

MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT

<b>Basic Project Information:</b>	
Project Name	Madawaska International Bridge Replacement Project
Sponsor	Maine Department of Transportation
Was an INFRA application for this project submitted previously?	No
<b>Project Costs:</b>	
<i>INFRA Request Amount</i>	\$ 36,000,000
<i>Estimated federal funding (excl. INFRA)</i>	\$ 0
<i>Estimated non-federal funding</i>	\$ 38,000,000
<i>Future Eligible Project Cost (Sum of previous three rows)</i>	\$ 0
<i>Previously incurred project costs (if applicable)</i>	\$ 922,000 to-date Estimate \$2.5M prior to grant award
<i>Total Project Cost (Sum of 'previous incurred' and 'future eligible')</i>	\$ 0
Are matching funds restricted to a specific project component? If so, which one?	No
<b>Project Eligibility:</b>	
Approximately how much of the estimated future eligible project costs will be spent on components of the project currently located on National Highway Freight Network (NHFN)?	\$ 0
Approximately how much of the estimated future eligible project costs will be spent on components of the project currently located on National Highway System (NHS)?	\$ 74,000,000
Approximately how much of the estimated future eligible project costs will be spent on components constituting railway-highway grade crossing or grade separation projects?	\$ 0
Approximately how much of the estimated future eligible project costs will be spent on components constituting intermodal or freight rail projects, or freight projects within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	\$ 0
<b>Project Location:</b>	
State(s) in which the project is located	Maine
Small or large project	Large
Urbanized Area in which project is located, if applicable.	Rural
Population of Urbanized Area.	NA
Is the project currently programmed in the: <ul style="list-style-type: none"> <li>• TIP</li> <li>• STIP</li> <li>• MPO Long Range Transportation Plan</li> <li>• State Long Range Transportation Plan</li> <li>• State Freight Plan</li> </ul>	No Yes (amendment requested) N/A No—Maine does not list specific projects in LRTP No

**U.S. Department of Transportation  
INFRASTRUCTURE FOR REBUILDING AMERICA  
“INFRA”  
GRANT APPLICATION**

Project Name:	Madawaska International Bridge Replacement Project
Project Type:	State of Good Repair
Project Location:	Rural, Maine 2 <sup>nd</sup> Congressional District
Funds Requested:	\$36,000,000 – 48.6% of Total Project Cost
Other Federal Funds Matched:	\$0 – 0.0% of Total Project Cost
Non-Federal Funds Matched:	\$35,500,000 – 48.0% of Total Project Cost
Non-Federal Funds Previously Incurred:	\$2,500,000 – 3.4% of Total Project Cost
Total Project cost:	\$74,000,000

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DUNS #: 8090459660000

MADAWASKA-EDMUNDSTON INTERNATIONAL BRIDGE



## **Project Summary**

Maine Department of Transportation (MaineDOT) is seeking \$36,000,000 from a U.S. Department of Transportation (USDOT) Infrastructure for Rebuilding America (INFRA) grant. The total cost of the project is \$74,000,000, 51% of which (\$38,000,000) will be paid by MaineDOT and the New Brunswick Department of Transportation and Infrastructure (NBDTI). Of that amount, \$2,500,000 will be spent prior to grant award leaving \$35,500,000 of non-Federal match, some 48% of the total project cost.

The *Madawaska International Bridge Replacement Project* will:

- a) Replace the 1920 roadway bridge linking Madawaska, Maine, and Edmundston, New Brunswick, Canada which has deteriorated to the point that the end of its useful life is near, it is functionally obsolete, it can no longer accommodate commercial vehicles, and further attempts to repair or rehabilitate it will not restore the full capacity of the bridge to meet today's load requirements or geometric standards.
- b) Improve the accessibility and long-term prospects for the economy in a challenged rural region by improving freight movement that is vital to industry and global competitiveness, as well as improving the reliability of emergency services.
- c) Realize the USDOT stated goal of improving and facilitating freight movement across land border crossings.
- d) Financially leverage the relationship between MaineDOT and New Brunswick Department of Transportation and Infrastructure.

The *Madawaska International Bridge Replacement Project* (Project) will replace the existing functionally obsolete two-lane 1920 roadway bridge, a U.S.-Canada border crossing spanning the Saint John River between the towns of Madawaska, Maine, and Edmundston, New Brunswick, with a new, safe, and modern bridge. The current challenged bridge, combined with the aging, cumbersome, and insufficient infrastructure of the Customs and Border Protection (CBP) building at this crossing, creates border crossing delay and hardship. The border crossing is a Land Port of Entry (LPOE) and there are frequent delays and backups onto the bridge. In October 2017, based on deteriorated condition, the bridge was restricted to vehicles weighing five tons or less. This restriction has created tremendous hardships for commerce in a part of Maine already hampered by a decades-long downturn in the fortunes of the Maine paper and lumber industries. Few mills remain in a region that long ago had thriving employment resulting from these then-vibrant industries. Transporting the raw materials and finished goods for these industries is now hampered in the region because trucks can no longer use the bridge for commerce connecting mills to suppliers and vast Canadian markets. Trucks must now detour to other border crossings, creating additional costs in the form of truck-miles on area roads, additional roadway safety concerns for other areas in the region, and higher production expenses that are burdensome to the remaining employers in the area. Emergency services are also jeopardized because heavy first-responder vehicles, such as fire trucks, that share services at the border, are restricted from using the bridge. The next closest border crossings are 25 miles to the east and 20 miles to the west of this crossing. The border crossing at Van Buren to the east is the primary truck detour route due to the better road system leading to it. Additionally, the people of Madawaska and Edmundston have historically been connected; members of the same family

often live on both sides of the border. And while many cities are separated by a river and rely on a bridge to provide cohesive connections between two communities, this area is unique because it is an international border crossing. Madawaska's population is less than one-fourth that of Edmundston, resulting in more opportunity for employment, shopping and entertainment over the bridge. Those are some of the reasons why the bridge is a significant part of life in this rural area of Maine.

In 2018, agencies including MaineDOT, NBDTI, CBP, U.S. General Services Administration (GSA), Public Services and Procurement Canada (PSPC), and Canada Border Services Agency (CBSA) sponsored an in-depth feasibility and planning study that examined 12 different alternatives for a bridge/border crossing solution.<sup>1</sup> The study analyzed options including strengthening the current bridge or building a new bridge on one of several new alignments. Bridge alignment was a pivotal part of the analysis due to CBP infrastructure adjacent to the bridge, as well as a large paper mill located on both sides of the border that effectively straddles the river and was truly reliant on the bridge as part of their production process. The new two-lane bridge will be safer for motorists and pedestrians with wider lanes and sidewalks, a shoulder, and improved and modern clearances and safety apparatuses. The new structure will allow trucks to once again use the border crossing for commerce, avoiding the 30-50-mile detour they currently endure. Eliminating truck reroutes following completion of a new bridge will have obvious public benefits such as improved emergency response times, reduced fuel consumption and accompanying emissions for the same amount of freight moved, fewer trucks on local, state and regional roads, and improved transportation efficiencies for the manufacturing industries in northern Maine that desperately need it to remain competitive. These improvements satisfy USDOT's stated goal of *supporting economic vitality at the national and regional level* by facilitating the movement of goods and people and bridging a gap in transportation service in a rural area. The goal of *leveraging Federal funding to attract non-Federal sources of infrastructure investment* is achieved as MaineDOT, in partnership with New Brunswick Department of Transportation and Infrastructure, is requesting less than 50% of the Project costs from the Federal government while covering the remaining costs. Innovations both above and below the bridge deck satisfy the goal of *deploying innovative technology*. The bridge will employ electronic signage for motorists that will allow the LPOE to better manage traffic levels and make adjustments they need in order to process border crossings more efficiently. Meanwhile, the steel and concrete used for construction will feature durability improvements incorporated into those materials to ensure the bridge is resistant to the region's harsh cold temperatures. Also, MaineDOT is committed to the *accountability of their performance* as measured by increased usage of the new bridge by trucks that are currently being forced to reroute to other border crossings. Trucking and manufacturing companies alike are pleased to partner with MaineDOT to aid in accountability. The Project will allow Maine's lumber and paper industries to compete effectively both nationally and internationally. This Project will create long lasting positive impacts on communities and industries in the region and ensure the preservation and creation of jobs and economic viability in this very rural part of the nation. Federal, State, and Provincial agencies are working to quickly finalize the design and advance construction of this project. The design for the new International Bridge will be completed in

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<sup>1</sup> [https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska\\_-\\_Edmundston\\_Final\\_Feasibility\\_and\\_Planning\\_Study\\_2018-05-31.pdf](https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska_-_Edmundston_Final_Feasibility_and_Planning_Study_2018-05-31.pdf)

2019 followed by the start of construction in 2020, pending the approval of permit applications in both countries and upon receipt of an INFRA grant and grant agreement. Constructing the new international bridge is expected to take approximately two years. This is an ambitious schedule and it would have the new bridge ready to open in 2022. Construction of the LPOE will also take several years and will be timed so the new LPOE will be opened and become operational when the bridge is complete. Portions of the LPOE may remain under construction after the new facility opens. Removal of the existing bridge would occur after the new bridge is opened and would take up to an additional year to complete. The new bridge will have an expected life of 100 to 125 years. The parties to this grant application have successfully completed projects with USDOT funding in the past and have demonstrated the ability and commitment to complete those projects early or on-time. In addition, MaineDOT is very experienced working in partnership with New Brunswick and has done so on similar projects in the past. These include the Fort Kent, Van Buren and Calais bridge and border crossing projects.

