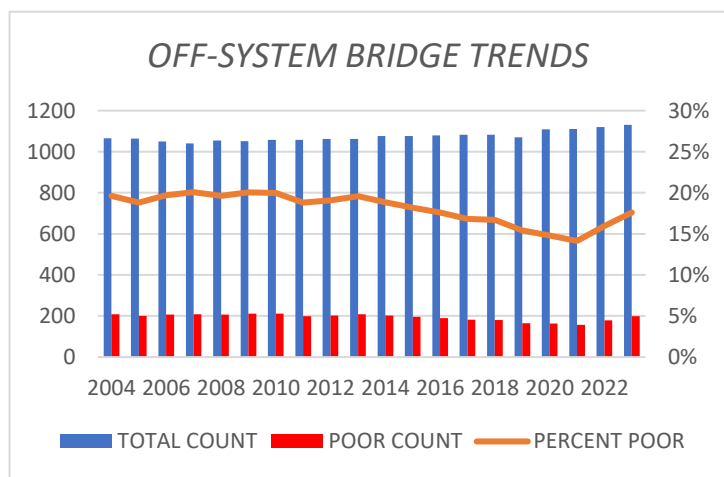
III. MERIT CRITERIA

The following sections describe how the anticipated improvements as part of the proposed eleven (11) bridge replacements will meet CHBP selection criteria.

1. State of Good Repair

MaineDOT aims to rebuild deficient off-system bridges, bringing the state’s bridge system further toward a state of good repair; however, due to challenges related to a backlog of aging bridges and the rural nature of the bridges included in this Project, CHBP funding is critical to keep pace with the deteriorating infrastructure as the bridges approach their end of life simultaneously.

There were 1,131 off-system bridges in Maine in 2023, 382 of which will require reconstruction in the near future. Of those, 199 were reported as being in poor condition in 2023, or 18%. Figure 3 shows the resulting undesirable upturn in poor condition off-system bridges. MaineDOT aims to reduce the percentage of off-system bridges in poor condition to below 15% and reverse the current trend. To achieve this, MaineDOT is taking a targeted approach and has carefully selected the Project bridges following a detailed review of the state’s Fair and Poor bridges.



Replacing these bridges in the near future will result in an overall cost savings by preventing the need for major maintenance efforts to keep the degraded bridges open. Additional information regarding cost savings resulting from this project can be found within Section

⁶ <https://www.whitehouse.gov/wp-content/uploads/2023/10/Maine-Fact-Sheet.pdf>, p. 1

III.3. Section III.4.2 discusses how the completed project is expected to be low risk for damage and is functionally sustainable under naturally occurring and human related hazards and extreme events, including climate change.

MaineDOT has had a pavement and bridge management system since the mid-1990s. Per the MaineDOT Transportation Asset Management Plan (TAMP), these management systems comply with the requirements of 23 CFR 515.17 and the Department inspects NHS bridges on a 24-month cycle in accordance with the bridge inspection standards of 23 CFR 650 (c).⁷ MaineDOT is committed to maintaining the new bridges, utilizing the same team of maintenance crews that cover other area bridges. Maintenance funding will be sourced from State funds. MaineDOT will ensure the new bridges are maintained to all Federal and State standards. The Department will perform all required bridge inspections and immediately correct any issues discovered. Should the request funding be received, MaineDOT will update the 2025-2028 Work Plan and Statewide Transportation Improvement Plan (STIP) to include the construction of these bridge replacements and will take action to incorporate them into upcoming maintenance plans.

2. Safety and Mobility

Safety is MaineDOT's primary consideration in addressing infrastructure challenges posed by outdated and inefficient bridges. Safety and design standards have evolved since the bridges were constructed or reconstructed (1920-1974); all replacement structures will meet current structural design standards. Eight (8) of the eleven (11) existing bridges do not meet current design standards for width, resulting in narrow bridges that restrict adequate two-way traffic. Additionally, the structural capacity and heights of the bridge railings on all eleven (11) bridges are substandard according to today's design standards. Refer to Table 3 for the existing and proposed bridge widths. Figure 4 illustrates the typical section assumed for most bridge replacement locations, which accommodates two (2) 12-foot lanes. In areas with low traffic volumes, slightly narrower sections are assumed to minimize construction impacts. All structures will use MASH-compliant steel bar 3-bar traffic/bicycle railings. The replacement structures will significantly enhance safety for vehicular, bicycle, and pedestrian traffic.

