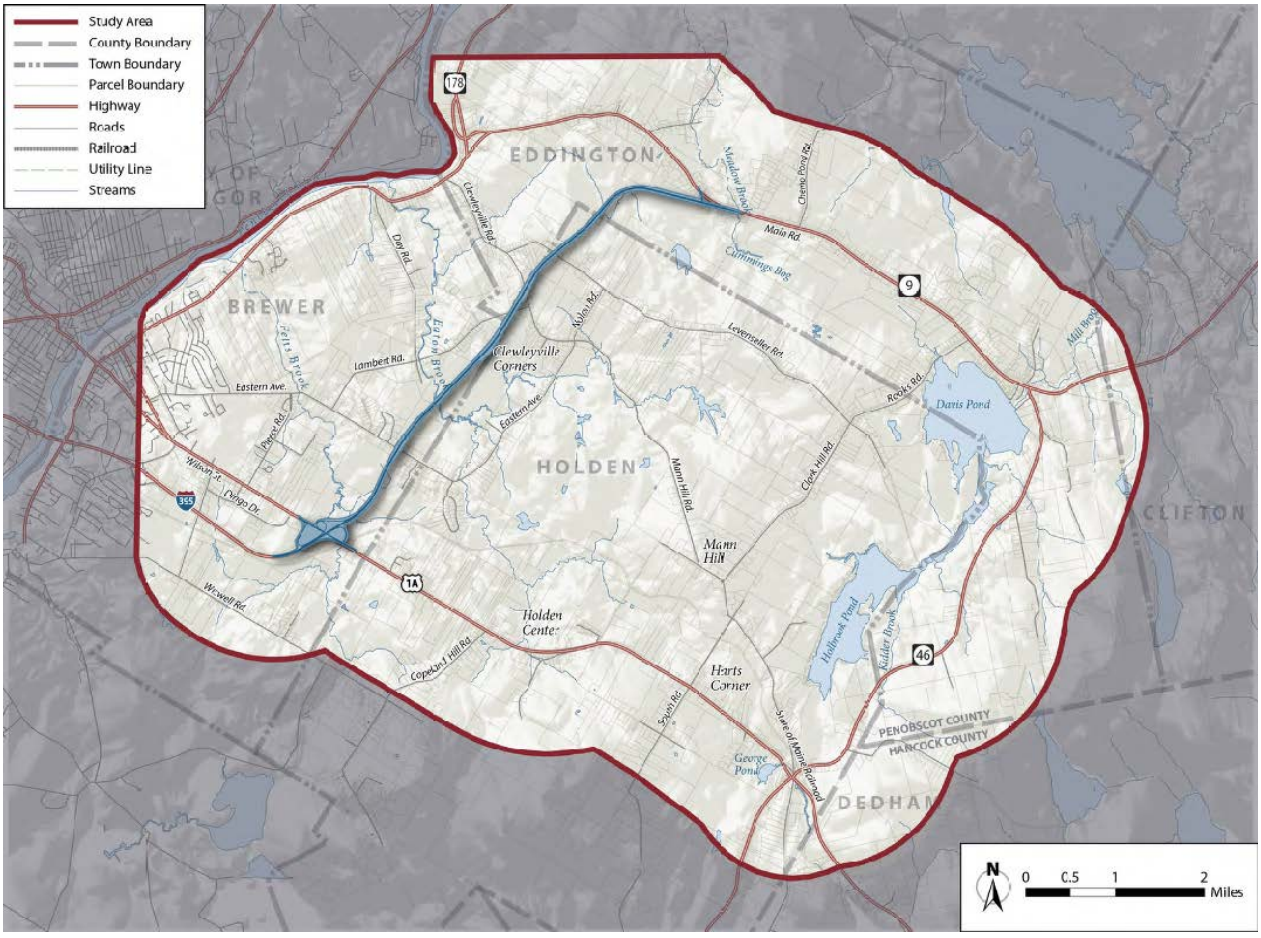
Project Name	I-395/Route 9 Connector
Was an INFRA application for this project submitted previously?	No
If yes, what was the name of the project in the previous application	N/A
Previously Incurred Project Cost	$305,069
Future Eligible Project Cost	$78,944,931
Total Project Cost	$79,250,000
INFRA Request	$33,825,000
Total Federal Funding (Including INFRA)	$39,625,000
Are matching funds restricted to a specific project component? If so, which one?	Yes, Construction
Is the project or a portion of the project currently located on National Highway Freight Network?	Yes
Is the project or a portion of the project located on the NHS? • Does the project add capacity to the interstate system? • Is the project in a national scenic area?	Yes No No
Do the project components include a railway-highway grade crossing or grade separation project? • If so, please include the grade crossing ID.	No
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	No
If answered yes to either of the two component questions above, how much of requested INFRA funds will be spent on each of these projects components?	N/A
State(s) in which project is located	Maine
Small or large project	Large
Urbanized Area in which project is located, if applicable	Bangor, ME (#04951) (small portion of project)
Population of Urbanized Area	61,210
Is the project currently programmed in the: • TIP • STIP • MPO Long Range Transportation Plan • State Long Range Transportation Plan • State Freight Plan	 Yes Yes Yes No* Yes
If selected, would you be interested in participating in a new environmental review and permitting approach?	Yes. NEPA is complete. Permitting to be completed.

