

TICONIC BRIDGE REPLACEMENT PROJECT

U.S. Department of Transportation
BETTER UTILIZING INVESTMENTS TO LEVERAGE DEVELOPMENT
“BUILD”
GRANT APPLICATION

Project Name:	Ticonic Bridge Replacement Project
Project Type:	Primary-Road/Secondary-Bridge Repair/Replacement
Project Location:	Rural, Maine – 1 st Congressional District
Funds Requested:	\$25,000,000 – 61.7% of Total Project Cost
Other Federal Funds Matched:	\$ 7,400,000 – 18.3% of Total Project Cost
Non-Federal Funds Matched:	\$ 8,100,000 – 20.0% of Total Project Cost
Total Project cost:	\$40,500,000

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TICONIC BRIDGE REPLACEMENT PROJECT



Project Summary

Maine Department of Transportation (MaineDOT) is seeking \$25,000,000 (61.7%) from a U.S. Department of Transportation (USDOT) Better Utilizing Investments to Leverage Development (BUILD) grant. The total cost of the project is \$40,500,000, of which \$8,100,000 (20%) will be matched by MaineDOT with the balance, some \$7,400,000 (18.3%), coming from Maine's Core Federal Funds.

The *Ticonic Bridge Replacement Project* will:

- a) Replace the current bridge, consisting of a three-part structure, 1909 (former trolley line), 1936 (roadway), and 1970 (additional roadway), over the Kennebec River linking Waterville and Winslow, Maine, which has deteriorated to the point that the end of its useful life is near and further attempts to repair or rehabilitate it will not restore the full integrity of the bridge to meet today's safety needs, load requirements or geometric standards for regional rural residents.
- b) Improve accessibility and the long-term prospects for this rural community by improving traffic flow and mobility of local residents, commercial vehicles and tourists that are vital to this region's economy.
- c) Maintain the current reliability of first responders and emergency services.
- d) Leverage an already existing \$9.2 million public private partnership to revitalize Waterville's downtown to include calmer traffic flow, the redesign of a five-street intersection, pedestrian-friendly pathways, safe and abundant bicycle lanes and family-friendly greenspaces.

The *Ticonic Bridge Replacement Project* (the "Project") will replace the existing functionally obsolete five-lane roadway bridge spanning the Kennebec River between Waterville and Winslow, Maine, with a new, safer and modern bridge. While many adjoining towns are separated by a river and rely on a bridge to provide cohesive connections between two distinct communities, this area is unique because of the variety of traffic that uses the bridge, the commercial center that it serves, and the fact that the next closest bridge is four miles away. Waterville is the service center of this rural region. The city has been leveraging investment from the largest educational institution in the region, Colby College. The college is investing \$35 million to revitalize areas within downtown and the bridge is the main artery from a large part of rural central Maine to that downtown. The plans are greatly enhanced by an improved and long-term reliable Ticonic Bridge which is a vital connection to Waterville and areas east of it allowing rural residents to maintain unabated access to the primary commerce center of the region.

The new structure will feature wider eastbound lanes, shoulders, sidewalks and bike lanes. Traffic will avoid the 7.8-mile round trip detour and related congestion caused if the current bridge fails. Eliminating the possibility of reroutes following completion of a new bridge will have obvious public benefits such as improved emergency response times, the potential for reduced fuel consumption and accompanying emissions for the same number of vehicles moved. These improvements satisfy USDOT's stated goals to *improve the reliability and efficiency of passenger travel and freight movement and to make targeted investments to increase freight*

mobility and reliability in support of economic competitiveness by facilitating the movement of goods and people and bridging a potential gap in transportation service in a rural state. Innovations both above and below the bridge deck satisfy the goal of *deploying innovative technology*. The new bridge will have improved roadway geometry to provide improved drainage. This will lead to reduced ponding during heavy rain events and less icing in the winter. Modern bridge pier design will lead to more efficient water flow of the river below. A modern, crash-tested and approved bridge rail system will protect vehicles from going over the bridge in the event of an accident, an important feature considering the height of the bridge over the Kennebec River. All of these improvements support the goal to *target Federal investments toward transportation projects that address high-priority infrastructure and safety needs*. 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 *restoring this regionally important transportation infrastructure and assets to a state of good repair*. This Project will create long lasting positive impacts on communities and industries in the region and ensure the preservation of reliable, convenient vehicle flow for residents, tourists and businesses in this very rural state.

MaineDOT is an accomplished, experienced and responsible recipient of past TIGER, FASTLANE, INFRA and BUILD grants and can be relied upon to fully fund and commence the project in advance of the 2022 obligation date, and to complete the project by the 2027 requirement without risk. Replacing the early 20th century Ticonic Bridge will ensure this region maintains continuous access without inflicting undue burdens that this state with its vast rural areas, simply cannot afford.

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Standard Form 424, Application for Federal Assistance

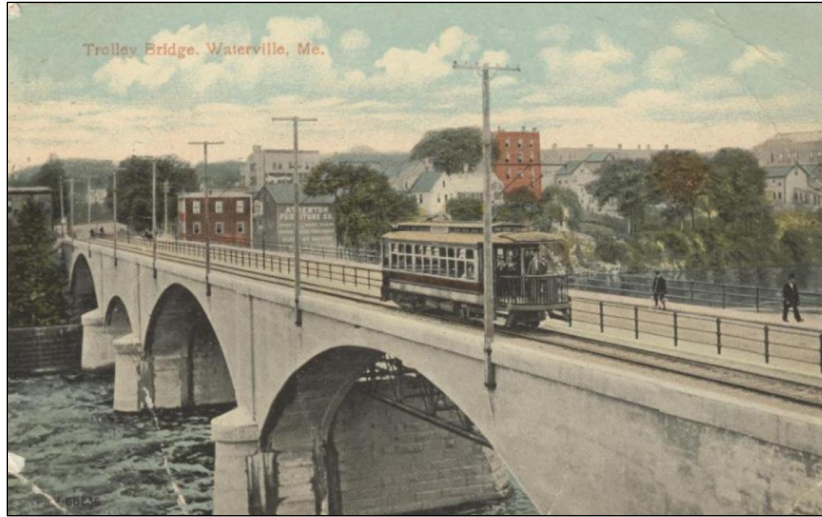
Project Narrative

I. Project Description

The Ticonic Bridge carries U.S. Route 201 over the Kennebec River connecting the hearts of Waterville and Winslow, Maine. The original structure consists of a four-span earth-filled concrete deck arch structure which was constructed circa 1909. This narrow original bridge carried a trolley line and small roadway over the river. In 1936, a large piece of river ice hit one of the stone piers causing two of the bridge spans to crash into the river. Of note, other piers

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with the same foundation remain today. As part of the repairs, the bridge was widened. The automobile was gaining popularity at this time. The widened structure consisted of the addition of three river piers and three riveted steel girders in a four-span configuration. This widening created the first sizable roadway to stretch across the Kennebec River between the two towns. As the state's manufacturing base and vehicle traffic grew, the bridge