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**Standard Form 424**, Application for Federal Assistance

**Project Narrative**

**I. Project Description**

a) PROJECT DETAILS AND BACKGROUND

A vehicle weight restriction placed on a vital transportation link in a rural region can be extremely burdensome. When a bridge that is the main thoroughfare connecting two communities on opposite sides of a river is nearing the end of its useful life and can no longer accommodate truck traffic, the effect on commerce and the community is far-reaching. The Madawaska-Edmundston International Bridge, built in 1920 and opened in 1921, is a 928-foot-long two-lane roadway bridge between the Town of Madawaska, Maine and the City of Edmundston, New Brunswick. Reaching a century of service just two years from now, the bridge has well surpassed the intended useful life and the accompanying Land Port of Entry (LPOE) in Madawaska is substandard, inhibiting agencies

assigned to the LPOE from fulfilling their respective missions. The bridge requires replacement due to substandard geometry, roadway width and clearance issues, bridge foundation challenges that make it susceptible to undermining, piers that are cracked and deteriorating, steel corrosion, and insufficient bridge capacity. Structural engineers evaluated the bridge in October 2017 in accordance with the *Manual for Bridge Evaluation* published by the American Association of State Highway and Transportation Officials (AASHTO). This evaluation concluded that extensive deterioration of the stringers and floor beams had significantly decreased the load carrying capacity of the bridge. Therefore, on October 27, 2017 a vehicle weight restriction of **five tons** was posted for the bridge, a reduction from the previous 50-ton limit. This restricts bridge traffic to cars and light trucks and eliminates vital commercial vehicles, including some emergency responder vehicles, from





The existing LPOE, looking northwest.  
Photo shows the small size of the LPOE site and building.

using the bridge. Trucks now must detour to other border crossings. That has set in motion another burdensome economic constraint for the region, which has already suffered paper and lumber mill closures due to international competition and other external economic drivers. In fact, the area's largest employer and one of only five paper mills remaining in Maine, Twin Rivers Paper Company, has two vitally-linked segments of their business on either side of the river. The wood mill, which turns raw logs into wood pulp for making paper, is located on the Edmundston side of the border just a half-mile northwest of the bridge. On

the Madawaska side of the bridge is the paper mill itself, which produces finished paper products utilizing the pulp that is made in Edmundston. Some pulp is trucked to the mill from the U.S. Midwest and Canada and is subjected to the bridge detour. Specialty papers used in labels for pharmaceuticals, food packaging, and publishing are produced at the paper mill, located adjacent to the LPOE at the south end of the bridge. The small LPOE property is essentially surrounded by the paper mill property and the river. There is a wood pulp slurry pipeline between the wood pulp mill and the paper mill, which crosses the Saint John River via its own small steel through truss bridge. In addition, Twin Rivers will move its pipe infrastructure that is currently on the road bridge to the small bridge as well. Truck reroutes due to the bridge weight restriction are driving up transportation costs at Twin Rivers and making it difficult for them and other businesses in the region to compete. Costs increase every time trucks make the 30-50-mile detour to the next closest international bridge crossing. These detours add increased time and costs, the need for more equipment on roads, as well as additional truck traffic on rural roadways. It is important to note that the Trans-Canada Highway, a vital truck transportation route across



Canada, passes through Edmundston, just one mile north of the Madawaska Bridge. This highway is a vital east-west link for U.S. goods reaching many Canadian markets. The United States and Canadian sides of the Saint John River Valley, in what today are Maine and New Brunswick, have long been closely connected despite the river which divides them. In the early 1800s, the area was known as the “land between two countries.” Those living in the region had no particularly strong ties to either nation. The official boundary between the U.S. and Canada was settled in 1840, but even after this delineation, the entire river valley was collectively joined and seen as one cohesive area. As a result, there are large amounts of family ties between U.S. and Canadian residents in this region to this day. The need for this part of the border between Maine and New Brunswick, as well as other portions, to be formidable was not as prevalent but geo-political circumstances require it today. For generations, many area residents have had and continue to possess dual citizenship. For others, the desire for employment, shopping, and entertainment opportunities lead many to look across the border. The need to cross for routine daily activities is common. Many Twin Rivers Paper employees live opposite the border from the paper or pulp mill they are employed at. The two communities share an Acadian cultural heritage and many cultural events reinforce cohesion between the two communities. The annual Acadian Festival, celebrated for more than 30 years, is a week-long festival that features a re-enactment of the first Acadian landing in northern Maine, traditional cultural displays, a golf tournament, and a festival parade. In winter, snowmobiles cross the bridge from time to time.

The border infrastructure on the U.S. side of the bridge is aging as well. Built in 1959, the LPOE property suffers from operational and site deficiencies, lack of office and inspection areas, deficient inbound and outbound passenger and commercial processing areas, inadequate queuing areas for vehicles, and non-compliance with the U.S. Architectural Barriers Act.<sup>2</sup> To prepare for construction of a new LPOE facility, GSA previously acquired approximately nine acres of land, but has not commenced construction. In 2007, GSA concluded a NEPA process to evaluate the environmental impacts of construction of a new LPOE. A Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) were published in January 2007.<sup>3</sup> This NEPA process did not analyze the construction of a new international bridge because bridge improvements were not identified in MaineDOT’s Statewide Transportation Improvement Plan at that time. But due to the age and deteriorating condition of the bridge, it has now been prioritized in the MaineDOT Annual Work Plan and the STIP. The new bridge will be angled as it crosses the Saint John River in a northeast to southwest orientation in order to access the land acquired for the new LPOE. The infrastructure needs for the LPOE are fully funded and are not part of this INFRA grant request. The overall mission, however, is to have a modern bridge and a modern LPOE



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<sup>2</sup> [https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska\\_-\\_Edmundston\\_Final\\_Feasibility\\_and\\_Planning\\_Study\\_2018-05-31.pdf](https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska_-_Edmundston_Final_Feasibility_and_Planning_Study_2018-05-31.pdf), page 8

<sup>3</sup> <https://www.federalregister.gov/documents/2018/12/03/2018-26125/notice-of-availability-of-a-draft-supplemental-environmental-impact-statement-for-the-new-us-land>

working hand-in-hand to provide better, more efficient, and safer border security. As mentioned previously, U.S. and Canadian citizens in the region often cross the border repeatedly as a common part of daily life. U.S. residents cross to Canada for enhanced shopping, restaurant and entertainment opportunities, as well as more plentiful access to healthcare. Meanwhile, Canadians cross the border to obtain better U.S. prices on gasoline and certain food items, including dairy goods. The population of Madawaska is about 4,300 while the population of Edmundston is about 16,000. Given that population difference, Edmundston offers a broader variety of goods and services. Repeating a retail trend common in much of rural America, the last big-box retailer in Madawaska, Kmart, closed recently. Meanwhile, a Wal-Mart recently opened in Edmundston so residents cross the bridge frequently to shop there. The difference between this scenario here and in other similar communities is that an international border separates the two. Edmundston recently built a minor league hockey stadium and has a casino, as well as other entertainment and nightlife opportunities. It is common for parents to utilize childcare on one side of the border and be employed on the other side. Some members of the same extended family reside on both sides. Therefore, the bridge is often viewed as simply “a road between two communities.” On the U.S. side, tourism is trying to take hold and viewed as a potential new economic opportunity for the region in the wake of Maine’s industrial contraction.

Perhaps more vital, Madawaska and Edmundston have had an emergency services mutual aid agreement in place since the 1990s.<sup>4</sup> It states that in the event of a significant emergency, each provider will assist the other if one department’s emergency resources may be exhausted. This is important because a paper mill poses a significant risk for a small-town volunteer fire department. In two small, financially constrained communities this was a strategic way to overcome the economic and safety challenges. But the weight limit to safely cross the bridge now prohibits fire trucks from traversing it. When the need arises, firefighters travel in their personal vehicles to cross the bridge and respond to an emergency. Ambulances are allowed to cross, but face burdensome restrictions. They must only cross on the down river side of the bridge, they are restricted to 10 MPH, and they can only cross when officials clear all other vehicles from the bridge. This impact to speed is certainly not desired in an emergency event.