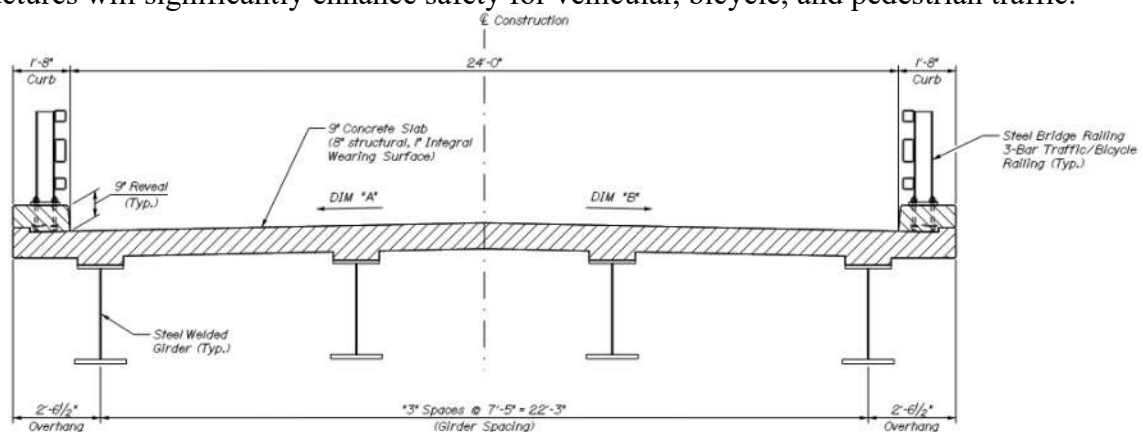


Figure 4. Example of Bridge Cross Section.

⁷ <https://www.maine.gov/mdot/publications/docs/plansreports/MaineDOT-Transportation-Asset-Management-Plan-final.pdf>, pp. 8-9

Table 3. Bridge Roadway Width.

NBI Number	Town Name	Average Daily Traffic	Existing Curb to Curb Width (ft) ¹	Proposed Curb to Curb Width (ft) ²
0382	Salem Twp	101	21	22
0561	Chester/VIENNA	127	17.3	22
2090	Embsen	599	23.9	24
2159	Bowdoin/Lisbon	412	19.3	24
2672	Caratunk	196	20	22
3420	Cornville	170	14.6	22
3921	Caratunk	180	24	24
5123	Topsham	1089	21	24
5494	Orland/Bucksport	291	18.2	24
5505	Carmel	600	19.1	24
5559	Sangerville	103	24	24

¹ Red cells indicate substandard roadway widths.

² Proposed curb to curb widths are conceptual and could change based on Maine state standards for bicycle and pedestrian safety.

Safety during construction is paramount. Specific considerations for each bridge location have been made to determine the appropriate maintenance of traffic (MOT) scheme. Due to the rural and less-traveled locations of these bridges, different MOT options were assumed based on site characteristics. Each location will use either a temporary bridge or a bridge closure with an offsite detour to minimize environmental and vehicular impacts. Three (3) bridges are on dead-end roads or have long detours, justifying the use of temporary bridges or off-alignment construction. MaineDOT will install construction safety signage, barriers, and reduced speed limits in construction zones to protect workers, consistent with the Manual on Uniform Traffic Control Devices (MUTCD).

In terms of mobility, closure of these bridges would significantly disrupt local and regional traffic flow given their isolated rural locations. Increased travel distances and reduced system capacity would lead to higher VMT and travel times, thereby increasing the risk of crashes.

In Maine, most crash injuries and fatalities occur on rural roads.⁸ Crash data associated directly with the bridges included in the Project show no reported crashes in the last ten (10) years. However, crash data for potential detours in the event of bridge closure show that travelers would experience a higher risk of crash events if redirected for extended periods (Table 4).

Table 4. Detour Route Crash Data ¹

Bridge #	Vehicle Crashes										
	0382	0561	2090	2159	2672	3420	3921	5123	5494	5505	5559
Crash Severity Code	-	0	0	-	0	0	-	0	0	0	0
Fatal (K)	-	0	0	-	0	0	-	0	0	0	0
Serious Injury (A)	-	0	0	-	0	0	-	0	0	0	0
Minor Injury (B)	-	0	0	-	0	0	-	0	0	0	0
Possible Injury (C)	-	1	0	-	0	0	-	4	4	7	2
Property Damage Only (PD)	-	2	9	-	0	5	-	8	3	7	5
Total	-	3	9	-	0	5	-	12	7	14	7

¹ Source: [Maine Public Crash Query Tool](#)

⁸ <https://uploads.mainedotpima.com/300823a7-ddcf-4ccc-9ca9-53d6425d1c4c.pdf>, p. 64

3. Innovation

a. Innovative Project Design or Construction Techniques

The Project will employ bridge bundling in accordance with FHWA's *Bridge Bundling Guidebook*. The EDC-5 Final Report states that bundling the bridges in the Project will result in up to 50% improvements in efficiency in preliminary design efforts.⁹ Bundling will advance the Project efficiently by saving time and reducing design and construction costs, while also creating opportunities for small and disadvantaged businesses.¹⁰ This will allow construction to commence without delay and with minimal risk.