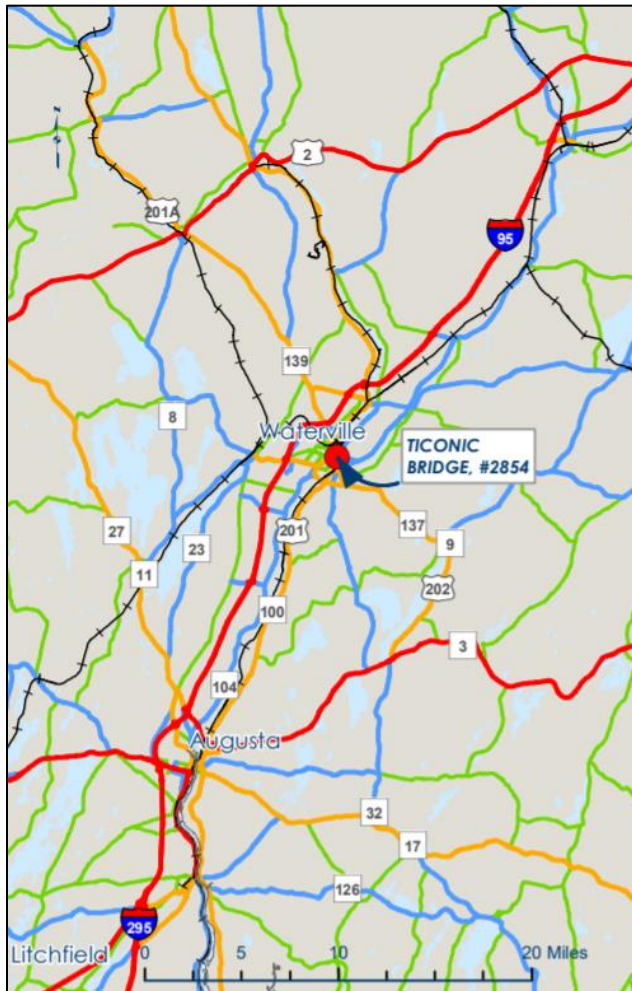
Original trolley bridge, circa 1913. Courtesy Maine Memory Network.

was widened for a second time in 1970 with the addition of four variable depth welded steel plate girders in a five-span configuration. By this time, the trolley tracks across the original span were long gone, but all three bridge sections, fused together as one, remain to carry today's vehicle and pedestrian traffic. The bridge is now essentially made up of the three original spans described above, but with one common road surface. It has a total structure length of 575 feet, a bridge width (curb to curb) of 86 feet, and carries five traffic lanes with narrow shoulders, a sidewalk on each side, a strip of vegetation along the south fascia as well as utility lines. The bridge is located on a Corridor Priority 2 roadway with an average annual daily traffic (AADT)



of 17,600 vehicles. A hydroelectric dam is located along the west edge of the Kennebec River and portions of the westerly bridge pier are encapsulated by the dam. The bridge, seen in the photo below, which has well surpassed its intended useful life, also carries numerous electricity, cable, telephone, and water utilities. A new bridge is required due to bridge foundation

challenges that make it susceptible to undermining, piers that are cracked and deteriorating and steel corrosion.



Waterville is a small city with a population of 16,406 as of the 2010 U.S. Census. It is located approximately 20 miles north of the state’s capital, Augusta, and is part of the Augusta-Waterville micropolitan statistical area as defined by the U.S. Census Bureau. The bridge is located within the Kennebec County Census Tract of 024102 (land area of 1.53 sq. miles), which has a population of 5,024. Waterville is in a U.S. Census Bureau-designated urban cluster, which meets the definition of a rural project per BUILD guidelines. Waterville is easily accessed by two exits off Interstate-95 as well as by Route 201, a national historic byway known as the Kennebec-Chaudière Corridor. Waterville’s downtown has seven structures listed on the National Register of Historic Places, is home to many unique shops, one-of-a-kind eateries and a well-attended farmers’ market. Within the city are regional medical facilities as well as Thomas College and Colby College. Waterville is also an important cultural center for the state, with the Colby College Museum of Art, Waterville Opera House, Maine Film Center/Railroad Square Cinema, and the annual Maine International Film Festival.

More than 125,000 visitors attend arts and cultural events annually, with 50,000 of those attending from outside Waterville. The city spends nearly \$2 million each year on arts and cultural activities, supporting 259 full-time equivalent jobs and those visitors are vital contributors to the tax base and economy of the region.

The Ticonic Bridge replacement and downtown road improvements will help make Waterville’s innovative downtown plans come to life. City officials support this grant proposal as they have been actively working to reshape the city for its post-manufacturing 21st century future. In fact, Waterville was awarded a 2018 BUILD Grant request for \$7,371,200 to design and construct the Waterville Downtown Transit Corridor, Gateways, and Revitalization Project. That award came as the result of an innovative public-private partnership to revitalize Waterville that was adopted by city council in February 2016. The \$9.2 million BUILD project is converting two downtown streets from one-way traffic to two-way traffic, making improvements to intersections, reconstructing sidewalks and major public spaces to promote accessibility and walkability throughout the downtown area. The project will introduce streetscape features to calm traffic,

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promote walking and bicycling and improve the attractiveness and quality of life downtown to increase economic activity and improve the safety of downtown by changing traffic flow. Downtown's central artery, Main Street, and its companion, Front Street, are both two-lane, single-direction roads, with Main Street directing traffic south toward the town of Winslow and Front Street directing traffic to northern Waterville, Fairfield, and beyond. Separately, the city and Colby College are financing myriad community improvements. They include an \$18-\$20 million Center for Contemporary Art and Film on Main Street which is currently in the planning stage with a planned completion in 2021, construction of a \$75-million new Center for Arts and Innovation on the Colby College campus and currently in the planning and design stage with opening scheduled in 2022, and continued growth and prominence of the internationally renowned Colby College Museum of Art. A 40-room boutique hotel, also funded by the college, is set to open downtown at the eastern edge of the Ticonic Bridge in September 2020. A pedestrian Riverwalk was completed in the fall of 2019, adding to the pedestrian-friendly additions in the city. Downtown will have new restaurants, retail shops and improved pedestrian flow that will make it attractive, safe and accessible. Arts and culture will be a major driver of economic activity and a distinctive asset for this rural community. The Ticonic Bridge acts as the gateway from the east to these proposed improvements. Thus, a core goal of the 2018 BUILD project, city and college-financed improvements, and their natural link to this Project is to direct slower, destination traffic to downtown and all it provides while directing commuters primarily to peripheral routes.

Winslow, on the east side of the bridge and river, is a town of about 8,000 people. Native tribes frequented this area because it was an easy place to cross the river due to rock outcroppings near the river dam adjacent to the bridge location. French and Irish Canadian immigrants in the 19th century used what is today's U.S. Route 201 to find seasonal employment, later making parts of the Kennebec River Valley region their home. Early settlers used water power for industrial development in Winslow. The town developed as a paper mill community around the Hollingsworth & Whitney Company paper mill located along the Kennebec River. The mill became part of the Scott Paper Company, later Kimberly-Clark, but closed in 1997. Winslow, like other regional communities, faced an industrial decline in the 1980s. Today Winslow is a community for middle- and upper-middle-class families who work in nearby Waterville or Augusta. Winslow is home to Mid-State Machine Products. For more than 6 decades, they have been manufacturing complex components and assemblies for the aerospace, defense, power generation and oil & gas industries.