The new bridge, consisting of either a steel through-truss design or concrete deck-girder design (or a combination thereof) will consist of two vehicle travel lanes, one in each direction, both 12 feet wide, a five-foot shoulder on both sides to accommodate bicycles, as well as a sidewalk on one side of the bridge. The Saint John River is not a commercial waterway. It is a route for pleasure boats and fishing boats during warm months. Although this portion of the river is not included in the list of scheduled waterways and may not require federal approval, there is a public right of navigation (defined as “the right to use navigable waters as a highway”), which continues to be protected in Canada by Common Law. As such, the design of the proposed bridge will maintain existing waterway clearances as a minimum. On the U.S. side, the Saint John River has not been determined to be a navigable waterway by the U.S. Army Corps of Engineers and is therefore not subject to Section 10, Rivers and Harbors Act jurisdiction.

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<sup>4</sup> [https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska\\_-\\_Edmundston\\_Final\\_Feasibility\\_and\\_Planning\\_Study\\_2018-05-31.pdf](https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska_-_Edmundston_Final_Feasibility_and_Planning_Study_2018-05-31.pdf), page 119

## MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT



This photo, looking south towards the U.S. side of the border, shows the narrow travel lanes on the bridge. The roadway width is 20 feet 8 inches. The small sidewalk is on the right. The pipe on the left side of the photo carries utility lines operated by Twin Rivers Paper Company across the bridge. A portion of the paper mill is seen on the left.



*Sidewalk deterioration is prevalent on the bridge.*



*A Canadian National rail line operates under the bridge.*

### **Quantitative and Other Facts<sup>5</sup>**

- The project has a benefit-cost ratio of at least 4.71 to 1 and yields more than \$217M in benefits based on an NPV at a 7% discount rate over 30 years.
- Savings result from improved maintenance, reductions in travel time and miles for rerouted commercial vehicles and the associated reduction in mileage-driven highway injuries and fatalities as well as pollutant emissions.
- Non-Federal spending on the Project is \$38,000,000 committed by MaineDOT and New Brunswick Department of Transportation and Infrastructure.
- Eligible matching funds are \$35,500,000, some 48 percent of the total project cost
- Previously incurred expenses are \$2,500,000.
- The project is in Aroostook County, Maine.
- The project is in Maine's Second Congressional District represented by Jared Golden.
- The state is represented by U.S. Senators Susan Collins and Angus King.
- Total Cost of the Project: \$74,000,000.

<sup>5</sup> See Appendix A, Benefit-Cost Analysis.

b) STATEMENT OF WORK

It is widely recognized that the International Bridge is functionally obsolete, nearing the end of its useful life, and in need of rehabilitation or replacement. The bridge continues to deteriorate.



Many repairs to the bridge have been implemented over the past 60 years, however the rate of deterioration has begun to exceed the rate of repair efforts forcing the restrictions that are so disruptive. In 1961, the original timber deck was replaced with an open steel grid deck and the floor beams were strengthened with top and bottom cover plates on the flanges. In the 1980s, concrete repairs were performed on the north abutment and stone riprap was placed around the footings of Piers 1 and 2. A significant rehabilitation effort was undertaken on Spans 3 and 4 in 2001, which consisted of replacing steel stringers, the grid deck, and connection angles between stringers and floor beams. Concrete repairs to the south abutment and Pier 3 were also completed at that time. In 2005, the sidewalk was replaced in Spans 3 and 4.



The specific factors contributing to the overall inadequacy of the bridge are:<sup>6</sup>

- *Poor Condition of Structural Members* – The bridge is considered a fracture critical

<sup>6</sup> [https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska\\_-\\_Edmundston\\_Final\\_Feasibility\\_and\\_Planning\\_Study\\_2018-05-31.pdf](https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska_-_Edmundston_Final_Feasibility_and_Planning_Study_2018-05-31.pdf), page 8

bridge. A fracture critical bridge is defined by the FHWA as a steel member in tension, or with a tension element, whose failure would probably cause a portion of, or the entire bridge, to collapse. The bridge stringers show either poor condition, significant deterioration, or moderate deterioration. Some stringers have significant deterioration at the connections to the floor beams. The floor beams exhibit moderate to advanced deterioration throughout. The open steel grid deck is in poor condition and exhibits distressed areas comprised of cracked, failed, or missing sections to the extent that some areas have warped under truck weight. The piers exhibit many vertical cracks, some of which extend the full height of the pier. Two piers exhibit cracks along the pier cap. Some exhibit splintering due to ice floe collision damage.



- *Substandard Load Carrying Capacity* – an October 2017 bridge inspection evaluation concluded that the bridge floor beam and stringer deterioration was significant enough to decrease the load carrying capacity of the bridge to five tons. In November and December of 2017, NBDTI completed a temporary strengthening initiative which included the replacement of four stringers at a cost of \$65,000. The replacement was complex, and each stringer took about two weeks to complete. An additional 75 stringers remain in place; the estimated cost to replace them is \$1.5 million.

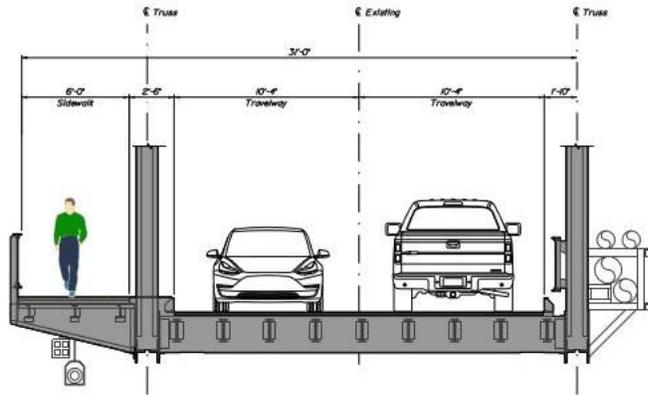


- *Geometric Constraints* – the geometry of the bridge is substandard and limits the accessibility and rideability of the bridge. The width of the roadway is inefficient, as are the approaches into and out of the LPOE. The vertical clearance above the bridge is substandard at 14 feet, 3 inches. Evidence exists of previous bridge strikes from overheight loads. These constraints do not serve today's modern freight and passenger vehicles safely or efficiently.

- *Extensive Deteriorating Repairs and Retrofits* – many repairs to the bridge have been implemented over the last 60 years, however the rate of deterioration has begun to exceed the rate of the repair efforts. The original timber deck was replaced with an open steel grid deck in 1961 and in the 1980s concrete repairs were made to the abutments. Stringers and floor beams were replaced in 2001. In 2005 the sidewalk was replaced in spans 3 and 4.



The current bridge has 10'4" travel lanes, no shoulders, and a 6-foot-wide sidewalk. The side railings are not constructed to today's crash standards and leave the fracture critical truss elements prone to vehicle collisions. The road surface consists of substandard metal grating that is deteriorating. The sidewalk is chipping and deteriorating as well.

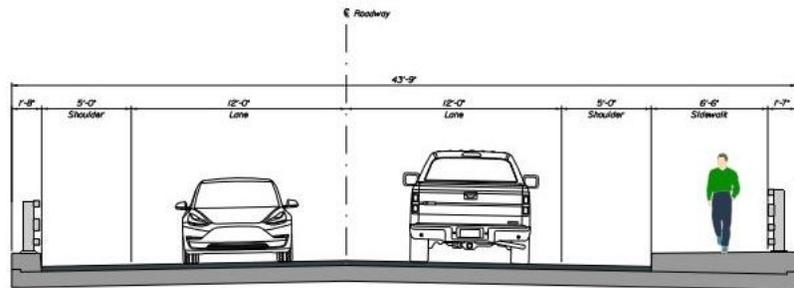


Current Profile

If an INFRA grant is not awarded and the Project is not completed as described, the bridge will continue to deteriorate. There would be no improvement to the current operating conditions of the bridge. It will continue to be unable to accommodate truck traffic vital to the region. Truck detours will continue to crowd roads in other parts of the region. Except for regular maintenance and minor repairs to the existing infrastructure, no new construction would take place.

Maintenance and repairs will not change the fact that the bridge does not meet today's load or geometric standards. Eventually, the bridge will become unsafe to use or require significant expense to simply maintain the deteriorated status quo, a wasteful use of funds. In the worst case, the bridge could require closure, severing two tightly linked communities.