Utility coordination will be streamlined by consolidating all necessary agreements into a single comprehensive agreement under the unified bridge bundle construction contract. This simplifies the coordination process, reduces administrative burdens, and ensures efficient management of all utility-related aspects within the overall project scope.

Each bridge will follow a standardized design detailing. Bridges were selected based on their geographic location and similar span ranges to fully standardize structural elements. Preliminary calculations were developed to understand the required bridge width and length and determine the geometric specifications of each bridge by the type of substructure and superstructure. All bridges will be single-span structures to minimize impacts within the waterway and reduce construction costs associated with in-water pier elements.

The following elements are anticipated to be standardized across all Project bridges:

- Abutment details
- Bearings
- Superstructure girders/beams
- Bridge deck
- Additional components such as diaphragms, railing detail and layout, asphaltic plug joints, scuppers, and approach railing transitions

Attachment E presents conceptual standardized plans with feasible substructure and superstructure configurations. For substructures, the Project will use integral abutments on steel H-piles wherever feasible, providing consistency and ease of construction. In cases where shallow bedrock is present, conventional abutments on spread footings will be utilized. Both types will incorporate consistent details to streamline design and constructability. For superstructures, the Project will use either precast concrete NEXT beams for 70-foot-long bridges or steel plate girders for 90-foot-long bridges. Table 5 summarizes each bridge location and the proposed replacement bridge geometrics, superstructure, and substructure types.

⁹ https://www.fhwa.dot.gov/innovation/everydaycounts/reports/edc5_finalreport.pdf

¹⁰ https://www.fhwa.dot.gov/ipd/pdfs/alternative_project_delivery/bridge_bundling_guidebook_070219.pdf, p.10

Table 5. Proposed Replacement Geometrics, Superstructure, and Substructure Types.

NBI Number	BFW	Proposed Span Length (ft)	Proposed Bridge Width (ft)	Proposed Superstructure Depth (ft)	Proposed Superstructure Type	Proposed Profile Change (ft)	Abutment Type Integral vs. Conventional	MOT Scheme
0382	46.43	90	25.33	3.75	Steel Beam	1	Integral	Temporary bridge
0561	26.89	70	25.33	3.75	NEXT 36F	3	Integral	Bridge closure with offsite detour
2090	45.01	70	27.33	3.75	NEXT 36F	1	Conventional	Temporary bridge
2159	44.05	90	27.33	3.75	Steel Beam	1	Integral	Temporary bridge
2672	43.90	70	25.33	3.75	NEXT 36F	1	Integral	Bridge closure with offsite detour
3420	3.98	90	25.33	3.75	Steel Beam	2	Conventional	Bridge closure with offsite detour
3921	43.56	70	27.33	3.75	NEXT 36F	3	Conventional	Temporary bridge
5123	51.20	90	25.33	3.75	Steel Beam	1	Conventional	Bridge closure with office detour
5494	61.08	90	27.33	3.75	Steel Beam	2	Integral	Temporary bridge
5505	32.48	70	27.33	3.75	NEXT 36F	1	Integral	Bridge closure with offsite detour
5559	25.75	70	27.33	3.75	NEXT 36F	1	Integral	Bridge closure with offsite detour

Standardized designs will facilitate time savings across multiple phases, including preliminary and final design, and construction. Maintaining standardized details and structure geometrics will also enhance construction quality by allowing the Contractor(s) to become familiar with the construction approach and improve and iterate for subsequent bridges on the schedule.

Bridges are bundled based on their geographic location to streamline construction activities and optimize resource mobilization. This approach reduces labor costs and logistical challenges, as work crews can efficiently transition between nearby sites. The proximity of multiple projects allows for shared resources, such as equipment and materials, and minimizes travel time for crews, thereby enhancing overall project efficiency.