Waterville is the employment center for the Waterville micropolitan statistical area with 10,895 jobs supplied in 2010. When studied in 2011, 83 percent of the jobs in Waterville were filled by commuters to Waterville, with a daytime population increase of approximately 5,000 people. The city is home to two hospitals for the region: MaineGeneral Medical Center as well as Northern Light Health's Northern Light Inland Hospital. A major employer is Huhtamaki, formerly The Chinet Company, a worldwide manufacturer of paper products for the food industry. They have a

EMPLOYER	COUNT
MaineGeneral Medical Center	1,182
Colby College	655
Huhtamaki	650
HealthReach Network	400
Inland Hospital	375
Hannaford Supermarket	350
LL Bean	300
Maine Central Railroad	250

manufacturing plant north of downtown along the Kennebec River. The city is a service center community (the Downtown Waterville Trade Area) covering 17 surrounding towns, making Waterville a destination for individuals seeking everyday goods and services. Many services are located in and around the downtown. Therefore, reliable roads and bridges are vital a necessity

MEANS OF COMMUTING TO WORK

2006-2010 American Community Survey 5-Year Estimates

Category	Waterville	Kennebec County	State
Commuters, 16 years and over	6,782	58,044	641,796
Percent Driving Alone	71.3%	81.3%	78.6%
Percent Using Public Transportation	0.1%	0.1%	0.6%
Percent Using Other Means	2.8%	1.7%	1.5%
Percent Walking	10.9%	3.2%	4.1%
Working at Home	5.3%	4.5%	5.1%
Mean Travel Time to Work (Minutes)	16.7	22.4	22.8

Source: 2006-2010 American Community Survey 5-Year Estimates

for getting to and from work for the region and the Ticonic plays a vital role in that as it feeds downtown directly. Meanwhile, outdoor enthusiasts enjoy miles of hiking trails located throughout the city during all four

seasons, including the Quarry Road Recreation Area. The recreation area provides cross country skiing, snowshoeing and snow tubing in the winter months and biking, kayaking, fishing and hiking during spring, summer and fall. The Kennebec River also offers spectacular fishing and boating opportunities. Each of these activities plays a vital role in the region but also to the region’s economy. Transportation investment leverages the recent public and private investment in Waterville creating reliable mobility and helps reverse the economic trends of the past, ensuring that the gateway to Waterville’s revitalization in the post-industrial economy will create a sustainable city for the 21st century.

The existing bridge deck, meanwhile, is in fair condition with areas of spalling and exposed rebar. The wearing surface has widespread cracking. The sidewalk is settling, causing a walking hazard to pedestrians. A deck replacement is due in the very near future. The bridge superstructure is in overall fair condition. The old concrete archway that supports the downstream sidewalk is in poor condition. The archway is over 100 years old and has several areas where the concrete is soft and sections have spalled off. The western-most arch has rebar hanging down with a section of concrete attached. The concrete is beyond rehabilitation. An attempt at rehabbing the arch would likely not be feasible. The middle section of the superstructure has 80-year-old steel with numerous fatigue prone details that are approaching their estimated fatigue life. The riveted girders have moderate to heavy pack rust at multiple locations, and a few floor beams have moderate to severe section loss. The bridge substructure is in fair condition. The following six pictures highlight some of the problems.

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If a BUILD grant is not awarded and the Project is not completed as described, the bridge will continue to deteriorate. Bridges constructed in large part nearly 100 years ago are limited in how much rehabilitation can be done. While there must be significant near-term rehabilitation work, those efforts are only stop-gap measures for the current deterioration. There would be no improvement to the current operating conditions of the bridge that would be felt by users. Subsequent to the near-term repairs, the bridge would only receive regular maintenance and minor repairs to the existing infrastructure with no new construction taking place. Maintenance and repairs will not change the fact that, eventually, the bridge will no longer be repairable and it will become unsafe to use or require significant expense to maintain the deteriorated status quo, a wasteful use of funds.

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The Ticonic handled approximately 6,400,000 vehicles in 2019. A comparison of 2019 volumes to the 2030 traffic forecast projects an 11 percent (or a 1,920 vehicles-per-day) increase in traffic over this bridge. While this one percent annual increase may not seem like a large number, it means over 700,000 more crossings by 2030. Given how the bridge flows traffic into the



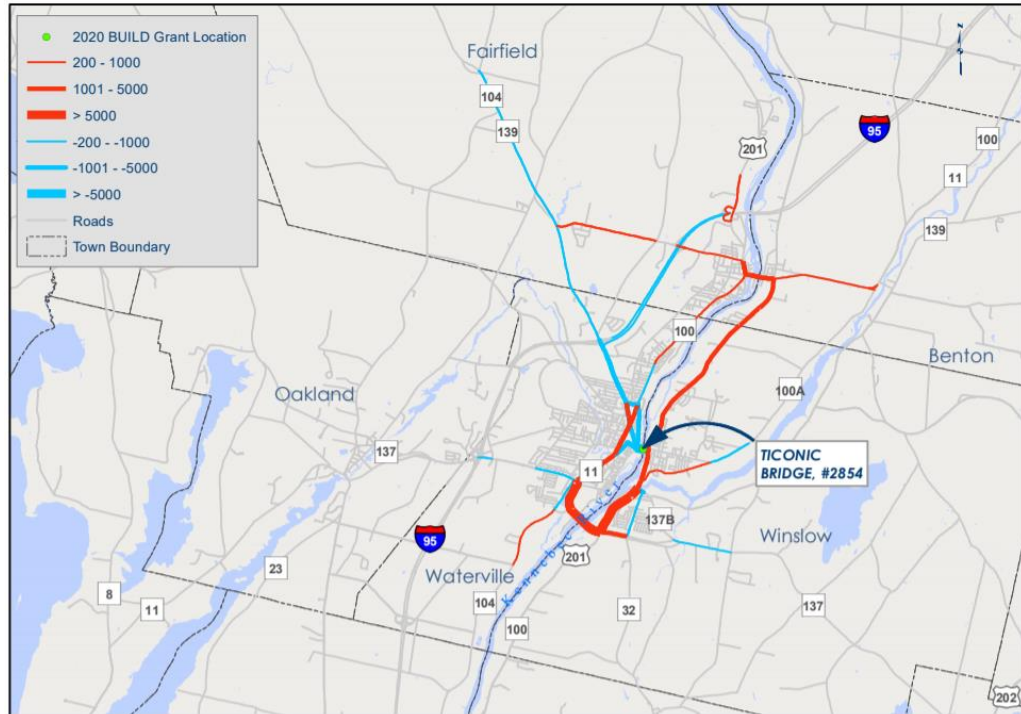
downtowns of Waterville and Winslow and there are other more efficient existing routes for truck traffic intent on bypassing the area, the overwhelming majority is passenger vehicle traffic (more than 97 percent, or 18,000 passenger vehicles per day), compared to commercial vehicle traffic (less than 4 percent, or 500 trucks per day). This proportion of passenger vehicle traffic and commercial vehicle traffic is expected to continue to the year 2030. The expected operator costs and travel time savings as well as emissions reductions in the BCA reflect these proportions of use of the Ticonic Bridge.

There are two detour options to cross the river. In the town of Fairfield to the north is the Kennebec River Center Bridge. It is a two-lane bridge built in 2003. The latest inspection rated components of the bridge in good condition. The other detour option is the Donald V. Carter Bridge in Winslow to the south. This bridge takes Route 137 over the Kennebec River. The bridge was built in 1997 and it too is in good condition. The reroute map below shows traffic increases (red) and decreases (aqua blue) should the Ticonic Bridge be out of service.