Meanwhile, the new bridge will have wider travel lanes and shoulders, as well as a wider sidewalk. It will have an increased load capacity and redundant structural system. It will have modern guard rails that are safer and meet crashworthy standards, will

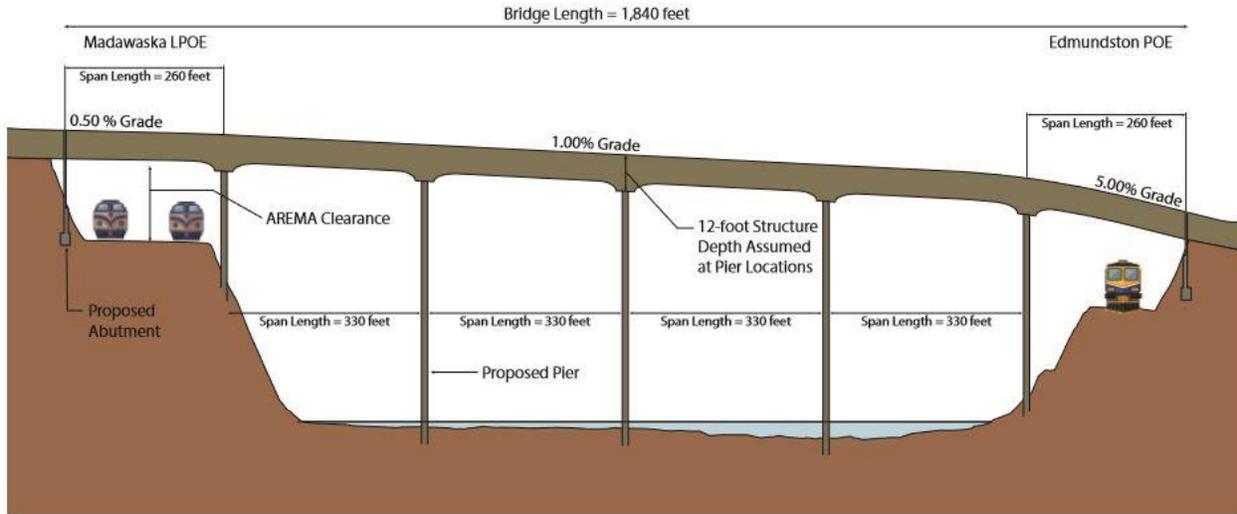


Future Profile

include better signage that will assist with the flow of vehicle traffic to the LPOE for processing, will feature innovative construction materials that will withstand the extreme cold temperatures and ensure the bridge is resistant to ice floe damage. It will have better roadway geometry and will eliminate the railroad crossing at grade on the U.S. side that drivers encounter immediately after exiting the LPOE. Emergency services will have better access through the bridge via increased load capacity and vertical clearance.

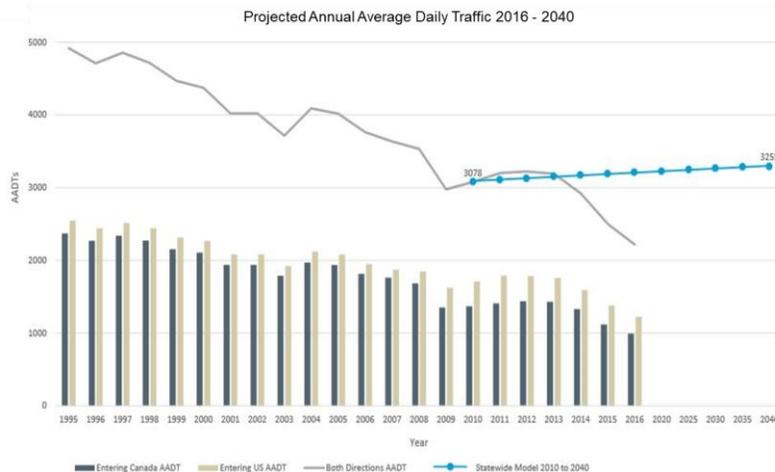
Completion of the Project yields a vastly better outcome than the current state. With a new bridge, manufacturing industries in this challenged region will be given a better chance to compete and deliver their goods to market as efficiently as their neighboring competitors across the border. That in turn, improves their cost structures and prospects to compete for the long term. This is unquestionably the case for Twin Rivers Paper Company. Their production costs have increased due to loads of both inbound raw materials as well as outbound finished paper products having to detour across the border at Van Buren instead, a 52-mile, two-hour detour.

# MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT



When trucks can use the bridge once again, that will reduce costs to businesses, road infrastructure, costs of fuel, greenhouse gas emissions, and will elevate safety. This region desperately needs the chance to compete on an equal footing.

The Madawaska/Edmundston border crossing processed approximately 1,292,000 vehicles in 2008. A comparison of 2008 volumes to the 2030 traffic forecast projects a 10 percent (or 490

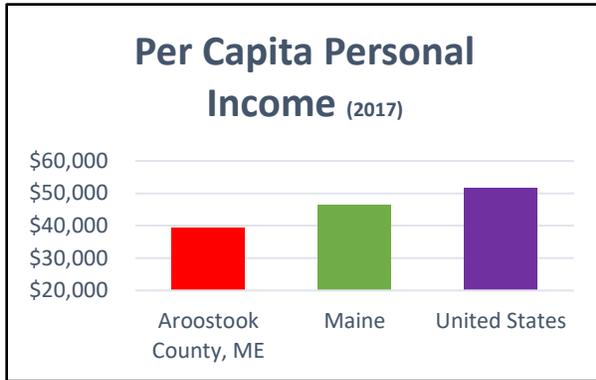


vehicle-per-day) increase in traffic at this border crossing. The overwhelming majority is passenger vehicle traffic (more than 90 percent, or 6,550 passenger vehicles per day), compared to commercial vehicle traffic (less than 10 percent, or 200 trucks per day). This proportion of passenger vehicle traffic and commercial vehicle traffic is expected to continue to the year 2030.

## II. Project Location

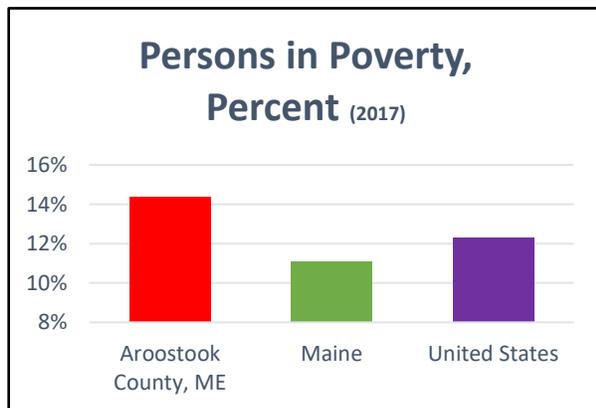
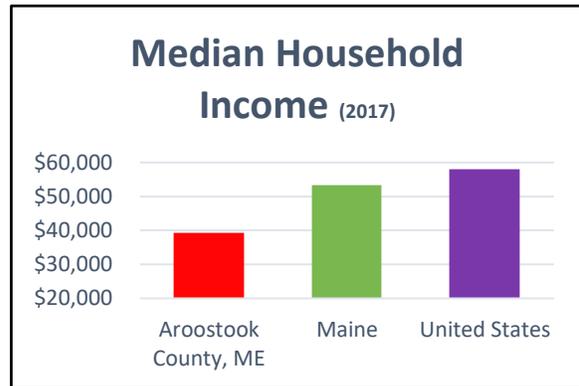
- GPS coordinates: 47°21'35" N, 68°19'57" W
- The project is in Aroostook County, Maine and New Brunswick, Canada.
- The project is in Maine's Second Congressional District represented by Jared Golden. The state is represented by U.S. Senators Susan Collins and Angus King.<sup>7</sup>
- This is a Rural project.

<sup>7</sup> See Appendix E, Letters of Support.



Aroostook County is the largest county east of the Mississippi River by land area. It is the size of Connecticut and Rhode Island combined. Yet unlike those two states with their combined population of more than 4.5 million people, Aroostook County’s population has fallen below 70,000 residents and has continued to steadily decline for nearly 60 years. Since 1960, the population of Maine has grown 37% while the population of Aroostook County has

fallen 32%.<sup>8</sup> This is driven by diminishing employment opportunities in the region as paper and lumber mills, and the manufacturing jobs they supported, have been eliminated in the wake of mill closures. The resulting unemployment leads to economic disadvantages throughout the region. By focusing on tourism, most parts of Maine have been able to combat unemployment, which is now below the national average, however Aroostook County’s current unemployment is 4.8%. This exceeds the state average of 3.4% as well as the national average of 4.0%.<sup>9</sup> Low per capita personal income and median household income also contribute to make this region disadvantaged. In both of those categories, Aroostook County trails the state, which itself trails the nation. These are additional factors contributing to disadvantages that other regions don’t contend with. The percent of persons in poverty, which is 14% in Aroostook County, is two percentage points above the national average and three percentage points above that of Maine.



Aroostook County is in the Northern Border Region. The Northern Border Region Commission (“NBRC”) was formed by Congress in 2008 in order to help alleviate distress in hard-hit northern counties as changing markets and global competition have challenged New England’s once vibrant economy. The county is considered “distressed” because it has a “high rate(s) of poverty, unemployment and outmigration” and “(are) the most severely and persistently economic distressed and underdeveloped.”<sup>10</sup>

<sup>8</sup> Maine.gov, Maine Population, <https://data.maine.gov/Statistics/Maine-Population-2000-2010-by-Counties/ysgk-d38e/data> (last visited Feb. 15, 2019).