MaineDOT will utilize an innovative design-build Project delivery plan, allowing the Department to contract with a single point of responsibility. The designer and contractor will work together as a team, providing unified Project recommendations that fit the schedule and budget. Any concerns or changes will be addressed by the entire team with a focus on collaborative problem-solving.

b. Innovative Technology and Materials

This Project provides the opportunity for innovative technologies to be implemented as part of the design. Standardized structure designs will be used as feasible to capture cost, design, and construction efficiencies. In bridge construction, steel offers opportunities for innovation. Steel beams can be galvanized or metalized to protect them, leading to a longer project lifespan. The Project will utilize metalized steel girders for the 90-foot-long bridges and precast concrete Northeast Extreme Tee (NEXT) beams for the 70-foot-long bridges. The NEXT beam allows for an accelerated construction schedule resulting in cost savings and reduced future maintenance needs. Corrosion resistant rebar can also be used to protect against deterioration within the concrete slabs, leading to more durable bridges. The use of prefabricated materials, where applicable, contributes to reduced construction time and enhanced structure resilience.

Multiple technological innovations incorporate elements of environmental and community innovation as well, such as helping reduce carbon emissions from construction or streamlining project operations to minimize disruptions. This Project will also rely on interagency cooperation to ensure environmental protection and conservation. MaineDOT has a long history of working effectively with other State and private agencies. As referenced in Section IV.5.a, MaineDOT will use its virtual Public Involvement Management Application (PIMA) for public engagement during program development and implementation.

c. Innovative Financing

The EDC-F Final Report states that bundling can be expected to result in approximately 10% savings in construction cost. MaineDOT estimates bridge bundling and employing an owner-engineer to assist in generating an RFP, and the selection of a design-build team, will save \$4,040,000.

d. Innovative Delivery Efficiencies

Environmental permits and approvals necessary for the Project include National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act, the Federal Endangered Species Act, Section 404 Clean Water Act Permit (U.S. Army Corp of Engineers), and Maine Natural Resources Protection Act (NRPA). MaineDOT is deploying innovation to administer the NEPA process and permitting for the Project through Programmatic Agreements already in place as well as pending NEPA assignment, which will ensure timely and consistent reviews and accelerate Project delivery. MaineDOT, the Federal government, and other State agencies have agreements to thoroughly and expeditiously review a Project's environmental impacts. Specifically, MaineDOT and FHWA Maine Division have a [Programmatic Agreement](#) for processing actions classified as Categorical Exclusions (CEs). The agreement authorized MaineDOT to determine on behalf of FHWA whether a project qualifies for a CE specifically listed in

[23 CFR 771.117](#). In addition, it authorizes MaineDOT to approve a CE on behalf of FHWA as a “Programmatic CE” pursuant to the Agreement. No separate review or approval of the CE by FHWA is required. Project documentation is available to FHWA upon request. Based on baseline data collection and preliminary plans, the Project is expected to have minimal to no impacts on natural or cultural resources or the environment.

Other similar agreements to streamline the environmental and review process include:

1. Programmatic Agreement among Federal Highway Administration, Federal Railroad Administration, the Advisory Council on Historic Preservation, the Maine State Historic Preservation Officer, and Maine Department of Transportation Regarding Implementation of the Federal Aid Highway and Federal Transit Programs in Maine.
2. Cooperative Agreement between U.S. Department of the Interior Fish and Wildlife Service (USFWS), FHWA and the MaineDOT State Transportation Reviews by the USFWS in Maine.
3. Maine Atlantic Salmon Programmatic Consultation finalized January 23, 2017.
4. Programmatic Agreement for the State of Maine concerning identification of listed and proposed species and designation of non-Federal representative under the Federal Endangered Species Act between FHWA, Maine Division USACE, MaineDOT, USFWS, NOAA’s National Marine Fisheries Service.
5. Programmatic Agreement for the State of Maine between MaineDOT, FHWA Maine Division, USFWS Regarding Endangered Species Act Section 7 Consultation for Canada Lynx.
6. Memorandum of Agreement for Stormwater Management between the MaineDOT.
7. MTA and Maine Department of Environmental Protection; and
8. Memorandum of Agreement between United States Army Corps of Engineers (USACE), New England District and MaineDOT for Expediting Permit Application Evaluations under Section 214 of the Water Resources Development Act of 2000, as amended, and Section 139(j) of Title 23, United States Code, Assistance to Affected State and Federal Agencies, July 2022.