MaineDOT uses travel demand modeling software to estimate the change in driver route patterns in the event of a bridge closure/outage. It does not assume that drivers would simply proceed towards the bridge and suffer the full detour around it. MaineDOT takes into consideration rather, that drivers would adjust their route preference with the knowledge that the bridge is out and take the most efficient route for the entire trip given the outage. In some cases, even the most efficient reroute could extend more than 100 miles, depending upon the trip origin, destination and sufficient alternatives.

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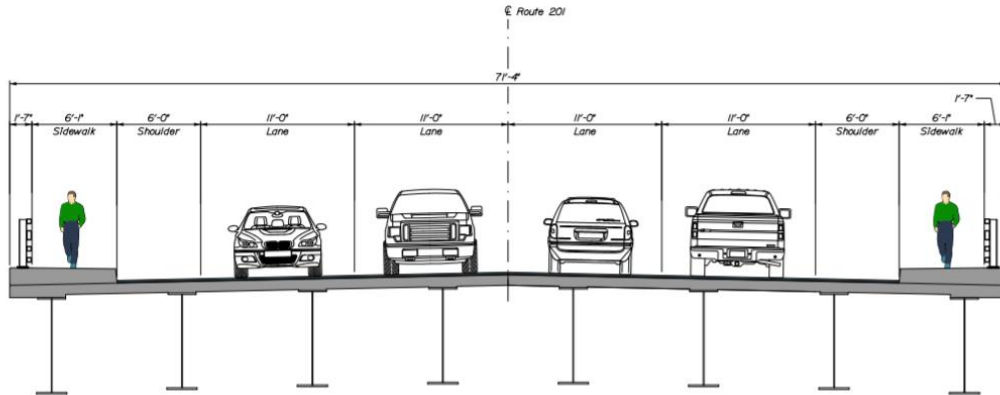
The BCA conservatively utilizes the efficient rerouting determined through the results of the software. A graphical output of the software's reroute algorithm is noted on the map to the right for the reroutes that would likely occur if the



Ticonic Bridge was shut down. The red lines show increases in average daily traffic volume due to closure of the bridge and the aqua blue line shows decreases.

The new bridge will have a smaller footprint in the waterway because it will be 71 feet 4 inches wide while the current bridge is 86 feet wide. It will consist of either a steel deck design or concrete design (or a combination thereof) and provide four vehicle travel lanes, two in each direction, all lanes 11 feet wide vs. the current disproportionate narrow three-lane 10-foot 4-inch width configuration eastbound and two 12-foot oversized lanes westbound. The existing bridge lacks safety shoulders on either side of the bridge. The new bridge will sport 6-foot shoulders on both sides to accommodate bicycles, as well as 6-foot sidewalks on both sides of the bridge. It will have modern guard rails that are safer and meet crashworthy standards, will include better signage, will feature innovative construction materials that will withstand the extreme cold temperatures and ensure the bridge is resistant to ice floe damage. The Kennebec River is not a commercial waterway. It is a route for pleasure boats and fishing boats during warm months. As previously mentioned, one of the existing bridge piers is sitting in the impoundment for a small hydroelectric dam along the Kennebec River. The pier displaces water that could be producing energy through the turbines. Therefore, Brookfield, a renewable energy company that owns the dam, is interested in getting the pier outside of the impoundment area. The design of the new bridge will accomplish that. Below is an architectural rendering of a cross section of the new bridge.

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Quantitative and Other Facts¹

Bridge	Year Built	Remaining Service Life (Yrs)	Bridge Length (Feet)	Bridge Type	Status
Ticonic Bridge	1909	10	145	Stringer/multi-beam	Poor condition

- The \$40,500,000 in roadway infrastructure investment will yield \$119 million in economic output for this region.
- The project has a benefit-cost ratio of at least 3.83 to 1 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 passenger and commercial vehicles and the associated reduction in mileage-driven highway injuries and fatalities as well as pollutant emissions plus the residual value from a 100-year life structure.
- Total amount of BUILD FY 2020 funds requested: \$25,000,000 (61.7% of the total cost of the project).
- Eligible matching funds are \$15,500,000, some 38.3 percent of the total project cost, which includes Maine's core federal funding.
- Non-Federal spending on the Project is \$8,100,000 committed by MaineDOT.²
- Previously incurred expenses are \$77,759 as of May 5, 2020.
- The project is in Kennebec County, Maine.
- The project is in Maine's 1st Congressional District represented by Chellie Pingree.
- The state is represented by U.S. Senators Susan Collins and Angus King.
- Total Cost of the Project: \$40,500,000.

II. Project Location

- GPS coordinates: Latitude: 44.547417, Longitude: -69.626923

¹ See Appendix A, Benefit-Cost Analysis.

² See Appendix F, Match Letter.

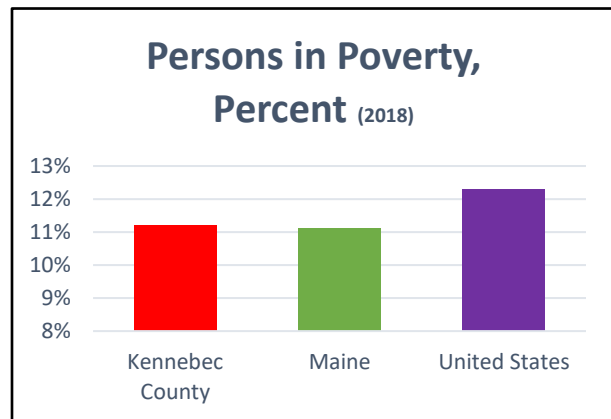
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- b) The project is in Kennebec County, Maine.
- c) The project is in Maine’s First Congressional District represented by Chellie Pingree. The state is represented by U.S. Senators Susan Collins and Angus King.³
- d) This is a Rural project.
- e) Opportunity Zone Census Tract Number 23011024102 Waterville, ME.

Geographic Area Name	Median Household Income	% of Maine	% of US	Per Capita Income	% of Maine	% of US
Waterville, Kennebec County, Maine	\$38,745	69%	63%	\$27,102	87%	83%

Kennebec County has a population of more than 122,000. It is an area of 951 square miles. Employment opportunities in the region have diminished 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, some parts of Maine have been able to combat unemployment, which is now below the national average, however Kennebec County’s current unemployment is 2.7%. This is below the state average of 2.9% as well as the national average of 3.5%.⁴ The percent of persons in poverty, which is 11.2% in Kennebec County, lower than both the Maine and national average. The per capita personal income of Kennebec County is well below that of Maine and the U.S.⁵

Of all the states in the U.S., Maine has the highest proportion of its residents living in rural areas, some 61.3% according to Census Bureau definition.⁶ The rural nature of the state is exhibited by the fact that 89% of the total land in Maine is forestland.⁷ 8.7% of Maine’s overall ADT operates over bridges in poor condition. Only five states have a higher percentage. That is 220% higher than the overall U.S. number. Nine percent of Maine’s overall ADT is in *rural areas*. Only four states have a higher percentage. That is 250% higher than the overall U.S. number. 4.6% of Maine’s overall ADT travels on *poor bridges in rural areas*. For the U.S. that number is <1.0%. Only two of 53 states fare worse.⁸ If you were to place Maine’s poor condition bridges end-to-end, they would stretch for more than six miles. The state has identified needed repairs to 360 bridges at an estimated cost of \$1.05 billion.