*MaineDOT does not list specific projects in the Long Range Transportation Plan

U. S. Department of Transportation
Infrastructure for Rebuilding America (INFRA)
Nationally Significant Freight and Highway Projects

Project Name:	I-395/Route 9 Connector
Project Location:	Rural, Maine 2nd Congressional District
INFRA Funds Requested:	$33,825,000
Total Federal Funding:	$39,625000
Funds Matched:	$39,625,000
Total Project Cost:	$79,250,000
Contact:	Ms. Jennifer Grant, Policy Development Specialist Maine Department of Transportation 16 State House Station Augusta, ME 04333-0016 Telephone: 207-624-3227 Email: jennifer.grant@maine.gov

I-395/Route 9 Connector Project



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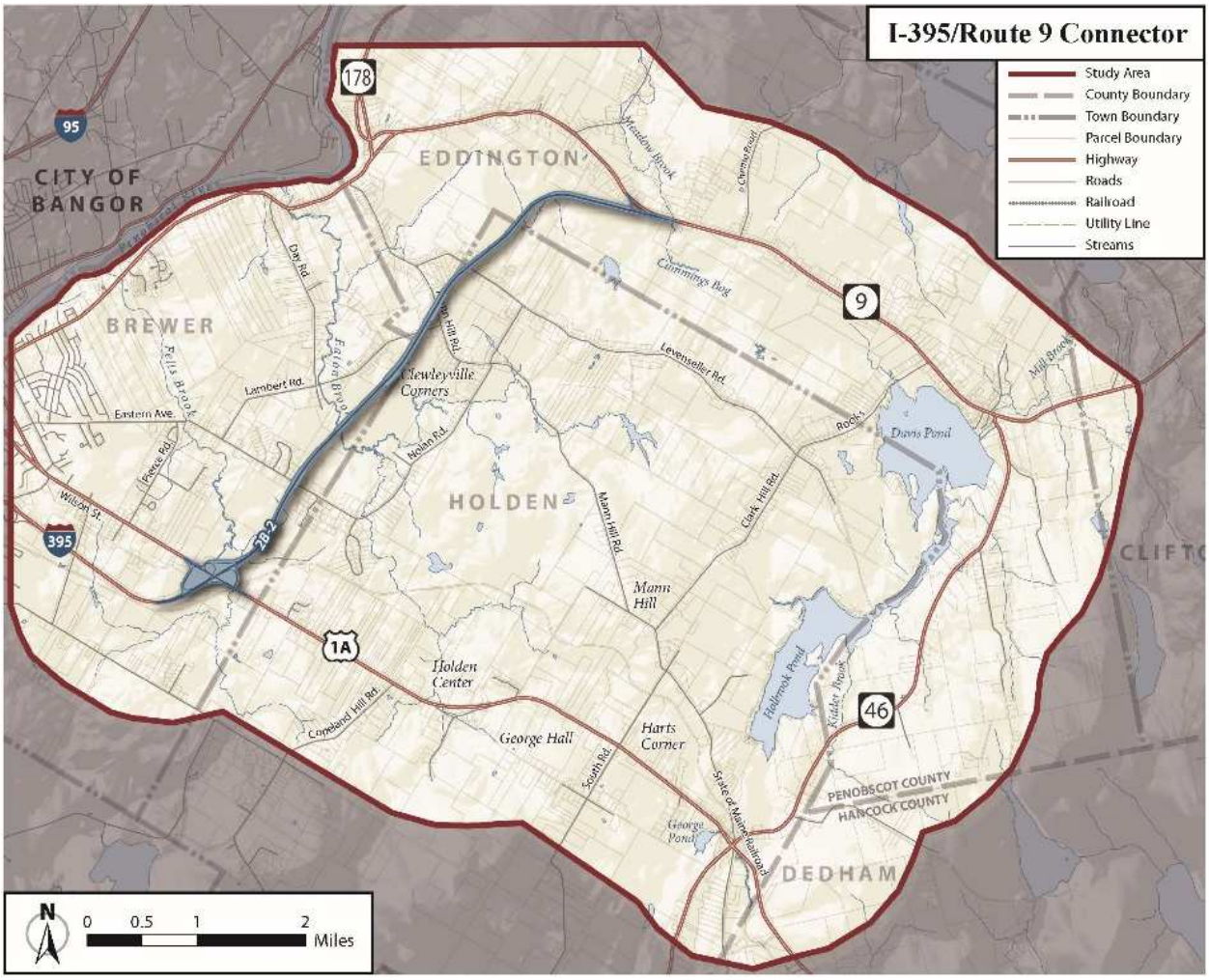
1. PROJECT DESCRIPTION

Maine Department of Transportation (MaineDOT) is developing the I-395/Route 9 Connector project to complete a "missing link" that would provide a regional solution to improve transportation-system linkage, safety, and mobility between I-395 and Route 9 in north-central Maine. The greater Bangor/Brewer area is the economic and employment center for the north-central Maine region and a center for goods movement because of its proximity to the Interstate system and Canadian markets. Outside of the Bangor/Brewer area, the area quickly becomes very rural.



a. History and Broader Context

The opening of I-395 created the need to provide the missing link between I-395 and Route 9.

Opening of I-395

In 1987, I-395 was extended from Bangor to Route 1A to provide a direct connection between I-95 and Route 1A. This direct connection was needed to accommodate substantial seasonal tourist traffic destined for Acadia National Park and other coastal locations. By establishing a direct connection between I-95 and Route 1A, seasonal tourist traffic could avoid travel through the urbanized Bangor/Brewer area.