4. Climate Change, Equity, Job Creation

a. Climate Change and Environmental Impacts

1. *The Project directly supports a State Carbon Reduction Strategy, State Electric Vehicle Infrastructure Deployment Plan, or other State, local, or tribal emissions reduction plan.*

MaineDOT is an active member in the Maine Climate Council and the State’s Lead by Example Leadership Committee.¹¹ The Department is dedicated to supporting state and local goals to reduce carbon emissions by 45% by 2030 and achieve carbon neutrality by 2045. Since the publishing of the state’s climate action plan, *Maine Won’t Wait*, the Department has been actively working to reduce emissions and increase infrastructure resiliency. For this Project, the reduction of air pollution and greenhouses gases will to

¹¹ https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/Lead%20By%20Example_2021.pdf

all intents and purposes be realized through the prevention of an increase in VMT should any of the bridges be closed. During bridge closures, detours ranging from 0 miles to 7 miles would be necessary (Attachment F). In multiple cases, there is no detour possible, for which the BCA defaults to a 100-mile detour length. Detour routes were determined based on MaineDOT criteria that require adequate facilities to carry detoured vehicles, avoiding gravel, dirt, or local roads to the extent feasible. The identified detours also involve multiple intersections, which require accelerating and decelerating that is not involved when the bridges are operational, leading to further vehicle emissions. As detailed in the BCA, the Project will maintain existing VMT, limiting harmful emissions resulting from a potential bridge closure and long-term detour.

Lower carbon construction materials such as precast concrete may be used in the bridge design and streamlining the construction schedule could reduce vehicle emissions associated with construction vehicles. The Project provides needed investment in long-term solutions by improving the resilience of transportation infrastructure vulnerable to increasing sea level rise and extreme weather events. The Project prioritizes public safety in terms of traveler safety and mobility for citizens vulnerable to the multifaceted effects of climate change.

2. *The Project improves disaster preparedness and resiliency.*

Increased extreme weather events and rising water levels will cause more wear to bridges, leading to increased maintenance requirements. This is evidenced by a significant rise in bridge overtopping and approach roadway washouts. This trend underscores the urgency of upgrading the state's infrastructure to be more resilient to such events in the future.

Seven (7) of the eleven (11) bridges are natural constriction points, as their existing structure lengths are less than 1.2 times the bank-full width (BFW) of the channel, which is the typical design length for new bridge infrastructure in the state (Table 6). All bridge replacements for this project will be single span structures with the substructure elements located behind the existing abutments. Span lengths are sized to accommodate 1.2 times BFW, matching the existing hydraulic needs of the location and mitigating the risk of future flood inundation, thereby improving overall resiliency.

Table 6. Existing Hydraulic Conditions by Bridge.

NBI Number	Existing Bridge Length (ft)	1.2*BFW (ft)	FEMA Flood Insurance Study Zones	NBI Item 71 (Waterway Adequacy)	Waterway Adequacy Inspection Report Notes
0382	52.2	46.43	Zone X (500 Year Storm)	5 – Occasional Overtopping of Approaches – Significant Delays	N/A
0561	23	26.89	Zone A (100 Year Storm Without Base Flood Elevations)	5 – Occasional Overtopping of Approaches – Significant Delays	The substructure is completely submerged, and the water level is close to the superstructure.
2090	36	45.01	Zone A (100 Year Storm Without Base Flood Elevations)	8 - Bridge Above Approaches	N/A
2159	60.2	44.05	Zone A (100 Year Storm Without Base Flood Elevations)	9 - Bridge Above Flood Water Elevations	N/A
2672	23.3	43.90	Zone A (100 Year Storm Without Base Flood Elevations)	6 - Occasional Overtopping of Approaches - Insignificant Delays	Erosion on the upstream end has scoured higher up the embankment and removed some larger rocks.
3420	84.5	4.77	Zone A (100 Year Storm Without Base Flood Elevations)	9 – Bridge Above Flood Water Elevations	N/A
3921	30	43.56	Zone A (100 Year Storm Without Base Flood Elevations)	6 - Occasional Overtopping of Approaches - Insignificant Delays	Adjacent roadway washed out due to flooding and overtopping of the bridge during storms in December 2023.
5123	61	61.44	Zone A (100 Year Storm Without Base Flood Elevations)	9 – Bridge Above Flood Water Elevations	N/A
5494	41	61.08	Zone A (100 Year Storm Without Base Flood Elevations)	7 - Slight Chance of Overtopping Bridge	N/A
5505	29	32.48	Zone A (100 Year Storm Without Base Flood Elevations)	9 - Bridge Above Flood Water Elevations	N/A
5559	26.9	25.75	Zone AE (100 Year Storm With Base Flood Elevations)	9 - Bridge Above Flood Water Elevations	N/A

Cost estimates for the length increases were developed assuming profile increases at all structure locations to improve the hydraulic opening and ensure that the bottom of the structure is above extreme flood elevations. The exact storm event level will be determined during preliminary and final design efforts. Additionally, each bridge foundation will be designed for scour to ensure stability even if a washout occurs.