With so many poor bridges spread across such a vast rural state, MaineDOT prioritizes bridges having the most critical need, despite the possibility of critical bridges being spread far apart.

³ See Appendix E, Letters of Support.

⁴ <https://www.maine.gov/labor/cwri/laus.html>

⁵ <https://www.census.gov/quickfacts/fact/table/US,ME,kennebeccountymaine/PST045219>

⁶ <https://www.quora.com/Which-U-S-state-has-the-most-rural-land-out-of-all-the-other-states>

⁷ <http://maineforest.org/wp-content/uploads/2016/09/Maines-Forest-Economy-10-12-2016.pdf>, page 2 of pdf

⁸ <https://www.fhwa.dot.gov/bridge/fc.cfm>

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Like other states, Maine struggles to find new ways to fund infrastructure, but the challenge is great. “The idea of diverting a large portion of vehicle sales tax revenue to roads and bridges...is a move that could further complicate negotiations centered on solving a transportation shortfall. The department is facing a \$232 million annual shortfall in maintaining Maine’s road and bridge system, assuming annual borrowing of \$100 million. Lawmakers have...considered increasing the gas tax, using state budget or surplus revenue and increasing other fees. Republicans and Democrats on the commission studying the transportation shortfall have agreed the state should decrease its reliance on bonding for transportation. The gas tax is the dominant source of funding in Maine’s highway budget, making up more than two-thirds of the state money that goes toward roads and bridges. The shortfall has been exacerbated as construction costs have continued to rise. The state canceled \$45 million in projects last year after receiving higher than expected bids and included 142 fewer projects in the three-year funding plan released last month.”⁹ Also, as Maine’s population remains stagnant, the opportunity to grow gas tax receipts does not grow. 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.

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

a) Costs and Funding Sources and Uses

	MaineDOT	Other Federal	BUILD	Project TOTALs
Preliminary Engineering (PE)	\$ 97,000	\$ 388,000	\$ -	\$ 485,000
Right of Way Acquisition (ROW)	\$ 3,000	\$ 12,000	\$ -	\$ 15,000
Construction Engineering (CE)	\$ 700,000	\$ 2,800,000	\$ -	\$ 3,500,000
Construction	\$ 7,300,000	\$ 4,200,000	\$ 25,000,000	\$ 36,500,000
Project TOTALs	\$ 8,100,000	\$ 7,400,000	\$ 25,000,000	\$ 40,500,000
	20.0%	18.3%		
	38.3%		61.7%	

The MaineDOT portion of the Project is \$8,100,000 and the parties are committed to providing those funds and to completion of the Project.

b) State Matching Funds

Non-Federal funding for the Project comes from MaineDOT. MaineDOT is a cabinet-level state agency with primary responsibility for statewide transportation by all modes of travel. MaineDOT employs approximately 1,800 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. Both nationally and in Maine, this source of funding has decreased as more fuel-efficient

⁹ Maine Republicans Eye Vehicle Sales Tax to Fund Infrastructure
 By Caitlin Andrews Bangor (Maine) Daily News, <https://bangordailynews.com/2020/02/06/politics/maine-republicans-target-vehicle-tax-shift-as-transportation-shortfall-negotiations-drag-on/>

vehicles lead to a decrease in the amount of gasoline purchased. The funding source for the Project will be State General Obligation Bonds. In Maine that comes from state bonds to be approved by the legislature and taxpayers in 2022 and 2023. Due to its significant economic and transportation impact on the entire state and region, this Project has been prioritized by MaineDOT. “In November 2019, 76% of Maine voters approved the latest \$105-million General Fund General Obligation (G.O.) transportation bond. This bond provides \$85 million for highway and bridge projects and \$15 million for multimodal projects. Additionally, based upon widespread support in recent years, Maine’s work plan is based upon the assumption that the Governor, the Legislature, and the voters will approve two additional \$100 million General Fund G.O. bonds in November 2020 and November 2021. Without annual bonds of this amount or other funding sources to replace it, substantial cuts will be necessary from the capital programs.”¹⁰ This Project will be included in the next Statewide Transportation Improvement Program (STIP) and is consistent with MaineDOT’s long range plan.

MaineDOT has done a full assessment of life cycle costs of constructing and subsequently maintaining the bridge and is are committed to properly maintain the new Ticonic Bridge throughout its service life. 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-Management-Plan-final.pdf>.

- c) The funds noted above will go towards Preliminary Engineering, Construction Engineering and Right-of-Way first, with the balance, all BUILD grant funding going towards project Construction.
- d) Project Budget

¹⁰ MaineDOT Three-Year Work Plan, https://www.maine.gov/mdot/projects/workplan/docs/2020/WorkPlan2020_2021_2022%20Jan_14_2020.pdf, page vi

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SUPERSTRUCTURE	44,175	SF	×	\$285.00	=	\$12,590,000
ABUTMENTS	2	EA	×	\$1,500,000.00		\$3,000,000
PIER	1	EA	×	\$1,850,000.00		\$1,850,000
CONSTRUCTION ACCESS/TRESTLE FOR ARCH DEMO	1	LS	×	\$5,000,000.00		\$5,000,000
REMOVE EXISTING GIRDER BRIDGE	1	LS	×	\$1,250,000.00	=	\$1,250,000
REMOVE EXISTING ARCH BRIDGE	1	LS	×	\$2,000,000.00	=	\$2,000,000
TRAFFIC CONTROL	1	LS	×	\$600,000.00	=	\$600,000
CONTINGENCIES				15%	=	\$3,952,000
MISCELLANEOUS (TCP'S, FIELD OFFICE, ETC.)				10%	=	\$2,629,000
MOBILIZATION				10%	=	\$2,629,000
STRUCTURE SUBTOTAL					=	\$35,500,000
APPROACHES	1	LS	×	\$830,000.00	=	\$830,000
MISCELLANEOUS				10%	=	\$85,000
MOBILIZATION				10%	=	\$85,000
APPROACHES SUBTOTAL					=	\$1,000,000
TOTAL CONSTRUCTION					=	\$36,500,000
PRELIMINARY ENGINEERING				1%	=	\$485,000
RIGHT OF WAY					=	\$15,000
CONSTRUCTION ENGINEERING				10%	=	\$3,500,000
OTHER:					=	\$0
TOTAL PROJECT COST					=	\$40,500,000

Contingency amounts estimated at the 10% level are imbedded in the Project costs to cover unanticipated cost increases.

MaineDOT is experienced with bridge replacements of this magnitude and larger, and plans to complete construction by the summer of 2026, well within the September-2027 statutory deadline.