The construction of I-395 also provided a new highway connection for motorists and commercial freight traveling between the Bangor/Brewer area and the Downeast portion of Maine and the Canadian provinces of New Brunswick and Nova Scotia via Route 9. The construction of I-395 allows traffic destined for the international border crossing at Calais, Maine, and other points to the east to use Routes 1A and 46, connecting with Route 9 — thereby avoiding travel on local streets through the Bangor/Brewer area. This alteration in travel patterns generated a distinct change in the movement of regional passengers and goods and contributed to an increase in traffic and safety concerns along local roadways in the area as drivers try to avoid the more congested state roads.

System Linkage

In Maine, I-395, Routes 1A, and 9 are part of the NHS. MaineDOT and FHWA desire a better connection in the NHS between the Interstate, Routes 1A and 9. Route 9 in the city of Bangor (also known as Main Street) is part of the NHS, but it is posted at 25 mph and has several signalized intersections before connecting with I-395 in downtown Bangor. Although it is designated as part of the NHS, Main Street does not provide the level of mobility and regional connectivity envisioned as part of the NHS.

Route 9, Downtown Bangor, Maine

With the I-395/Route 9 Connector in place, the region would have an interconnected system of principal arterial highways that will serve major population centers, as well as interstate and interregional travel. Construction of this vital link would allow MaineDOT and FHWA to move the NHS designation from Main Street in downtown Bangor to the Connector.

b. Transportation Challenges

The overarching challenges to transportation in the area are:

- Poor system linkage and the lack of continuity in the transportation system as the existing highways transition between wider, higher-speed segments to narrower, lower-speed segments;
- Inefficient vehicle movements and travel patterns between the economic hub for the region in the Bangor/Brewer area to the extremely rural areas to the east;
- Delays in passenger and freight movement;
- Conflicts between local and regional traffic; and
- Abrupt transitions in travel speed, roadway geometry, and capacity.

c. Project Purpose

The purposes of the I-395/Route 9 Connector are to 1) facilitate moving the NHS designation from Main Street in downtown Bangor to the Connector; 2) improve regional system linkage; 3) improve safety; and 4) improve the current and future flow of traffic and the shipment of goods to the interstate system.

In support of the planning study, a public advisory committee (PAC) was assembled to participate in the planning and development of the I-395/Route 9 Connector; the PAC consisted of volunteer citizens who are representatives of the city and towns in the area and the adjoining areas. Using the PAC throughout the planning process helped to ensure the I-395/Route 9 Connector was reflective of the public's values and that their values were incorporated into the project. In recognition of the overarching purposes, the PAC developed a set of goals:

- Safer travel from I-395 to Route 9;
- Travel efficiency;
- Neighborhood protection;
- Economic development;
- Environmental protection;
- Long-range, comprehensive planning;
- Connectivity with other roads and towns; and
- Access for emergency vehicles and general traffic.

d. Project Need

The need for the I-395/Route 9 Connector is based on poor roadway geometry in the area combined with an increase in local and regional commercial and passenger traffic that has resulted in poor system linkage, safety concerns, and traffic congestion.

Poor System Linkage

Vehicles traveling through the area from I-395 to Route 9 generally proceed from I-395 to Routes 1A, 46, and 9, routes that have abrupt transitions in travel speed, roadway geometry, and capacity:

- I-395 between I-95 in Bangor and Route 1A has two eastbound and two westbound lanes separated by an approximately 50-foot grass median. It connects to Route 1A in Brewer with a partial cloverleaf interchange. I-395 has a posted speed of 55 mph.

- Route 1A is a principal arterial highway connecting the greater Bangor/Brewer area with the coast at Bar Harbor and Acadia National Park. West of the I-395 interchange, Route 1A has two eastbound lanes and two westbound lanes. East of the I-395 interchange, Route 1A has one eastbound lane, one westbound lane, and a center turn lane for approximately 1.3 miles east of the I-395 interchange; the remainder of Route 1A has one eastbound and one

Route 1A/46 Intersection, Holden, Maine

westbound lane with no center turn lane. Access to Route 1A from its adjacent properties is not controlled and the speed is posted at 25 to 45 mph, depending on location. Over time, the areas adjacent to Route 1A have become increasingly commercial.

Route 46, Holden, Maine

- Route 46 is a two-lane collector road connecting Route 1A to Route 9. Access to Route 46 from adjacent properties is not controlled; portions of Route 46 are steep and exceed the State of Maine's design criteria. Route 46 is posted at 35 or 45 mph with four feet wide gravel shoulders. The land adjacent to Route 46 is primarily mature forested areas with scattered residences, the Holbrook Middle School, and open areas. Because of the mature forest canopy, considerable portions of Route 46 are shaded, and snow and ice do not melt rapidly.

- Route 9 is a two-lane principal arterial highway connecting the greater Bangor/Brewer area with rural Washington County and the Canadian Maritime Provinces to the east. Access to Route 9 from its adjacent properties is not controlled and is posted at 35 or 55 mph with some school zones. The land uses adjacent to Route 9 are primarily commercial and residential with some undeveloped and underdeveloped areas. Over time, the areas adjacent to Route 9 are becoming increasingly more developed. To the east, the land uses and land cover adjacent to Route 9 quickly become very rural and the speed limit increases to 55 mph. Most of the land adjacent to Route 9 between the study area and the Canadian border is undeveloped.