Multiple bridge locations have inspection report notes regarding deteriorated channels, additionally NBI Item 71 (Waterway Adequacy) indicates that multiple structures regularly overtop during flood events. Based on the FEMA Flood Insurance Rate Maps (FIRMs) for the region, bridges 0561, 2090, 2159, 3420, 3921, 5123, 5494, and 5505 are within Special Flood Hazard Area Zone A, meaning there is a 1% annual chance of flooding (100-year storm). Bridge 0382 is in Zone X (500-year storm), and bridge 5559 is in Zone AE (100 Year Storm With Base Flood Elevations). Designing the bridges to withstand the impacts from floodwater forces and debris increases the likelihood of their survival during such events.

3. *The Project avoids adverse environmental impacts to air or water quality, wetlands, and endangered species, such as with improved stormwater management or improved habitat connectivity.*

A review of the Maine Department of Inland Fisheries & Wildlife's [Beginning with Habitat Map Viewer](#) indicates that there are no endangered or threatened species' habitats associated with Project locations; however, several bridges are located within the Federally-listed Gulf of Maine Distinct Population Segment (DPS) of Atlantic Salmon (ATS) and within designated ATS Critical Habitat. MaineDOT will consider engineering design and construction techniques that mitigate the impacts experienced by wildlife and aquatic species, especially the ATS in the Project area. If necessary, during the environmental phase of the Project, strategies will be identified, potentially including in-water work restrictions, noise monitoring, and/or relocation. The Department has extensive experience designing and constructing similar projects that promote wildlife connectivity and sustainability while allowing for the necessary level of transportation mobility.

Bridge #3420 is located within an area designated as containing rare, threatened, or endangered species, with Brook Floater as the identified threatened species as mapped by Maine Department of Inland Fisheries & Wildlife's [Beginning with Habitat Map Viewer](#). The proposed design of 1.2 BFW as well as using a single span structure minimizes potential impacts to the threatened species present at bridge #3420.

b. Equity and Barriers to Opportunity

1. *The Project expands active transportation usage.*

The proposed plans for each of the bridge replacements will increase the roadway width to increase safety for active transportation users. Increased bridge width and improved deck conditions will improve active transportation conditions across the bridges.

2. *The applicant has adopted an equity and inclusion program/plan or has otherwise instituted equity-focused policies related to project procurement, material sourcing, construction, inspection, hiring, or other activities designed to ensure equity in the overall project delivery and implementation.*

In alignment with Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, MaineDOT has issued its own Statement on Equity:

*The essence of equity in transportation is to ensure that all Maine people have access to safe and reliable transportation options that support economic opportunity and quality of life regardless of a person's economic, social, ethnic, racial, age, sexual orientation, physical, mental, or geographic circumstances.*¹²

In addition, the Department's overall mission is "to support economic opportunity and quality of life by responsibly providing our customers the safest and most reliable transportation system possible, given available resources." MaineDOT values communication with all members of the communities that are impacted by projects.

The Department will use its virtual Public Involvement Management Application (PIMA) for virtual and/or hybrid public engagement during program development and implementation. The number of people accessing the project-specific websites, and the number of comments received are significantly higher using PIMA because internet service is commonly available, allowing people to access the virtual platform regardless of their geographic location. Additionally, this engagement has a high level of customer satisfaction. To engage with Project area residents, MaineDOT will utilize PIMA together with direct conversations with local populations to 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.

MaineDOT's multifaceted approach to community engagement reflects the Department's commitment to reaching out to communities and people who have historically lacked access to the decision-making process or been underserved by our transportation system.

c. Labor and Workforce

1. The Recipient or a project partner implements targeted hiring preferences that will promote the entry and retention of underrepresented populations into those jobs including women, people of color, and people with convictions.

The Project will create good-paying jobs that include strong labor standards guided by MaineDOT's EEO Policy and Affirmative Action Plan. MaineDOT will ensure Project contracts let through the Agency adhere to Federal and State law. Consistent with Executive Order 14025, *Implementation of the IIJA*, the Department maintains a strong focus on workforce development with an On-the-Job Training (OJT) Program providing meaningful training opportunities for Women, Minorities, and Disadvantaged individuals on Federal-aid highway and bridge projects, to develop full

¹² <https://www.maine.gov/mdot/publications/docs/2022/MaineDOTEquityStatement6-5-22.pdf>

journeymen. The Project contractor is responsible for demonstrating to the Department steps taken to ensure training and recruitment includes disadvantaged populations.