	Funding Year						
	2020	2021	2022	2023	2024	2025	2026
Preliminary Engineering (PE)	\$ 161,651	\$ 161,651	\$ 161,699				
Right of Way Acquisition (ROW)	\$ 5,000	\$ 5,000	\$ 5,001				
Construction			\$ 7,300,000	\$ 7,300,000	\$ 7,300,000	\$ 7,300,000	\$ 7,300,000
Construction Engineering (CE)			\$ 700,000	\$ 700,000	\$ 700,000	\$ 700,000	\$ 700,000
Project TOTALs	\$166,650	\$166,650	\$ 8,166,700	\$8,000,000	\$8,000,000	\$8,000,000	\$8,000,000

IV. Selection Criteria

MaineDOT has a strategy of project prioritization and explains how this particular bridge rose to the top at the following link:

<https://www.maine.gov/mdot/publications/docs/plansreports/MaineDOT-Transportation-Asset-Management-Plan-final.pdf>. The Ticonic Bridge Replacement Project satisfies USDOT’s stated goal of *supporting economic competitiveness* by facilitating the movement of goods and people and bridging a gap in transportation services in Maine. Focused on one of the most economically challenged states in the northern U.S., the Project is regionally significant and addresses past underinvestment and aging 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 economies by strengthening the movement of job-supporting freight, improving reliable and affordable transportation, and enhancing the health and the safety of residents. The 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 bridge continues to deteriorate during service. Meanwhile, specific innovations built into the new bridge satisfy the goal of *deploying innovative technology*. 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 including core federal funding as well as funds from the state of Maine.

1) Primary Selection Criteria

a) Safety

The new bridge will feature increased lane widths and will allow for the addition of shoulders to safely accommodate bicyclists and other modes that share the roadway. The existing bridge has substandard lane widths and, in some cases, no shoulders. The new bridge will have improved roadway geometry to provide improved drainage. This will lead to reduced ponding during heavy rain



events and less icing in the winter. A modern, crash-tested and approved bridge rail system will protect vehicles from going over the bridge in the event of an accident, an important feature considering the height of the bridge over the Kennebec River. Emergency response facilities in both Waterville and Winslow are located close to the bridge. Like many communities, the two

have a mutual aid agreement to provide emergency services as needed for one another. The Ticonic is the primary bridge used by emergency services to access communities across the river.

This Project, in concert with the city's recently awarded BUILD grant to improve traffic and pedestrian flow through downtown, will create a conveyor belt of safety both on the bridge and west of the bridge in downtown Waterville. The five-way intersection just west of the bridge will feature an upgraded intersection that is pedestrian friendly with modern crosswalk and traffic features.

Replacing the iconic bridge in this grant application will address safety issues on the rural highway system. Any increase in mileage will increase the likelihood of negative safety events. This bridge is critical to the area because of the rural nature of the region. If it fails or needs to be closed due to sudden major repairs, detour mileage increases for nearly 20,000 passenger vehicles and heavy trucks daily. Using the more conservative computer modeling methodology to determine the most efficient reroutes taken in the event of bridge closure and conservatively estimating that a no-build scenario will lead to a shutdown in year 10, the Project will result in an overall safety savings in avoided crashes of **\$13 million** over the course of 30 years on a 7 percent NPV basis.

b) State of Good Repair

The Project aims to return a portion of the highway infrastructure asset system to a state of good repair and ensure the long-term reliability that this rural region needs. The Project improves the efficiency of the surface transportation system by creating a more efficient bridge with wider lanes, better sidewalks and bike paths and safe, modern safety features that can withstand the harsh elements of Maine's northern climate. Sidewalks will create a safe pedestrian thoroughway that will connect to Waterville's rejuvenated downtown. The bike lanes will provide safe distance between bikes and vehicles as well as between bikes and pedestrians. The vehicle travel lanes will provide a safe thoroughfare for cars and trucks.

The structural integrity of the bridge will be safer both above the bridge deck as well as below it. Currently, residents dining at riverside restaurants witness periodic chunks of concrete falling off the bridge and into the waterway below. In some cases, there is even concrete dangling from rebar that has become loosened from the sidewalls or the understructure of the bridge. Seeing this phenomenon reinforces the public's safety concerns that the bridge, since it is *literally falling apart*, is unable to withstand many more additional harsh winters of Maine.

If the Project is not completed, the eventual detours that will be encountered in the event of a bridge failure would create additional safety and financial hardships for these rural residents. Those costs would be abundant. If not replaced, the remaining service life of the bridge is no more than 10 years to extend the life to that length the maintenance costs are high (included in the BCA), well over \$5 million, and a poor investment of scarce resources. Maintenance savings are a critical component of any highway infrastructure project. Maintenance costs are constant and make it difficult for the state to budget for large capital projects. The Project avoids future maintenance less the costs to maintain the new bridge saving Maine and the region over **\$4**

million of NPV discounted at 7% over the 30-year analysis period. Bridge maintenance dollars could be spent where they realize more long-term value.

c) Economic Competitiveness

The new bridge will safely connect residents driving, bicycling, and walking over the bridge to the upgraded elements discussed earlier taking place in downtown Waterville that will combine to make downtown Waterville pedestrian friendly. The addition of downtown cultural centers, residential living, and a new hotel will enhance Waterville as a destination. One-way streets downtown that will be made into two-way streets and connected to the two-way traffic flow coming off the bridge, will create a sense of connectivity and mobility that will enable the flow of commuters as well as goods at a much more efficient and comfortable pace. Since one end of the bridge is located at the main service center for the entire region, it is extremely important to economic investment in the region. The bridge is the main thoroughfare leading to employment, shopping, investment, entertainment and overall job creation. Waterville is a city that has not had retail move out of the downtown area like so many other cities nationwide have. Waterville remains the center of economic activity and the bridge is the vital link to that.

Costs to operate vehicles according to the BUILD BCA guidance includes costs such as fuel prices, maintenance, tires and depreciation. The elimination of travel miles for both trucks and vehicles from the highway also decreases travel time for the average highway user, thus improving mobility and maintaining economic competitiveness for drivers of the Maine economy. Using the BCA Guidance suggested values, this project will result in operating costs savings due to fewer vehicle and truck miles traveled along with additional travel time avoided of **\$98 million** over the course of 30 years. These costs savings are significant, particularly for the rural region of Maine and a strong return on investment for the Project. This challenged region simply cannot afford the incremental detour costs associated with an outage of a key bridge such as the Ticonic.

A key goal of the Trump Administration is to reduce America's dependence on foreign oil, which serves the purpose of increasing the country's energy security. The project moves the United States closer to seeing a real reduction in the nation's dependency on foreign oil by reducing unnecessary fuel use due to having to detour.

d) Environmental Sustainability

MaineDOT has taken the placement of bridge piers, any potential river flood hazards, and the adjacent dam in the river below into careful consideration while designing the new bridge and the placement of pier(s). The bridge will be as resistant to high water as possible. Design of the bridge and pier(s) will ensure the bridge will have the strength to withstand flooding issues. The design also calls for reducing the number of piers required, which reduces costs and the potential for damage to pier(s). Environmental risks will be mitigated to the extent possible on this project through the implementation of established and proven procedures. Throughout design, MaineDOT will coordinate extensively with environmental agencies to identify appropriate in-water work windows and to verify the proposed scope of construction as well as the anticipated construction methods, are acceptable given the significant environmental sensitivities in the project area. During design, the project team will evaluate the potential for demolishing the arch

structure with the necessary crane equipment positioned atop the adjacent girder bridge structure instead of on an adjacent temporary work platform. Additionally, the team will evaluate the potential for using the existing bridge piers as temporary shoring during structural steel removal and for the installation of new structural steel. Both of these efforts will result in notable reductions in the size and scope of temporary works required on the project, thereby reducing in-water work and impacts. The design is anticipated to consist of a new two- or three-span structure which will require the construction of a single river pier compared to the five supporting the existing bridge. Reducing the number of piers in the river results in less construction disturbance, minimizes the potential for ice jamming and flooding, and improves fish passage.