Route 9, Brewer, Maine

Safety Concerns

Locations in the area exhibit higher crash rates than other locations in Maine with similar characteristics. Analysis of crash data collected by MaineDOT shows that crashes occur throughout the area. Most crashes occurred on clear days with dry road conditions. (More detailed information on crashes can be found in Section 5.a)

Traffic Congestion

Since the extension of I-395 from Bangor to Route 1A in 1987, traffic volumes in the region have increased steadily. This growth has been most pronounced along Route 46 between Routes 1A and 9, which has become more widely used by both passenger vehicles and trucks as a connection between I-95, I-395, and Route 9.

Estimates of the current and future annual average daily traffic (AADT) for all vehicles and heavy trucks were determined based on MaineDOT traffic count data. Between 2006 and 2045, traffic volumes on Route 46 between Routes 1A and 9 are forecasted to increase by approximately 6,300 vehicles per day (Exhibit 1.1).

Exhibit 1. 1 - Existing and Future Traffic

Location	2006 AADT	2010 AADT	2045 AADT	2010 Truck AADT	2045 Truck AADT
Route 1A east of I-395	20,370	22,236	33,070	1,569	2,449
Route 1A west of Route 46	15,220	16,976	30,600	1,569	2,449
Route 1A east of Route 46	11,260	12,116	18,870	1,569	2,449
Route 46 south of Route 1A	1,870	2,021	3,130	265	281
Route 46 north of Route 1A	2,270	3,058	8,570	604	1,167
Route 9 east of Route 178	6,870	7,156	8,730	569	662
Route 9 west of Route 46	5,050	5,129	5,410	604	1,167
Route 9 east of Route 46	5,400	5,830	10,940	879	1,535

MaineDOT estimated the design hour volume, volume/capacity ratios, operating speeds, and overall Level of Service (LOS) of these roadway segments using peak season 2006 travel conditions and forecasted peak season 2045 travel conditions.

The intersection of Routes 1A and 46 is signalized. This intersection handles traffic traveling to and from the areas of Downeast Maine and traffic to and from the coast. By 2045, with increases in traffic volume and corresponding increases in delays, this intersection is forecasted to decline to an overall performance LOS F. The intersection of Routes 46 and 9 is unsignalized. This intersection handles traffic traveling to and from Bangor (and the Interstate system and Downeast Maine). By 2045, with increases in traffic volume, this delay is forecasted to decline to LOS F (Exhibit 1.2).

Much of the truck traffic in the region is through-traffic. Most of the truck trips are between the Canadian Maritime Provinces and Washington County at the eastern end, and I-395 and I-95 serving Maine and the other New England States, at the western end. Approximately 80 percent of truck traffic on Route 9 uses Route 46, and approximately five of six heavy trucks that use Routes 46 and 1A also use I-395.

A November 2011 change in weight restrictions on I-95 and I-395 had an impact on truck traffic patterns in the region. The lifting of the 80,000-pound weight restrictions on the toll-free portions of the Interstate showed definite shifts of 6-axle truck traffic toward toll-free Interstate highways and away from parallel state highways and the Maine Turnpike, where the restriction has long been 100,000 pounds.

e. Independent Utility

The I-395/Route 9 Connector has independent utility; Route 9 would continue to operate with sufficient capacity and at virtually the same operating speed without the need for improvement.

f. Previously Incurred Cost

Over the past 18 years, MaineDOT has expended approximately $3.10 million dollars on the planning study, preliminary design, NEPA compliance, and other approvals in support of the I-395/Route 9 Connector. These prior expenditures are not included in the current cost estimate for the project. Approximately $305,000 has been spent in 2017 on preliminary engineering and right of way, which is included as a previously incurred cost within the current cost estimate.

Exhibit 1.2 - DHV, v/c Ratio, LOS, and Average Travel Speed for Roadways Segments

Year	DHV	v/c Ratio	Average Travel Speed (mph)	LOS Rural Two-Lane Road
Route 1A east of I-395				
2006	2,001	0.69	33.2	E
2045	3,269	1.12	varies	F
Route 1A east of Route 46				
2006	1,268	0.43	44.2	D
2045	2,123	0.72	37.5	E
Route 46 between Routes 1A and 9				
2006	197	0.12	45.6	C
2045	1,006	0.40	40.8	D
Route 9 east of Route 178				
2006	629	0.26	41.3	D
2045	873	0.36	39.5	E
Route 9 east of Route 46				
2006	573	0.23	43.5	D
2045	1,267	0.46	39.3	E

1) DHV is the 30th highest hour of travel during a year at a given location; therefore, it accurately reflects the heaviest summer travel congestion.
2) v/c ratio is a measure of traffic demand on a roadway (expressed as volume, "v") compared to its traffic-carrying capacity (expressed as capacity, "c").

2. PROJECT LOCATION

a. Geographic Description

The I-395/Route 9 Connector project is located largely to the east of the greater Bangor/Brewer area in Penobscot County, Maine. The greater Bangor/Brewer area is the economic and employment center for the north-central Maine region and a center for goods movement because of its proximity to the Interstate system and Canadian markets. To the east of the Bangor Bangor/Brewer area, the area quickly becomes very rural and the I-395/Route 9 Connector project would most directly affect regional traffic through the towns of Holden, Eddington, Clifton, and Dedham.