2. The Recipient or a project partner will partner with high-quality workforce development programs with supportive services to help train, place, and retain underrepresented communities in good-paying jobs or registered apprenticeships including through the use of local and economic hiring preferences, linkage agreements with workforce programs that serve underrepresented groups, and proactive plans to prevent harassment.

Workforce development, job quality, and wealth creation are also state priorities, especially in the Project area Census Tracts identified as Areas of Persistent Poverty (APP) and Historically Disadvantaged Communities (HDC). Bridges 2672 and 3921 are both in a Census Tract that ranks in the 83rd percentile for low income, 94th percentile for lack of indoor plumbing, and 90th percentile for unemployment. Bridge 5559 is in a Census Tract that ranks in the 80th percentile for low income and 12% of people ages 25 or older have less than a high school education. Safe and reliable infrastructure is essential to economic and workforce development that will improve residents' quality of life.¹³

IV. PROJECT READINESS AND ENVIRONMENTAL RISK

1. Technical Feasibility

Each bridge will follow a standardized design detailing; this is described in Section III.3.a.

MaineDOT possesses the technical experience to complete the Project, having successfully designed, built, and maintained similar bridge projects statewide. The Department is a seasoned, meticulous, and dependable recipient of previous TIGER, FASTLANE, INFRA, CHBP, BUILD, Culvert AOP, Rural, and RAISE grant funding. USDOT can trust MaineDOT to fully fund and begin construction on or before the obligation of funds date, ensuring the Project's completion without risk. MaineDOT expends or disburses more than \$675 million per year, including Federal, State, and local funds. MaineDOT will comply with all Federal regulations with regards to all aspects of the Project, including Equal Employment Opportunity (EEO) Policy and Affirmative Action, all NEPA requirements, all Civil Rights policies, the Americans with Disabilities Act (ADA), and any other applicable regulations. Reference Section III.4.b for MaineDOT's mission and commitment to equity in transportation.

2. Project Schedule

Completing this work for eleven (11) bridges within the limited timeframe will be a challenge. However, MaineDOT is an experienced partner able to deliver the Project with minimal risk as the Department is a responsible recipient of previous grant funding. The Project's non-Federal funding sources are fully committed with funding also available to cover contingency and cost increases. The first bridge will begin construction in 2027 and the final bridge construction ending in 2032. Design, ROW, and NEPA will be completed prior to construction for each bridge. Table 7 provides estimated dates for project milestones. These schedule dates

¹³ <https://maps.dot.gov/BTS/GrantProjectLocationVerification/>

may change due to finalization of the grant agreement and the contracting approach taken. Attachment G shows an estimated construction schedule for each bridge.

Table 7. Project Schedule.¹

Design and Project Status	Planned Start Date	Planned End Date
Preliminary Design	1/1/2026	1/1/2027
NEPA	1/1/2026	8/31/2027
Final Design/RFP Development	1/1/2027	9/30/2027
ROW Acquisition	6/1/2026	9/30/2027
Construction	10/1/2027	8/30/2032

¹ Design, ROW, and NEPA efforts will be phased according to individual bridge construction years.

3. Required Approvals

a. Environmental Permits and Reviews

Environmental permits and approvals necessary for the Project include National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act, the Federal Endangered Species Act, Section 404 Clean Water Act Permit (U.S. Army Corp of Engineers), and Maine Natural Resources Protection Act (NRPA). MaineDOT is deploying innovation to administer the NEPA process and permitting for the Project through Programmatic Agreements already in place as well as pending NEPA assignment, which will ensure timely and consistent reviews and accelerate Project delivery. MaineDOT, the Federal government, and other State agencies have agreements to thoroughly and expeditiously review a Project’s environmental impacts. Specifically, MaineDOT and FHWA Maine Division have a [Programmatic Agreement](#) for processing actions classified as Categorical Exclusions (CEs). The agreement authorized MaineDOT to determine on behalf of FHWA whether a project qualifies for a CE specifically listed in [23 CFR 771.117](#). In addition, it authorizes MaineDOT to approve a CE on behalf of FHWA as a “Programmatic CE” pursuant to the Agreement. No separate review or approval of the CE by FHWA is required. Project documentation is available to FHWA upon request. Based on baseline data collection and preliminary plans, the Project is expected to have minimal to no impacts on natural or cultural resources or the environment.

b. State and Local Approvals

The only state level environmental permit and approval required is the Maine Natural Resources Protection Act (NRPA). Public roads and bridges under the control of MaineDOT are not subject to local zoning controls pursuant to [30-A M.R.S.A. Section 4352](#).