During the construction process, the contractor will be required to follow approved in-water work windows. In addition, they will be required to establish, implement and maintain an approved erosion and sedimentation control plan with the purpose of minimizing the discharge of debris, dirt, and other pollutants into the Kennebec River. Where in-water work is required and disturbance to protected species is a concern, the project specifications will include limitations, restrictions or other requirements intended to minimize disturbance to protected species that may be at or near the project site. Throughout construction MaineDOT will, through regular inspections, confirm the approved procedures are being followed throughout the construction process. Deviations from the project specifications and/or approved procedures will be noted and the contractor will be required to complete corrective actions.

Pollutants of Concern

Completion of the Project and avoidance of 400 million future highway mileages (over 30 years) saves miles for passenger vehicles as well as trucks. Most heavy trucks are powered by diesel engines, which are major sources of emissions of nitrogen oxides (NO_x), sulfur dioxide, volatile organic compounds and particulate matter (PM). NO_x reacts with volatile organic compounds to form ground-level ozone, commonly known as smog. Diesel exhaust is of specific concern because it is likely to be carcinogenic to humans by inhalation and may additionally cause non-cancer respiratory effects.¹¹ The avoided net costs of emissions of NO_x, sulfur dioxide, PM and volatile organic compounds over the 30-year life of the project are projected to be more than **\$700,000**. This Project is favorable to the environment which has the additional benefit of driving the economy from Maine's beauty and outdoor recreation opportunities. It is a virtuous cycle.

e) Quality of Life

The new bridge will provide a safer means for people in the two communities, as well as those in the rural region surrounding Waterville and Winslow, to access hospitals, shopping, entertainment, recreational activities, employment opportunities and educational opportunities as they do today. Waterville is the regional hub for all of these amenities that create an ideal

¹¹ See U.S. DEP'T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, CHAPTER 2: NATIONAL FREIGHT TRANSPORTATION TRENDS AND EMISSIONS, http://www.fhwa.dot.gov/environment/air_quality/publications/effects_of_freight_movement/chapter02.cfm

quality of life. The current bridge will not provide access to these needs if it continues to deteriorate. Bridge replacement, coupled with downtown road improvements, will help make Waterville's innovative downtown plans come alive. Downtown will have a renewed focus on the arts and culture with the addition of a new Cultural Center, restaurants, retail shops, living space, a hotel and improved pedestrian flow that will all combine to be a major driver of economic activity and a distinctive asset for this rural community and its quality of life. Both the new roadway access to the bridge and the pedestrian sidewalks and crosswalks are being developed in concert to have safe and easy flow for walkers. It will provide safe access to and from the parks along the river as well as new downtown investment and residences.

2) Secondary Selection Criteria

a) Innovation

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. 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. MaineDOT will engage contractors during design through a robust contractor engagement process to gather feedback, ultimately allowing the project team to identify and address risk items, improve constructability, and reduce risk. MaineDOT has employed this process on one recently completed project (the Bath Viaduct) and one ongoing project (Madawaska International Bridge) with significant positive outcomes.

Major projects with overlapping capital projects and adjacent construction projects through other agencies require significant coordination to meet deadlines and manage risk. To ensure delivery of the project design, the project team has employed the following three key strategies:

- Host regular meetings with agency partners and project designers. These meetings are used to coordinate needs, identify conflicts and constraints, assess project delivery risks, and to stay apprised of decision-making efforts and their impacts on overall project schedule and delivery. All meetings and discussions are documented, and the outcomes conveyed to team members through a series of managed action item lists, coordination item lists, meeting minutes, and a regularly updated master schedule identifying critical path items from both internal and external sources.
- A project risk register will be developed to provide foresight of specific project issues with adjacent projects and operations and improvements at the existing dam. The risk register provides foresight with respect to potential project issues, streamlines project delivery through early identification of challenges, and encourages flexibility and cooperation among interested parties and will be updated as the project progresses.
- Recognizing crossings over waterways with adjacent dams and environmentally sensitive species require the input of many agencies at the federal, state, and local

levels, a master list of permits and approvals, together with their requirements and submission and review timeframes, will be developed during preliminary design. This list will serve as a tool for the team as internal administrative, planning and permitting activities are advanced and coordinated appropriately.

b) Partnership

The city of Waterville was recently awarded a BUILD grant for a grand redesign of traffic and pedestrian flow and safety downtown. Plans include turning one-way streets into two-way streets, providing a number of pedestrian crosswalk and safety features, and a full redesign of the complex five-street intersection that drivers encounter immediately when coming off the west side of the bridge. MaineDOT is administering that grant on behalf of Waterville along with the FHWA. Therefore, the Ticonic Bridge Project as well as the Waterville grant will work in concert to flow sidewalks from bridge to streets. Engineering and public works have and continue to partner in order to ensure both projects come together with seamless flow.

Meanwhile, MaineDOT is working with Brookfield Energy, owner of the river’s dam located virtually under the bridge, to set the pier(s) for the new bridge in a way that will maximize river flow through the dam. Currently, one pier is located right at the wall of the dam.

Partnering with MaineDOT on design and delivery of the Project is HNTB. HNTB is a national transportation infrastructure firm that offers extensive design, engineering and planning services to federal, state and local clients in both the public and private sectors. For more than 100 years, HNTB has successfully delivered critical bridge and highway design projects throughout the nation. Through decades of service, HNTB has developed a strong reputation for developing practical and effective solutions for bridge inspection, evaluation, rehabilitation and replacement. In addition, as a national leader in bridge design and evaluation, the firm maintains a legacy of providing sophisticated engineering analysis and creative design solutions on some of the nation’s largest and most vital structures. The firm has more than 4,200 professionals in more than 60 offices nationwide.

V. Environmental Risk Review

a) Project Schedule

Task Name	Date
Project Kickoff	6/15/2019
Initial Team Meeting	12/21/2019
Preliminary Public Meeting	8/3/2020
Preliminary Design Report/Preliminary Plan Complete	5/1/2021
Formal Public Meeting	5/21/2021
NEPA Complete	10/8/2021

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Plan Impacts Complete	6/18/2021
Utilities Certified	5/18/2022
Environmental Approvals Complete	10/8/2021
Right of Way Certified	5/18/2022
P,S&E Submission	8/10/2022
Advertise	8/31/2022
Award	10/5/2022
Begin Construction	11/2/2022
Construction Complete	6/30/2026

During the feasibility study and SEIS processes, numerous risks were contemplated but each has a comprehensive mitigation strategy. Preliminary design is currently underway and has identified several bridge configurations that have the potential to meet both the goals of the project and the needs of the communities. A more refined analysis of these solutions is now being completed to establish a preferred design solution for the project. The final recommendations for the project will be summarized in a preliminary design report scheduled for completion in May 2021. Following preliminary design, the preferred solution will be advanced to an approximate 30% design level, including identification of project impacts, by June 2021, so that right-of-way acquisition and environmental approvals can commence. The final design schedule for the project has been developed to support advertisement for construction in August of 2022. Constructing the new bridge is expected to begin in the winter of 2022 and take approximately three years to complete. This schedule would have the new bridge ready to open in mid-2026.