<sup>9</sup> Maine Center for Workforce Research and Information, <http://www.maine.gov/labor/cwri/news/release.html> (last visited Feb. 15, 2019).

<sup>10</sup> Northern Border Regional Commission, Northern Border Region, <http://www.nbrc.gov/content/northern-border-region> (last visited Feb. 15, 2019).

Aroostook County is strategically vital for U.S. national interests given its extensive border with Canada. The Maine-Canada border is 611 miles with more than half of that along Aroostook County. That includes more than a dozen border crossings. Given that proximity, businesses and manufacturers always compete with Canadian counterparts. Completion of the Project would allow US shippers in the region to compete on an even playing field and to improve their economic footing when exporting their products.

### **III. Project Parties**

Throughout the preparation of the feasibility and planning study several agencies were involved, including MaineDOT, GSA, and CBP, as well as NBDTI, Public Services and Procurement Canada (PSPC), and Canada Border Services Agency (CBSA). MaineDOT has partnered with design and engineering firm HNTB on the Project. HNTB is a national transportation infrastructure firm offering extensive design, engineering and planning services to federal, state and local clients in both the public and private sectors. The firm has developed critical bridge and highway design projects nationwide. For Project planning there was in-depth coordination with federal, provincial, state and local agencies, the First Nations, stakeholders in the Town of Madawaska, City of Edmundston, and the public. Public engagement has been an integral part of the planning process. Two public information sessions were held during the preparation of the feasibility and planning study.<sup>11</sup> On June 28, 2017, public information sessions for the Madawaska/Edmundston International Bridge and Border Crossing Feasibility and Planning Study were held to consult with and obtain input from the public prior to developing conceptual alternatives that satisfied the project's purpose and need. All of the above agencies were represented at these meetings. Two separate sessions were held: one in Madawaska and one in Edmundston. The sessions were presented in an open house format with displays and handouts; comment forms were available for people to submit more formal comments for consideration. Representatives from the agencies answered questions and gathered input to help facilitate the process of identifying, developing, and screening conceptual bridge and border alternatives. Suggestions and comments received during the information sessions were addressed in the feasibility and planning study. Following the identification, development, and screening of conceptual alternatives, a second set of public information sessions was held on January 31, 2018. The meetings took place to present the general findings of the Madawaska/Edmundston International Bridge and Border Crossing Feasibility and Planning Study as well as the preferred option. The above agencies were again represented. There was general support for the chosen option of the bridge alignment and design. Early stages of the preliminary design phase are now underway. A preferred design solution will be identified and will be advanced to an approximate 30% design level, including identification of project impacts. Final design of the project, including ROW and environmental processes, are anticipated to commence later in 2019 and complete before the end of 2020. Meanwhile, a study-specific website at <https://www.maine.gov/mdot/planning/studies/meib/> was developed early in the study process and is updated as materials are added.

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<sup>11</sup> [https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska\\_-\\_Edmundston\\_Final\\_Feasibility\\_and\\_Planning\\_Study\\_2018-05-31.pdf](https://www.maine.gov/mdot/planning/studies/meib/docs/Madawaska_-_Edmundston_Final_Feasibility_and_Planning_Study_2018-05-31.pdf), page 104

MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Non-Federal Funding – \$38,000,000

Non-Federal funding for the Project comes from MaineDOT and NBDTI. MaineDOT is a cabinet-level state agency with primary responsibility for statewide transportation by all modes of travel. MaineDOT employs approximately 1,900 people and expends or disburses more than \$600 million per year, including federal, state, and local funds. The primary source of transportation funding in Maine is gas tax revenue, which by statute can be used for highways and bridges only. The funding source for the Project will be State General Obligation Bonds. In Maine that comes from state bonds approved by the legislature and taxpayers from 2015-2018. Due to its significant economic and transportation impact on the entire state and region, the Project has been prioritized by MaineDOT. This Project will be included in the next Statewide Transportation Improvement Program (STIP) and is consistent with MaineDOT’s long range plan. MaineDOT is sharing in financial support for the Project with New Brunswick Department of Transportation and Infrastructure. NBDTI is responsible to build and maintain safe and sustainable building and transportation infrastructure for the people of New Brunswick. The department plans, designs, operates and maintains an extensive network of nearly 12,000 miles of highway connected by over 3,200 bridges and nine ferry crossings. The department manages 370 New Brunswick owned buildings and is responsible for 135 leases. NBDTI’s operating and capital annual budget is nearly \$1 Billion(Cad).

**IV. Grant Funds, Sources and Uses of all Project Funding**

Project Budget

TOTAL PROJECT COST							
Prior Expenditures Not Included In Match							
2016-2018	2019	2020	2021	2022	2023	Total	
<b>Pre-Construction Activities</b>							
Preliminary Engineering (PE)	\$922,000	\$1,578,000	\$3,500,000	\$0	\$0	\$0	\$6,000,000
Construction Engineering (CE)		\$0	\$500,000	\$2,000,000	\$2,000,000	\$1,500,000	\$6,000,000
Right of Way (ROW)		\$0	\$500,000	\$0	\$0	\$0	\$500,000
<b>TOTAL</b>	<b>\$922,000</b>	<b>\$1,578,000</b>	<b>\$4,500,000</b>	<b>\$2,000,000</b>	<b>\$2,000,000</b>	<b>\$1,500,000</b>	<b>\$12,500,000</b>
<b>Construction and Demolition Activities</b>							
Mobilization	\$0	\$0	\$2,800,000	0	\$2,800,000	0	\$5,600,000
Superstructure	\$0	\$0	0	\$7,000,000	\$21,000,000	\$2,000,000	\$30,000,000
Abutments	\$0	\$0	\$1,000,000	\$6,500,000	\$300,000	0	\$7,800,000
Piers	\$0	\$0	\$400,000	\$11,000,000	0	0	\$11,400,000
Roadway	\$0	\$0	0	0	\$300,000	\$200,000	\$500,000
Miscellaneous	\$0	\$0	\$1,000,000	\$500,000	\$500,000	\$800,000	\$2,800,000
Demolition	\$0	\$0	0	0	0	\$3,400,000	\$3,400,000
<b>Total (including 10% contingency)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,200,000</b>	<b>\$25,000,000</b>	<b>\$24,900,000</b>	<b>\$6,400,000</b>	<b>\$61,500,000</b>
<b>TOTAL PROJECT COST</b>	<b>\$922,000</b>	<b>\$1,578,000</b>	<b>\$9,700,000</b>	<b>\$27,000,000</b>	<b>\$26,900,000</b>	<b>\$7,900,000</b>	<b>\$74,000,000</b>

MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Grant Funds Sources and Uses

	Prior Expenditures	Eligible Match		
	MaineDOT/NBDTI	MaineDOT/NBDTI	INFRA	TOTAL
Preliminary Engineering (PE) Right-of-Way (ROW)	\$2,500,000	\$3,500,000 \$500,000	\$0	\$6,500,000
Construction Engineering (CE) Construction and Demolition		\$6,000,000 \$25,500,000	\$0 \$36,000,000	\$67,500,000
<b>TOTAL Project Cost</b>		<b>\$35,500,000</b>	<b>\$36,000,000</b>	<b>\$74,000,000</b>
		48.0%		
<b>% of TOTAL Project</b>	<b>51.4%</b>		<b>48.6%</b>	<b>100%</b>

The MaineDOT and NBDTI portion of the Project is \$38,000,000 and the parties are committed to providing those funds and to completion of the Project.

**V. Merit Criteria**

a) Introduction

The Madawaska International Bridge Replacement Project satisfies USDOT’s stated goal of *supporting economic vitality at the national and regional level* by facilitating the movement of goods and people and bridging a gap in transportation services in a rural area. Focused on one of the most economically challenged regions in the northern U.S., the Project is regionally significant and addresses past underinvestment and aging rural transportation infrastructure that has allowed a slow and steady decline in connecting rural Americans to each other and the rest of the country in the same manner that urban transportation investment has mobilized those residents. MaineDOT recognizes, as USDOT does, the need to grow rural economies by strengthening the movement of job-supporting freight, improving reliable and affordable transportation, and enhancing the health and the safety of residents. The international bridge is in need of immediate repair and is built to last century’s design standards, creating an important safety issue for those using the bridge. Safety issues are accelerating and become more expensive to remedy each year that the nearly 100-year-old bridge continues to deteriorate during service. Meanwhile, specific innovations built into the new bridge satisfy the goal of *deploying innovative technology*. The bridge will employ electronic signage that allows the LPOE to manage traffic levels better and to make adjustments they need in order to process border crossings more efficiently. Meanwhile, the steel and concrete used for construction will feature durability improvements baked into those materials to ensure the bridge is resistant to the region’s harsh winters. This project leverages the financial resources of the federal government to bring funds from the State of Maine and from neighboring Canada. MaineDOT is confident in the success of the Project and will commit to accountability measures.