Central Maine has a rolling to hilly topography, with steep inclines and expansive wetlands in lower-lying areas. Winter temperatures are below zero degrees Fahrenheit and average annual snowfall is 60 to 90 inches. Heavy fog can occur in low-lying areas.

Two of the purposes of the I-395/Route 9 Connector are to improve regional system linkage and improve the current and future flow of traffic and the shipment of goods to the interstate system. Vehicles traveling through the area from I-395 to Route 9 generally proceed using the following highways and connections:

- I-395 between I-95 in Bangor to Route 1A in the City of Brewer.
- Route 1A is the principal arterial highway connecting the greater Bangor/Brewer area with the coast at Bar Harbor and Acadia National Park.

- Route 46 is a two-lane collector road connecting Route 1A to Route 9.
- Route 9 is a two-lane principal arterial highway connecting the greater Bangor/Brewer area with rural Washington County and the Canadian Maritime Provinces to the east.

b. Urbanized Area

The western portion of the region most directly affected by the I-395/Route 9 Connector is within the Bangor, Maine Urbanized Area. Most the region to the east is outside of the Bangor Urbanized Area and is rural. The Connector will be 6.1 miles long extending from the I-395 interchange at Route 1A, 44.771326, -68.721378, to Route 9 west of Chemo Pond Road at 44.816838, -68.642523. The connector passes through zip codes 04412, 04428, and 04429 within the Bangor/Brewer area.

3. PROJECT PARTIES

The project parties are MaineDOT and the FHWA. MaineDOT would be the grant recipient. Throughout the planning study and NEPA process, the Federal Highway Administration (FHWA), the U.S. Environmental Protection Agency (USEPA), U.S. Fish & Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration–National Marine Fisheries Service (NOAA-NMFS), Maine Department of Environmental Protection (Maine DEP), and Maine Historic Preservation Commission (MHPC) acted as cooperating agencies.

4. GRANT FUNDS, SOURCES, AND USES OF ALL PROJECT FUNDING

a. Sources and Uses of Project Funds

The total project cost for the project is presented in Exhibit 4.1 (see following table).

Exhibit 4.1 – Total Project Cost

	MaineDOT	Other Federal (STP)	INFRA	Total	Percentage of Total Project Cost
Preliminary Engineering	$3,900,000	$1,600,000	$0	$5,500,000	7%
Right of Way	$5,450,000	$4,200,000	$0	$9,650,000	12%
Construction	$27,175,000	$0	$33,825,000	$61,000,000	77%
Construction Engineering	$3,100,000	$0	$0	$3,100,000	4%
TOTAL	$39,625,000	$5,800,000	$33,825,000	$79,250,000	100%
% of TOTAL Project	50%	7%	43%	100%	

All INFRA grant funding for the project will be expended on actual construction costs. It will not be used for engineering-related costs or any right of way acquisition.

b. Future Eligible Costs

Future eligible costs for the project are presented in Exhibit 4.2 below.

Exhibit 4.2 – Future Eligible Costs

Total Project Cost	$79,250,000
Previously Incurred Expenses to Date (PE and ROW)	$305,069
Future Eligible Costs	$78,944,931

Note: Previously incurred costs noted above relate to preliminary engineering and right of way only; the planning study and NEPA compliance ($3.10 million) related to this project were expended as part of a separate project and not reflected in this calculation.

Of the total future eligible project costs, MaineDOT has already programmed $1,450,000 in State funds and $5,800,000 in Federal Surface Transportation Program (STP) funds for a total of $7,250,000 (80% Federal/20% state match) for this project, as shown in MaineDOT's current State Transportation Improvement Program (STIP) found here: http://www.maine.gov/mdot/stip/docs/FinalSTIP2017_2018_2019_2020.pdf

The remainder of the non-federal match ($38,175,000) will be reflected in MaineDOT's upcoming STIP(s) and will be programmed using state-derived funds.

INFRA funds will comprise the remaining project balance of $33,825,000.

c. Non-Federal Funds

Funding for the entirety of MaineDOT's portion of the project will be state-derived (Highway Fund revenues and/or General Obligation Bond proceeds). A match commitment letter from the MaineDOT Commissioner is attached as Attachment B. MaineDOT is well equipped to manage and administer this grant, having received and managed several USDOT grants for highway, railroad and transit programs including previous TIGER and FASTLANE awards. MaineDOT estimates that an additional $500,000 in expenditures for preliminary engineering and right of way acquisition for the project will be incurred, prior to the award of the INFRA grant.

d. Contingency

MaineDOT maintains a department-wide contingency fund to accommodate all projects, if project overages occur.

5. MERIT CRITERIA

a. Support for Regional Economic Vitality: Benefit Cost Analysis Results

The benefit-cost analysis conducted for this project follows the procedures outlined in *USDOT Benefit-Cost Analysis Guidance for TIGER and INFRA Applications* (July 2017). Benefits and costs are expressed in 2016 dollars, and discounted using a 7% discount rate in accordance with OMB Circular A-94. An analysis period of 40 years was selected (2017-2057). This analysis period reflects a timeframe during which the full operational benefits of the project can be realized.

Three benefit categories were measured for the project: travel time savings, vehicle operating cost savings, and a reduction in crash-related costs. Other non-quantified benefits are discussed qualitatively, including a reduction in regional traffic congestion, and improved mobility and regional connectivity in the National Highway System.

Travel Time Savings

To quantify the travel time savings resulting from the project, the vehicle hours traveled (VHT) under the project were compared to the No-Build Alternative. VHT for the project were derived from the shift of traffic from Route 1A and Route 46 to the project and Route 9.