1. Environmental Permits and Reviews

In further 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

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f) Nationwide Programmatic Section 4(f) Evaluation for use of Historic Bridges

Section 106:Historic & Cultural Resources-Architectural	The Bridge itself is not eligible for listing on the National Register, and does not contribute to a Historic District. However, the bridge directly abuts the Lockwood Mill Historic District (Waterville, south of bridge) and the Waterville Downtown Historic District (north of the bridge). It also abuts the Maine Central Railroad Historic District in Winslow. The project design will need to be compatible or complement the character-defining features of these Historic Districts and minimize impacts to properties contributing to the Districts.
Section 106:Historic & Cultural Resources-Archaeological	Known and potential archaeological sites (prehistoric and historic) near both ends of the bridge and its approaches. Initial Field Investigation planned for Summer 2020 to inform design. Project design will avoid archaeological resources as much as possible. Mitigation and data recovery will be provided for any unavoidable impacts.
Section 4(f) Resources	The Waterville Head of Falls Waterfront Park is protected by Section 4(f) of the U.S. Department of Transportation Act. In addition, the Section 106 architectural properties listed above are Section 4f resources. Design will need to avoid and minimize any permanent or temporary impacts to these properties.
U.S. Coast Guard Permit	Determining whether the bridge is non-jurisdictional for the Coast Guard or will be eligible for the FHWA exemption from Coast Guard permitting
Mitigation	Potential archaeological data recovery. Potential Section 106 mitigation if project results in Adverse Effects to Historic Districts adjacent to the bridge.
Federally Endangered Species	Documented Atlantic and Shortnose sturgeon presence in project area with designated Critical Habitat for spawning for Atlantics. Project site is in the range Gulf of Maine Distinct Population Segment of Atlantic salmon (ATS) and within designated critical habitat (Tier 1).
Other managed fisheries	ATS migrate to Lockwood dam fish lift, transported to Sandy River (migration May-Sept). Active herring (alewife and blueback run in project area managed with fish lift at Lockwood Dam); shad and striped bass spawn in project area.
In-water work window to avoid presence of Federally Endangered and other managed fisheries:	September 1-March 1. In-water work restrictions and additional avoidance and minimization measures expected for work outside this timeframe.
Other Considerations	Brookfield Renewable Energy owns and operates hydropower generation facility immediately adjacent to the bridge. The bridge is located within the regulated FERC Boundary. Activities and modifications within this boundary are subject to Brookfield, Federal and State Natural Resources Agencies and FERC. Brookfield is actively designing a federally mandated fish passage facility upstream of the bridge. The design of the bridge has to be coordinated with Brookfield to ensure assumptions made for fishway design are not impacted by design of the bridge.

2. Assessment of Project Risks and Mitigations

Early stages of the Preliminary Design phase are now underway. Final design of the project, including ROW and environmental processes, are anticipated to commence later in 2021 and complete in the spring of 2022. MaineDOT has thoroughly examined potential risks to the Project and has already developed mitigation strategies to eliminate or limit their impact.

Project Risks	Mitigations
<ul style="list-style-type: none"> Coordination of the proposed bridge replacement with the design and construction of a new fishway located immediately upstream from the proposed bridge. The fishway project is led by the operator of an adjacent hydro 	<ul style="list-style-type: none"> Both MaineDOT and the dam operator are working collaboratively to develop and coordinate the design and construction of these two projects for the benefit of both

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<p>dam. The bridge is also located within the regulated FERC Boundary.</p> <ul style="list-style-type: none"> • Coordination with communities on each side of bridge related to bridge functional needs, aesthetic concerns, utility requirements, and restrictions during construction. • Environmental restrictions due to the presence of endangered Atlantic and Shortnose Sturgeon in the project area with designated Critical Habitat for spawning of Atlantic Sturgeon. Project site is also designated critical habitat for Atlantic Salmon. Additional managed fish species are present in the area. • Both river embankments may have archaeological resources present • Resources of historical interest are in vicinity of the bridge; the bridge directly abuts the Lockwood Mill Historic District (Waterville, south of bridge) and the Waterville Downtown Historic District (north of the bridge). It also abuts the Maine Central Railroad Historic District in Winslow. • The Waterville Head of Falls Waterfront Park, at the northwest corner of the bridge, is protected by Section 4(f) of the U.S. Department of Transportation Act. 	<p>owners, and to obtain necessary approvals in a streamlined and timely manner.</p> <ul style="list-style-type: none"> • Active outreach with community leaders, stakeholders, and the public at large will be initiated during preliminary design to identify concerns and build project support early in the project development process. • Minimize permanent and temporary in-water structures, plan construction to avoid sensitive times for salmon and sturgeon life stages with in-water work restrictions expected to extend from September 1 to March 1. Additional avoidance and minimization measures will be planned for work expected outside this timeframe. Begin early coordination with U.S. Fish and wildlife and Maine Department of Marine Resources to obtain best available information on species. • An initial archaeological survey will be completed in the summer of 2020 to inform design. The proposed design and construction access locations will be developed to avoid or minimize impacts to sensitive areas. Mitigation and data recovery will be provided for unavoidable impacts. • Additional survey by MHPC (Maine Historic Preservation Commission) is forthcoming. Close coordination with MHPC, and the with Municipalities, will be completed regarding potentially affected resources. The project design will be compatible or complement the character-defining features of these Historic Districts and minimize impacts to properties contributing to the Districts. • The project design will minimize impacts to the park. The goal of the project team is to achieve a de minimis determination on the town-owned park property.
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VI. Benefit Cost Analysis

The BCA estimates more than \$119,000,000 in benefits resulting from the \$40,500,000 investment. Benefits accrue due to the avoided reroute mileage and hours that would be associated with an eventual shutdown of the bridge. That includes the elimination of the potential accidents that would result with additional passenger and commercial miles as well as avoided costs of emissions to the environment of the region. Additionally, the residual value of the new 100-year structure after 30 years in service is included. All are discounted over the 30-year period at seven percent to calculate the NPV of each of the cash flows.

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7% NPV Summary over 30 Years		
	Costs	Benefits
CAPEX	\$31,123,682	
Maintenance Costs		\$4,151,518
Travel Time & Ops Costs Savings		\$98,340,352
Safety		\$13,275,699
Emissions		\$709,460
Residual Value of the Project		\$2,655,344
TOTAL	\$31,123,682	\$119,132,373
Benefit-Cost Ratio		3.83

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 conditions until it must be removed from service. 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, joint replacements, protective coating applications and spot painting throughout.

It will produce a safer bridge for motorists, pedestrians, and bicyclists. The project is cost effective as stated in the BCA with more than \$119,000,000 of benefits (discounted at 7% over 30 years) and a benefit-cost ratio of 3.83.

Grant Request Supporters*

MaineDOT's grant request for BUILD 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 sent to Secretary's office*)

U.S. Senator Susan Collins
U.S. Senator Angus King
U.S. Congresswoman Chellie Pingree

State Elected Officials/Offices

Governor Janet Mills
State Senator Scott W. Cyrway
State Representative Catherine M. Nadeau
State Representative Bruce A. White

Local Government

City of Waterville
Town of Winslow

State and Local Organizations

Kennebec Valley Council of Governments (KVCOG)

Please visit <http://www.mainedot.gov/grants/build/>

* Due to the impact of COVID-19, numerous letters are not yet available but will be delivered to USDOT. MaineDOT will post all received letters on our website noted above.

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APPENDIX

Benefit-Cost Analysis	A
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Cost Estimate/Project Budget	C
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