b) Merit Criteria

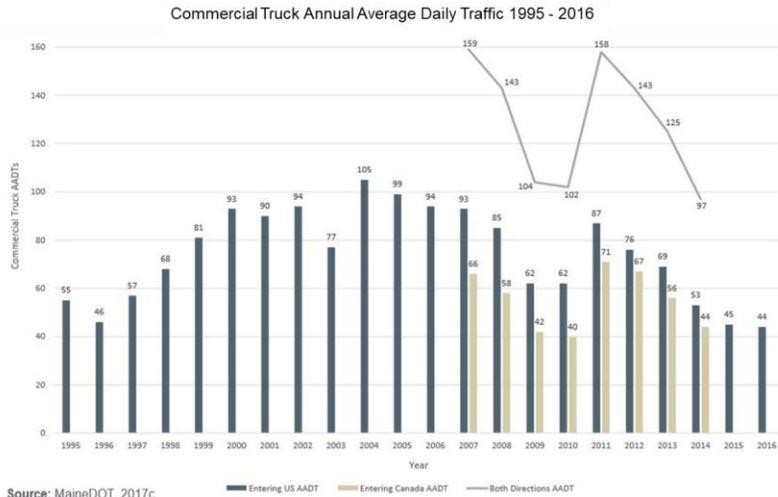
1) Support for National or Regional Economic Vitality

Due to the weight restriction that has been placed on the bridge, vehicles greater than five gross tons cannot cross which eliminates all commercial vehicle use. This has dramatically impacted the region’s largest employer, Twin Rivers Paper Company first and foremost but also independent regional trucking companies that must re-route truck traffic to other border crossings. Overwhelmingly commercial vehicles utilize the bridge just east of Madawaska, in Van Buren, ME, an overall reroute distance of 52 miles which normally takes an additional two hours of driving time. Transportation companies such as TNT Trucking Company, Chamberland Inc, Daigle Oil Company and Albert Farms each have had their cost structures negatively impacted by the restriction. These companies are modest in size with employee counts ranging from 45 to less than 200. With just these few examples over 200 trucks per week are estimated to suffer the costs of the reroute resulting in well over \$1,400,000 in incremental costs for fuel, maintenance and scarce driver time. Twin Rivers Paper which has some 25 trucks per-day that must suffer the reroute has estimated their annual impact to be over \$2,800,000. The BCA estimates over \$200,000,000 in benefits from elimination of this harmful reroute.

7% NPV Summary over 30 Years		
	Costs	Benefits
CAPEX	\$46,042,682	
Maintenance Costs		\$4,838,645
Travel Time Savings		\$30,360,986
Safety		\$5,050,150
Economic Impact		\$26,154,967
Emissions		\$145,096,070
Residual Value of the Project		\$5,553,752
<b>TOTAL</b>	<b>\$ 46,042,682</b>	<b>\$217,054,572</b>
<b>Benefit-Cost Ratio</b>		<b>4.71</b>

Included as benefits in the BCA are the reduction in maintenance costs for the bridge as the new structure will incur far less on-going maintenance costs than allowing the existing bridge to “limp along” under the current condition. These benefits were determined during a full life cycle cost analysis of maintaining the structure throughout the 30-year analysis period and beyond. In addition to the construction costs, they include significant funding for biennial inspections, annual washings and periodic improvements such as surface mill and overlay.

In the most recent period studied for commercial vehicle traffic going across the bridge in both directions (the 8-year period from 2007-2014) there was a range of annual AADT from a low of



Source: MaineDOT, 2017c

fatalities and those avoided future costs are included as project benefits. Additionally, the reduction of pollutant emissions now being incurred again due to the 52-mile reroute are also included. Lastly, the residual value of the 100+ year bridge after only 30 years of analysis adds slightly to the positive benefit-cost ratio.

97 to a high of 159. The BCA conservatively utilized a 125 AADT for commercial vehicles, below the median of 134 and the average of 129. Savings are included for both truck driver time and commercial vehicle operating expenses that result for the two additional hours of driving the 52 additional reroute miles. Those incremental miles cause additional highway expense and far greater risk for accidents and potentially

In addition, Twin Rivers Paper estimates that they will incur one-time expenses of \$10,000,000 to relocate their utility lines that run across the bridge, to relocate a large propane holding tank and a semi-trailer parking lot on current leased property that will become land utilized by the new LPOE facility. That burden is *not* included in the BCA analysis.

These additional vehicle and driver costs are presently being absorbed by transportation companies and shippers in the region. It impacts their competitiveness and their ability to grow. In the transportation segment of the economy, there is nothing currently (and likely future) in shorter supply than truck drivers. Two-hour detours for each shipment, both on the loaded and empty side of the move put unwanted pressures on a component already is desperately short supply in a region already under intense competition.

### 2) Leveraging of Federal Funding

This project is a strong use of federal funds as \$36,00,000 of federal investment is attracting \$38,000,000 of non-Federal spending on the Project, over 51 percent of the total cost. Those funds come MaineDOT’s prioritization of state bond funding as well as the Canadian partner across the river, New Brunswick Department of Transportation and Infrastructure. The opportunity to obtain private or other non-Federal funding for the Project was deemed unsuitable and impractical due to the connection of the Project to the LPOE and associated border security requirements that are tied into this project. MaineDOT has a long history of successfully completing USDOT discretionary grant projects on time and within budget and can be fully relied upon to ensure that the non-Federal match and funding for the Project is met.

### 3) Potential for Innovation

The LPOE will employ technology that will reduce congestion, wait times, and delays. Intelligent Transportation Systems will be mounted to the bridge to aid passengers in selecting an inspection lane and understanding queue durations. Overhead dynamic signage on the bridge

and traffic monitoring cameras will assist here. The overhead signage will direct travelers to proper lanes and will allow the port director to change lane designations (POV or commercial) or open and close lanes based real time conditions. This allows for efficient separation of POV and commercial traffic. The number of inspection lanes and layout of the new LPOE is not expected to result in traffic queues onto the bridge during peak traffic periods, as long as all three inspection lanes are open and average inspection times are approximately 90 seconds. The bridge will incorporate corrosion resistant rebar in the deck, abutment backwalls, and tops of wingwalls. Consideration is being given to the use of large diameter stainless steel welded bar grids to accelerate the process of placing concrete reinforcing for deck construction, potentially saving several weeks of construction time. Consideration is also being given to the use of partial-depth precast deck panels to expedite construction. The number of bridge drains will be minimized and comprised of corrosion resistant fiber reinforced polymer (FRP) material. High performance concrete of low permeability will be used in the bridge through performance-based specifications. MaineDOT has used performance-based specifications for concrete since the late 1990s.

The parties involved in this grant application are applying an innovative means regarding the NEPA/permitting for this project through two avenues: Programmatic Agreements as well as the Agreement for the Madawaska SDEIS Process:

*Programmatic Agreements*

In an effort to mitigate any project delay, MaineDOT has numerous programmatic agreements with reviewing agencies. MaineDOT will take advantage of the following agreements to streamline the environmental review and approval process:

- a) 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 2015-2020
- b) Cooperative Agreement between USFWS, FHWA and the MaineDOT State Transportation Reviews by the USFWS in Maine 2016-2021
- c) 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
- d) Programmatic Agreement for the State of Maine Between MaineDOT, FHWA Maine Division, USFWS Regarding Endangered Species Act Section 7 Consultation for Canada Lynx
- e) Memorandum of Agreement for Stormwater Management Between the MaineDOT, MTA and Maine Department of Environmental Protection
- f) Nationwide Programmatic Section 4(f) Evaluation for use of Historic Bridges

Given the scope of agencies involved in this border crossing Project, combining the NEPA process with GSA's requirements is a unique partnership that this Project has garnered. Furthermore, MaineDOT's strong collaboration with New Brunswick, Canada regarding design, environmental permitting, and future construction of the bridge is an innovative partnership integral to Project success.

Agreement for the Madawaska SDEIS Process

MaineDOT, GSA, FHWA, and ACOE have entered into an Agreement for the Madawaska SDEIS process. This agreement formalizes the need and desire of all parties to cooperate in complying with NEPA for both the Project as well as the new LPOE facility. More information on the Madawaska SDEIS can be found on the study website:

<https://www.maine.gov/mdot/planning/studies/meib/>

4) Performance and Accountability

MaineDOT has done a full assessment of life cycle costs of constructing and maintaining the bridge and they are committing to an Accountability measure as part of the Project application. MaineDOT's Asset management strategy is described on their website at: <https://www.maine.gov/mdot/about/assets/docs/>. The strategy is based on Highway Corridor Priority (HCP) and Customer Service Levels (CSL):

*HCP: MaineDOT has gathered and analyzed straightforward, common-sense factors including the economic importance of the road as determined from input from regional economic development districts, federal functional classification, heavy haul trucking use and the amount of relative traffic on the road by region. With this and other data, MaineDOT has classified all 23,400 miles of Maine public highways into six, easy to-understand priority levels.*

*CSL: The next step is defining easy-to-understand customer service levels appropriate to the priority of the state's roads (1-5). We are using another intuitive scale: A, B, C, D and F. Using existing data on the safety, condition and service of the road, we can determine its customer service level. The result is a fair, consistent measure of how a road compares to other roads of the same priority across the state.*

MaineDOT has dedicated NHPP funding from FHWA. The department's Transportation Asset Management Plan outlines the plan for all NHS highways and bridges and can be found at [https://www.maine.gov/mdot/publications/docs/plansreports/MaineDOT Transportation Asset M Plan.pdf](https://www.maine.gov/mdot/publications/docs/plansreports/MaineDOT_Transportation_Asset_M_Plan.pdf).