Heading East on Route 9 in Brewer, Maine

Traffic volume projections developed in the FEIS for the No Build and project were based on a review of traffic forecasts from the statewide travel demand model and historical traffic volume increases. A design year of 2035 was used in the FEIS for the traffic analysis; however, the current design year is 2045 to reflect a more accurate timeframe. The recession of 2008-2009 was a major factor in stagnation of traffic growth in the years immediately following. Updated count data shows an apparent low point in 2012 and an increase in volume in 2014 and 2015. When reexamining the 2035 volumes from the FEIS, MaineDOT developed high and low trend lines to 2045 based on historic average annual daily traffic (AADT) using pre- and post-recession AADT figures. The analysis determined that the previous forecast 2035 AADT on Route 9 falls within the trend lines and remains valid. The volumes are well within the capacity of a two-lane highway for the design year of 2045.

In 2045, the new two-lane highway will carry approximately 20 percent (7,745 AADT) of the total traffic through the region and most of the traffic destined between I-395 and Route 9, thereby reducing traffic volumes and increasing mobility and safety on Routes 1A and 46.

The new alignment represents a decrease of 0.4 miles for passenger vehicles (6,520 AADT) and freight trucks (1,225 AADT) moving through the region. The reduction in VHT from this shorter route was calculated assuming traffic moves an average of 49 mph under the project versus 34 mph through the region under the No Build Alternative. These average travel speeds represent a weighted average of traffic speeds for component road segments, modeled for existing and proposed conditions.

Travel time savings for passenger vehicles was estimated based on the hourly value ($14.10) for all purposes private vehicle travel from the USDOT publication, *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis* (2016). Values are expressed in 2016 U.S. dollars per person-hour. The number of passenger vehicles was multiplied by an assumed occupancy of 1.39 passengers to estimate a total travel time savings, based on FHWA guidance (2015).

Travel time savings for freight trucks was based on the hourly value ($27.20) for truck drivers in the USDOT publication, *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis* (2016). Occupancy for freight trucks was assumed to be 1.0 operators, in accordance with FHWA guidance (2015).

The proposed project will provide travel time cost savings over the No-Build Alternative. VHT savings with the project for both passenger and freight trucks will be $5,923,845 annually (Exhibit 5.1).

Exhibit 5.1 – Changes in VHT and Travel Time Costs

Alternative	AADT	Length (Miles)	Miles Traveled	Vehicle Hours Traveled	Travel Time Savings Over the No Build (hours traveled)	Vehicle Occupancy (number of occupants)[1]	Vehicle Total Costs per hour[2]	Total Travel Time Savings Over the No Build
Passenger Vehicle								
No Build	6,520	10.2	24,273,960	711,846	n/a	1.39	$14.10	n/a
Proposed Project	6,520	9.8	23,322,040	472,106	239,740	1.39	$14.10	$4,698,669
Freight Truck								
No Build	1,225	10.2	4,560,675	133,744	n/a	1.00	$27.20	n/a
Proposed Project	1,225	9.8	4,381,825	88,701	45,043	1.00	$27.20	$1,225,176

1. Occupancy per vehicle type derived from Federal Highway Administration *Highway Statistics 2015*, Table VM1.
2. Hourly values of time travel savings derived from USDOT *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis* (2016).
3. Average travel speeds for No Build (34.1 mph) and proposed project (49.4 mph) are weighted average of traffic speeds on component road segments, modeled for existing and proposed conditions for the FEIS.

Operating Cost Savings

To quantify the operating cost savings resulting from the project, the change in VMT was monetized and compared to the No-Build Alternative. VMT for the project was derived from the shift of traffic from Route 1A and Route 46 to the project and Route 9. The new alignment represents a decrease of 0.4 miles for passenger vehicles (6,520 AADT) and freight trucks (1,225 AADT) moving through the region.

Operating cost savings were based on estimated operating costs of $0.40 per mile for passenger vehicles, and $0.96 per mile for freight trucks. Passenger vehicle operating costs were derived from the publication American Automobile Association, *Your Driving Costs 2016.* Freight truck operating costs were derived from the American Transportation Research Institute publication, *An Analysis of the Operational Costs of Trucking: 2016 Update* (2016).

Cost savings for passenger vehicle drivers and freight truck drivers will be $552,464 with the proposed project in comparison to the No-Build Alternative (Exhibit 5.2).

Exhibit 5.2 – Changes in VMT and Vehicle Operating Costs

Alternative	AADT	Length (Miles)	Vehicle Miles Traveled	Vehicle Operating Costs per mile[1]	Vehicle Operating Costs	Operating Cost Savings Over the No Build
Passenger Vehicle						
No Build	6,520	10.2	24,273,960	$0.40	$9,709,584	$0
Proposed Project	6,520	9.8	23,322,040	$0.40	$9,328,816	$380,768
Freight Truck						
No Build	1,225	10.2	4,560,675	$0.96	$4,378,248	$0
Proposed Project	1,225	9.8	4,381,825	$0.96	$4,206,552	$171,696

1. Passenger vehicle operating costs derived from American Automobile Association, *Your Driving Costs –2016* (2016). Freight truck operating costs derived from American Transportation Research Institute, *An Analysis of the Operational Costs of Trucking: 2016 Update* (2016).
2. Proposed project length includes 6.1 miles of new alignment and 3.7 miles of existing Route 9 from the new proposed intersection to the Route 9/46 intersection.