4. Federal Transportation Requirements Affecting State and Local Planning

MaineDOT, the Federal government, and other State agencies have agreements to thoroughly and expeditiously review a Project’s environmental impacts. Specifically, MaineDOT and FHWA Maine Division have a Programmatic Agreement for processing actions classified as Categorical Exclusions (CEs). The agreement authorized MaineDOT to determine on behalf of FHWA whether a project qualifies for a CE specifically listed in 23 CFR 771.117. In addition, it authorizes MaineDOT to approve a CE on behalf of FHWA as a “Programmatic

CE” pursuant to the Agreement. No separate review or approval of the CE by FHWA is required.

5. Assessment of Project Risks and Mitigation Strategies

Potential project risks and related mitigation strategies are discussed in Table 8.

Table 8. Project Risk and Mitigation Strategies.

Project Risks	Mitigation
Presence of Atlantic Salmon in all river and stream crossings.	<ul style="list-style-type: none"> Minimize permanent and temporary in-water structures. Plan construction sequence to avoid sensitive times for ATS life stages. Incorporate measures to avoid and minimize effects early in design and scheduling. Utilize avoidance and minimization measures during project construction to reduce potential effects from in-water work. Early coordination with U.S. Fish and Wildlife and Maine Department of Marine Resources to obtain best available information on species.
Presence of Brook Floater	<ul style="list-style-type: none"> Minimize impacts by designing the bridge to 1.2 BFW and as a single span to avoid in water disturbance.
Flood damage due to 100-year storm for bridges 0561, 2159, and 5494.	<ul style="list-style-type: none"> Incorporate climate change resiliency into bridge design.
ROW acquisition and utilities coordination	<ul style="list-style-type: none"> MaineDOT will apply their extensive experience with ROW acquisition and utility coordination well before construction commences.
Inflation	<ul style="list-style-type: none"> MaineDOT will evaluate the workplan priorities to ensure their commitment to construction of these bridges.

V. FHWA PRIORITY SELECTION CONSIDERATIONS

- Plans to improve the condition of a bundle of bridges in poor condition as demonstrated by having one or more components in condition rating 4 or less, or in fair condition and at risk of falling into poor condition as demonstrated by having one or more components in condition rating 5, based on NBI data as of June 2023.*

The MaineDOT Off-System Bridge Bundle Project aims to improve the condition of eleven bridges that are currently in poor condition, as demonstrated by having one (1) or more components in condition rating four (4) or less. These bridges are critical for maintaining connectivity in rural areas of central Maine. The project will replace these bridges with new structures designed to meet current design standards, ensuring long-term durability and reduced maintenance costs. By addressing the poor condition of these bridges, the project will enhance safety, mobility, and environmental sustainability for the affected communities.

- The project will be ready to obligate funds for construction within 18 months of a CHBP grant award.*

MaineDOT is committed to ensuring that the project will be ready to obligate funds for construction within 18 months of receiving the CHBP grant award. The project schedule has been carefully planned to include all necessary activities such as preliminary design,

NEPA compliance, final design, ROW acquisition, and construction. MaineDOT has extensive experience in managing and delivering similar projects, and the non-Federal funding sources are fully committed. This ensures that the project will proceed without delays and meet the obligation deadlines.

3. *Replacement bridges provide safety, mobility, and/or environmental benefits from the improvement of traffic safety features, geometry, hydraulics, and/or accommodation of multiple transportation modes such as pedestrian, bicyclist, and bus lanes.*

The replacement bridges will provide significant safety, mobility, and environmental benefits. The new structures will meet current design standards, including wider roadways and MASH-compliant railings, which will enhance safety for vehicular, bicycle, and pedestrian traffic. The project will also address mobility issues by eliminating narrow bridges that restrict two-way traffic and improving hydraulic openings to prevent overtopping during flood events. Additionally, the project will reduce greenhouse gas emissions by preventing increased VMT due to bridge closures and detours.

4. *Rehabilitation bridges are demonstrated as being more cost effective over the long-term than replacement and do not have safety, mobility, and environmental needs that are not addressed by rehabilitation.*

No bridges within this project are planned for rehabilitation.