Specific Indicator of Project Success

The primary benefit of the Project will be the restoration of the most efficient routing of commercial vehicle traffic utilizing the new bridge and avoiding the detours to other bridges. Simply put, it drives the benefits (travel time, economic impact, pollutant emissions) in the BCA analysis. From an accountability perspective, that is the most practical item to commit to and to measure. As shown on the graph on page 18, the most recent period studied for commercial vehicle traffic going across the bridge in both directions yielded a range of annual AADT from a low of 97 to a high of 159. MaineDOT is willing to commit to a return to within one half of the 125 commercial vehicle AADT (some 63 AADT) used in the BCA analysis within 12 months of completion of the Project and will measure and report those findings to USDOT. MaineDOT will return up to 10% of the awarded funds if this level is not met. Even at this 50 percent threshold of estimated future usage, the Project would still yield over \$113,000,000 of total benefits and a benefit-cost ratio of 2.47 and is a strong well-levered federal investment.

**VI. Project Readiness**

Obtaining Project input from stakeholders and communicating well with the public has been a primary goal of Project planners. Public information sessions were held at two different times during the preparation of the feasibility and planning study in order to consult with and obtain input from the public prior to developing conceptual alternatives that satisfied the project’s purpose and need. Both sessions consisted of public meetings in Madawaska and Edmundston in both English and French. The agencies involved answered questions and gathered public input to help facilitate the process of identifying, developing, and screening conceptual bridge and border alternatives. Following

	Date	Agencies Represented	Attendees	Purpose
Public Info Session 1	June 28, 2017	NBDTI, PSPC, CBSA, MaineDOT, GSA, and CBP	Madawaska ~40 Edmundston ~50	To consult with and obtain input from the public prior to developing conceptual alternatives that satisfied the project’s purpose and need.
Public Info Session 2	Jan 31, 2018	NBDTI, PSPC, CBSA, MaineDOT, GSA, and CBP	Madawaska ~95 Edmundston ~90	To present the general findings of the Madawaska/Edmundston International Bridge and Border Crossing Feasibility and Planning Study as well as the preferred bridge/LPOE option.

the identification, development, and screening of conceptual alternatives, the second set of public information sessions was held to present general findings of the study as well as to formally present the preferred option. There was general support for the chosen option of the bridge alignment and design. The design for the new international bridge will be completed in 2019 followed by the start of construction in 2020, pending the approval of permit applications in both countries. Constructing the new international bridge is expected to begin in late 2020 and take approximately two years. This schedule would have the new bridge ready to open in late 2022. Construction of the new LPOE will be timed so it will open and become operational when the bridge is complete. The Canadian Environmental Assessment Agency has determined that a federal environmental assessment of the Madawaska-Edmundston International Bridge Replacement Project under the *Canadian Environmental Assessment Act, 2012* is not required.

# MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT

## Gantt Chart for the Project Schedule<sup>12</sup>

ID	Task Name	Duration	Start	Finish	Predecessors
1	Project Kickoff (Project Development)	0 days	Wed 8/1/18	Wed 8/1/18	
2	<b>Preliminary Engineering Phase</b>	<b>310 days</b>	<b>Tue 8/28/18</b>	<b>Mon 11/4/19</b>	
3	Initial Team Meeting	0 days	Tue 8/28/18	Tue 8/28/18	
4	Preliminary Design	11 mons	Tue 8/28/18	Mon 7/1/19	3
5	Public Hearing - Joint Meeting for LPOE and Bridge	0 days	Wed 12/12/18	Wed 12/12/18	
6	Project Programmed in the MaineDOT 2019-20-21 Work Plan	0 days	Wed 1/2/19	Wed 1/2/19	
7	Draft Preliminary Design Report (PDR) Distributed	0 days	Mon 7/1/19	Mon 7/1/19	4
8	PDR and Preliminary Plan Completed	0 days	Mon 11/4/19	Mon 11/4/19	7FS+4.5 mons
9	<b>Final Design Phase</b>	<b>260 days</b>	<b>Tue 11/5/19</b>	<b>Mon 11/2/20</b>	
10	Structural Design	9 mons	Tue 11/5/19	Mon 7/13/20	8
11	Roadway Design & POE Coordination	6 mons	Tue 11/5/19	Mon 4/20/20	8
12	Construction Staging & Access Identification	1.5 mons	Tue 11/5/19	Mon 12/16/19	8
13	Plan Impacts Complete	0 days	Mon 12/16/19	Mon 12/16/19	12
14	NEPA Complete	0 days	Mon 12/30/19	Mon 12/30/19	13FS+2 wks
15	Environmental Approvals	8 mons	Tue 12/31/19	Mon 8/10/20	14
16	Utilities Certified	6 mons	Tue 12/31/19	Mon 6/15/20	14
17	ROW Coordination	8 mons	Tue 12/31/19	Mon 8/10/20	14
18	PS&E Package Complete	0 days	Mon 8/10/20	Mon 8/10/20	16,17,10,11,15
19	Project Advertisement	0 days	Mon 8/24/20	Mon 8/24/20	18FS+2 wks
20	Bid Opening	0 days	Mon 10/5/20	Mon 10/5/20	19FS+6 wks
21	Award	0 days	Mon 11/2/20	Mon 11/2/20	20FS+1 mon
22	<b>Construction Phase</b>	<b>680 days</b>	<b>Mon 12/28/20</b>	<b>Mon 8/7/23</b>	
23	Begin Construction	0 days	Mon 12/28/20	Mon 12/28/20	21FS+2 mons
24	Construct New Bridge	25 mons	Tue 12/29/20	Mon 11/28/22	23
25	New Bridge Open to Traffic	0 days	Mon 11/28/22	Mon 11/28/22	24
26	Remove Existing Bridge	9 mons	Tue 11/29/22	Mon 8/7/23	25
27	End Construction	0 days	Mon 8/7/23	Mon 8/7/23	26

During the feasibility study and SEIS processes, numerous risks were contemplated but each has a comprehensive mitigation strategy.

### Risks & Mitigations

Project Risks	Mitigations
<p>Cost Control</p> <ul style="list-style-type: none"> <li>• While the preliminary design phase has begun, the final recommended improvements could lead to scope and cost increases if additional required work is identified.</li> <li>• Coordinating access through rail yards and around railroad schedules may add a cost premium to the project.</li> <li>• Commercial development, concurrent construction of a new US Land Port of Entry, steep river banks, and highly fluctuating water levels create difficult construction conditions which will influence construction costs.</li> <li>• Fluctuating water levels with significant ice floes places risk on the durability of temporary works and may add a cost premium.</li> </ul>	<p>Mitigation of possible risks include:</p> <ul style="list-style-type: none"> <li>• Multiple alternatives will be investigated during preliminary design to determine a cost-effective superstructure type, span arrangement, and flared end geometry, while also considering future maintenance costs.</li> <li>• Multiple access opportunities will be identified and negotiated with the railroad companies to provide a contractor with flexibility.</li> <li>• Constructability reviews will be a key focus during preliminary design with a focus on most constructible and cost-effective solutions.</li> <li>• Ice jamming and loading studies will occur to best understand winter river conditions; clear expectations and roles will be identified between Owner and Contractor.</li> </ul>

<sup>12</sup> See Appendix C, Gantt Chart.