Reduction in Crash-Related Costs

Locations in the region exhibit higher crash rates than other locations in Maine with similar road-way and traffic characteristics. To evaluate the potential improvement in safety, the project and the No-Build Alternative were evaluated using the FHWA Interactive Highway Safety Design Model (IHSDM).

Estimates of crashes for the project and the No-Build Alternative were developed using engineering alignments and the Crash Prediction Module of the IHSDM model. Crash types were categorized using the KABCO Injury Severity Scale.

The project has a lower crash potential than the No-Build Alternative. The project will have a lower number of potential crashes across all crash types. The major factor providing an advantage to the project is that fewer vehicle conflict points exist in comparison to the No-Build Alternative. The new connector will be limited access between I-395 and Route 9, eliminating existing conflicts experienced on Route 1A, Route 46, and Route 9. The improved horizontal and vertical grades (i.e., fewer sharp turns and hills than the No-Build Alternative) of the project also contribute to reduced crash potential.

USDOT Guidance on Treatment of the Economic Value of A Statistical Life (2016) was used to estimate the potential costs associated with the range and number of predicted crashes resulting in injury or fatality. The National Highway Safety Traffic Administration publication, *Economic and Societal Impact of Motor Vehicle Crashes* (2010, revised) was used to estimate the costs associated with crashes resulting in property damage only. The project would result in an approximately $5,649,118 savings in crash costs annually in comparison to the No-Build Alternative (Exhibit 5.3).

Exhibit 5.3 – Changes in Crash-related Costs by KABCO Injury Severity Scale

Alternative	No Build	Proposed Project
Fatal Crashes (KABCO Level K)[1]	1.67	1.22
Cost per Level K Crash	$9,600,000	$9,600,000
Number of Incapacitating Crashes (KABCO Level A)	3.67	2.68
Cost per Level A Crash	$459,100	$459,100
Number of Non-Incapacitating Crashes (KABCO Level B)	7.67	5.60
Cost per Level B Crash	$125,000	$125,000
Number of Possible Injury Crashes (KABCO Level C)	28.00	20.44
Cost per Level C Crash	$63,900	$63,900
Number of No Injury Crashes (KABCO Level O)	107.67	78.60
Cost per Level O Crash	$4,252	$4,252
Total Crash Costs	$20,922,660	$15,273,542
Crash Cost Savings over the No Build	n/a	$5,649,118

Source: *USDOT Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses* (2016), and *Economic and Societal Impact of Motor Vehicle Crashes* (National Highway Safety Traffic Administration 2010, revised).

1. Number of crashes under the No Build represents an annual average of existing conditions for years 2014-2016.
2. Estimates of crashes for the proposed project were developed using engineering alignments and the Crash Prediction Module of the IHSDM model.

Benefit Cost Ratio and Net Benefits

Total annual benefits from the project will be $12,125,427 as of 2045, the design year. It was assumed that a lower level of benefits would begin in year 1 of the project life. Because the amount of benefits was not modeled separately for each year, it was assumed that one-half of design year benefits would occur in project year one, and increase linearly until 2045. For the remainder of the analysis period from 2045 through 2057, benefits were assumed to be constant.

The residual value of right of way, bridges, perpetual pavement, and highway subgrade was added as a benefit in year 2057. Right of way was assumed to retain the same value throughout the project life. Bridges were assumed to depreciate linearly over 75 years. Perpetual pavement and highway subgrade were assumed to depreciate linearly over 50 years.

Annual operation and maintenance (O&M) costs were assumed to vary during the project life. A cost of $38,500 was assumed to occur annually for bridge washing and basic maintenance. At periodic intervals, MaineDOT will treat the perpetual pavement road surface at a cost of $1,067,500-$1,616,500 per application. MaineDOT will also apply silane treatment to the bridges every ten years, at $90,000 per application. Other periodic bridge O&M costs were estimated by MaineDOT civil engineers and include various repair and maintenance items (see attached Net Present Value spreadsheet in Attachment A). O&M costs were subtracted from the benefits when calculating the benefit cost ratio, in accordance with USDOT guidance.

Benefits and costs were brought to present value using a 7% discount rate, amortized over the 40-year project analysis period (Exhibit 5.4). The average annual equivalent value of benefits is $5,308,600, compared to $3,955,000 in average annual equivalent costs. Average annual equivalent net benefits are $1,353,600, and the benefit to cost ratio is 1.3.

Exhibit 5.4 - Benefit Cost Analysis Summary

	Sum of Present Values	Annual Average Equivalent Value
Benefits	$75,726,400	$5,308,600
Costs	$56,418,200	$3,955,000
Net Benefits	$19,308,200	$1,353,600
Benefit to Cost Ratio	1.3	1.3

For comparison purposes, net benefits were also calculated using a 3% discount rate. The resulting average annual equivalent net benefits would increase to $4,385,600, and the benefit-cost ratio would increase to 2.5. MaineDOT considers the lower discount rate to be more representative of current interest rates in financial markets. A higher discount rate also has a disproportionately negative effect on projects that require significant upfront construction expenditures, and have benefits occurring over the long-term future. For a full analysis of the Benefit Cost, see Attachment A.