MADAWASKA INTERNATIONAL BRIDGE REPLACEMENT PROJECT

<p>Schedule Control</p> <ul style="list-style-type: none"> <li>• Coordinating access around railroad schedules may increase the construction duration for certain activities.</li> <li>• Coordinating access through/around a fully operational paper mill may increase construction duration and limit access and staging areas.</li> <li>• Project milestone approvals (e.g.: determination of structure type) is required by two unique funding agencies and at various organizational levels. Review and approval durations of project milestone information could affect project development schedule.</li> </ul>	<p>Mitigation of possible risks include:</p> <ul style="list-style-type: none"> <li>• Ongoing discussions with the railroad agencies to understand train schedules and regulations required to request train stoppages will provide beneficial information related to developing appropriate construction durations.</li> <li>• Ongoing discussions with paper mill representatives to understand operation schedules and site access limitations will provide beneficial information related to developing appropriate construction durations.</li> <li>• Structural details will be investigated to limit duration and access through railroad yards.</li> <li>• Widespread and frequent sharing of project information with both funding agencies, through reports and graphics, will be provided throughout the project development process to aid in timely decision making.</li> </ul>
<p>Environmental permitting/Restriction</p> <ul style="list-style-type: none"> <li>• Permits unique to international projects will be required for construction and may delay construction, including approval through the:             <ul style="list-style-type: none"> <li>○ International Boundary Commission</li> <li>○ International Boundary Waters Treaty Act</li> <li>○ US Coast Guard Bridge Permit.</li> </ul> </li> </ul>	<p>Mitigation of possible risks include:</p> <ul style="list-style-type: none"> <li>• Permit requirements will be researched and applications prepared early in the project to allow for timely review and approval. Consultations with the various agencies will be held throughout preliminary design to keep agencies informed of the project development.</li> </ul>
<p>Right of Way Acquisition</p> <ul style="list-style-type: none"> <li>• Permanent and temporary rights will be necessary in the U.S. and Canada for the final configuration of the replacement structure, as well as temporary access through commercial and railroad properties for construction.</li> </ul>	<p>Mitigation of possible risks include:</p> <ul style="list-style-type: none"> <li>• Statutes in the State of Maine<sup>13</sup> allow for the ROW process to be completed expeditiously and according to an existing process that MaineDOT executes often, which includes the following 5-step process:             <ol style="list-style-type: none"> <li>1. Mapping</li> <li>2. Appraisal</li> <li>3. Negotiation</li> <li>4. Offer</li> <li>5. Condemnation</li> </ol> </li> <li>• The process cannot be stalled at any phase including condemnations as there is a separate appeals process that allows the project to proceed with no delay</li> </ul>

**VII. Large/Small Project Requirements**

The Project satisfies several statutory requirements enumerated at 23 U.S.C. 117(g).

1. The Project generates regional economic mobility and safety benefits because it creates a safer border crossing between the U.S. and Canada in Madawaska, Maine. The Project will restore freight traffic and the economic benefit that traffic creates to this part of the National Highway System. It will produce a safer bridge for motorists, pedestrians, and bicyclists. When completed in concert with the new LPOE, a safer and more productive border crossing will be established.
2. The project is cost effective as stated in the BCA with over \$217,000,000 of benefits (discounted at 7% over 30 years) and a benefit-cost ratio of 4.71.
3. The Project satisfies the following national goals under 23 U.S.C. 150:
  - 1) Safety – while the condition of the international bridge has not contributed to

<sup>13</sup> See MaineDOT’s The Land Owner’s Guide to the Acquisition Process *Revised 12/2014*, <http://www.maine.gov/mdot/publications/docs/brochures/landownersguideoct2014.pdf>

traffic fatalities or serious injuries, the Project makes the bridge a safer travel route. Safety standards imbedded into components of bridge design, such as standard width lanes, standard guard rails, shoulders, and electronic signage, all aid in elevating safety. A new bridge will also restore the ability of first responders to cross the bridge.

- 2) Infrastructure Condition – the Project aims to maintain a portion of the highway infrastructure asset system in a state of good repair.
- 3) Congestion Reduction – completion of the Project will reduce wait times at the international border crossing which backs up vehicular traffic across the bridge. It will also allow freight to navigate the border crossing again which will reduce truck traffic at other border crossings.
- 4) System Reliability – the Project improves the efficiency of the surface transportation system by creating a more efficient and reliable border crossing.
- 5) Freight Movement and Economic Vitality – the Project improves the national freight network by restoring a portion of the network that once was able to accommodate truck traffic but no longer can. It does so in a rural region that requires freight access via the bridge to reach and compete in national and international markets. This access helps a very rural community compete better in today’s economy. A key to economic development in the region is having a viable transportation network.
- 6) Environmental Sustainability – A detailed 2018 Environmental Impact Study was performed and included all parties involved in the Project. The study outlined 13 mitigation measures and commitments from the GSA, FHWA, and MaineDOT in support of the development of the Project to avoid and minimize adverse environmental impacts.<sup>14</sup>
- 7) Reduced Project Delivery Delays – Major projects with multiple stakeholders and overlapping capital projects require significant coordination to meet deadlines and manage risk. To ensure timeline delivery of Project design, the team has employed the following four key strategies:
  - Hosting regular meetings and partnering sessions with stakeholders, agency partners and project designers, used to coordinate needs, identify conflicts and constraints, assess project delivery risks, and stay apprised of decision-making efforts and their impacts on overall project schedule and delivery.
  - Creation of a project risk register to provide foresight with respect to potential project issues, streamlining project delivery through early identification of challenges, and encouraging of flexibility and cooperation among the four project sponsors.
  - Comparing and contrasting commonalities and, more importantly, gaps in processes and requirements for each of the agencies involved in the project, including MaineDOT, GSA, NBDTI, and CBSA. Where gaps in project development processes and timelines are identified, the project team developed a plan to bridge these through

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<sup>14</sup> <https://www.maine.gov/mdot/planning/studies/meib/>, Draft Supplemental Environmental Impact Statement and Draft Programmatic Section 4(f) Evaluation (PDF), page 119

sponsor flexibility and compromise.

- Recognizing international crossings over waterways require the input of many agencies at the international, federal, state, provincial, and local levels, a master list of permits and approvals, together with their requirements and submission and review timeframes, was developed during the feasibility study.

4. Preliminary Engineering – A project Feasibility and Planning study was conducted beginning in 2017 and culminated with a final report in May 2018 that identified a preferred location for the new international bridge. Early stages of the Preliminary Design phase are now underway. A conceptual assessment of multiple bridge alternatives was completed and identified two bridge configurations as the most appropriate solutions to meet the goals of the project, stakeholders and the community. A more refined analysis of these two short-listed solutions is underway. Following this refined analysis, a single preferred design solution will be identified and the preferred alternative will be advanced to an approximate 30% design level, including identification of project impacts. Final design of the project, including ROW and environmental processes, are anticipated to commence later in 2019 and complete in the fall of 2020.
5. Funding
  - a. Non-Federal funding for the Project comes from MaineDOT and NBDTI. The opportunity to obtain private or other non-Federal funding for the Project was deemed unsuitable and impractical due to the connection of the Project to the LPOE and associated border security requirements that are tied into this project.
  - b. Contingency Amounts at the 10% level are imbedded in the Project costs to cover unanticipated cost increases.
6. Ease and Efficiency of Funding – Maine and MaineDOT have been investing consistently on bridge improvements and replacements but additional funding sources are needed to continue to keep the 2,450 state bridges, 80% of which are in rural areas, in a state of good repair.<sup>15</sup> There are 2,450 bridges greater than 20 feet in length in the National Bridge Inventory in Maine. Of these, 352 are deemed structurally deficient and suffer from a significant defect. In 2016, Maine ranked 9th nationally in terms of percentage of total bridges that are structurally deficient, some 15%.<sup>16</sup> The 2017-2019 MaineDOT Work Plan called for completion of 278 bridge projects and \$334 million in spending. The Project bridge alone would consume such a large portion of total available state bridge funding that it would either delay funding for other needed bridges or more likely continue to delay funding for this bridge. Therefore, the Project would not be easily or efficiently completed without Federal funding, delaying it until sufficient funding is available. However, the need for bridge investment is critical throughout Maine given the number of structurally deficient bridges in the state.
7. Project Begin Date – Construction is scheduled to begin on the Project in late 2020.

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<sup>15</sup> USDOT FHWA National Bridge Inventory, <https://www.fhwa.dot.gov/bridge/nbi/no10/fccount16.cfm>

<sup>16</sup> Supra note 15, USDOT FHWA National Bridge Inventory

**Grant Request Supporters\***

MaineDOT's grant request for INFRA funds is supported by a diverse group of elected officials, shippers and stakeholders due to the significant economic impact the Project will have on the region. This list of supporters includes:

**Members of Congress** (*Letters will be sent to the Secretary's office*)

U.S. Senator Susan Collins  
U.S. Senator Angus King  
U.S. Congressman Jared Golden

**State Elected Officials/Offices**

Governor Janet Mills  
Senator Troy Jackson, President of the Maine Senate

**Government**

Town of Grand Isle  
Town of Madawaska  
Town of St. Agatha

**Corporations**

Albert Farms  
Daigle Oil Company  
R.F. Chamberland, Inc.  
TNT Road Company  
Twin Rivers Paper Company

\* As additional letters of support are submitted, they will be forwarded to USDOT with the Project name clearly labeled.

**APPENDIX**

Benefit-Cost Analysis	A
Maps	B
Gantt Chart	C
Match Commitment Letters	D
Letters of Support	E

Links to information, photos and briefs on the Project can be found at  
<https://www.maine.gov/mdot/projects/madawaska/internationalbrg/>