Summary of Improvements to Regional Economic Vitality

The project will improve safety and system continuity for regional travel between I-395 and Route 9 by providing a new controlled-access highway with improved uniformity in speeds and roadway geometry. The proposed highway will carry a similar lane configuration throughout the entire length and will be posted at 55 mph. The proposed highway will bypass portions of Routes 1A and 46 that lack continuity, thereby reducing traffic congestion. Delays at the signalized intersection of Routes 1A and 46 will be less than 80 seconds for all movements, except for left turns from westbound Route 1A to southbound Route 46, due to reductions in through-traffic along Route 1A. At the intersection of Routes 9 and 46, delay for vehicles from Route 46 northbound to Route 9 in 2035 will decrease to approximately 21.5 seconds.

Tight turn at Route 46/9 Intersection, Eddington

The project will create an opportunity to re-designate a portion of the National Highway System from downtown Bangor and Brewer to the new limited access alignment, providing a vital link in the development of an east-west highway system in Maine. The new alignment will eliminate a bottleneck in the freight supply chain for the region, which serves as the economic and employment center for north-central Maine.

The project will improve transportation infrastructure that supports commerce and economic growth for north-central Maine. Strong economic potential exists for increased trade between Maine businesses and Canada, Maine's largest export market. The I-395/Route 9 Connector will allow the region to capitalize on geographic opportunities for international trade and tourism.

MaineDOT received letters of support from corporate and governmental entities and private citizens in support of this grant to secure funding to bring the project to completion. See Attachment G to review those letters.

b. Leveraging Federal Funds

MaineDOT is committed to providing $39,625,000 in non-federal funds. Total federal funding for this project is $39,625,000 of which $33,825,000 is being requested from INFRA.

MaineDOT recognizes that applications that have a lower federal matching funds share are more competitive in the review process than those requesting a 50:50 share. However, the State of Maine is constrained to provide more funding than the amount being offered due to the size of its transportation system, increasing funding demands across a range of needs, and a decreasing population from which to get the needed revenues. Maine is currently 41[1] among states in Gross Domestic Product and 43[2] in Per Capita Income.

This project has wide-spread public benefit; no one individual or company directly or disproportionately benefits sufficiently to invest. It would be highly desirable to have non-government partnerships that could help underwrite the cost of this large transportation project; however, this project is beyond the scope of the two MaineDOT cost-sharing programs in which it participates. The funding available through these programs is limited and the scale of the projects are substantially smaller than the I-395/Route 9 Connector Project.

Any projected savings can be used to leverage other funds to meet other system needs. For example, the cost to preserve Maine's highway network using current pavement preservation treatments and highway corridor priorities would be $122 million per year. By adopting the highway corridor priority framework and implementing the Cyclical Pavement Resurfacing (CPR) program, MaineDOT can meet preservation needs at the lower cost of $107 million per year, paving approximately 430 centerline miles each year.

The State recognizes this as a public investment essential to the State's economic wellbeing and future prosperity. The burden of the project cost falls on State taxpayers who will provide funds from the State Highway Fund and/or a transportation bond. (Note: transportation bonds have historically received voter approval in the high 60, low 70 percentiles.) Regardless of how that mix of funding will be provided, the MaineDOT has committed (see Attachment B) to providing the necessary funds.

By requesting 43% INFRA funds MaineDOT can use the savings to meet other demanding transportation needs statewide. Without those funds MaineDOT would likely proceed with this project but that would have a major ripple effect in funding other needed work. This approach to funding solutions allows MaineDOT the opportunity to achieve the greatest benefits by leveraging funds across a range of projects.

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[1] *"Per capita real GDP by state (chained 2009 dollars)". Bureau of Economic Analysis. Retrieved 8 June 2017.*

[2] *"Gross domestic product (GDP) by state (millions of current dollars)". Bureau of Economic Analysis. Retrieved 8 June 2017.*

c. Potential for Innovation

Environmental Review and Permitting

In 2017, MaineDOT completed a programmatic consultation for freshwater portions of the Atlantic Salmon Distinct Population Segment (DPS) and its Critical Habitat (Maine Atlantic Salmon Programmatic Consultation [MAP]). As part of the consultation, MaineDOT committed to follow design methodology that attempts to mimic the natural stream channel throughout an entire stream crossing structure, a design method known as "stream sim." In return for committing to these design elements, MaineDOT reduces regulatory permitting processes from the standard 8-month review period to a 14- to 30-day abbreviated consultation, also saving approximately $15,000 in permit preparation costs.

The Felts Brook bridge crossing(s) will follow the "stream sim" method committed to under the Programmatic Agreement for Atlantic Salmon. Design metrics will include building the structure to a 1.2 bank full width. Substrate inside the structure will be consistent with surrounding natural stream dimensions, profiles, and dynamics. The streamlined consultation approach includes consistent design features that are efficiently implemented on all stream crossing structures evaluated under the Programmatic Agreement.

Perpetual Pavement

To compensate for the temperature extremes and weather conditions in Maine, MaineDOT will utilize Perpetual Pavement to meet the varied weather conditions and to provide for safer travel. Perpetual Pavement is a flexible but strong asphalt pavement that does not exhibit structural damage even with very high traffic flows over long periods of time.

Rutting is minimized with perpetual pavement, which, in a northern environment, will allow plow trucks to clear snow more completely and will shorten the time to get the pavement back to optimum travel usage. Hydroplaning during rain events likely will be reduced since ponding in ruts will be substantially eliminated.

Perpetual Pavement will last beyond 50 years if pavement is properly maintained at regular intervals. MaineDOT will maintain the surface with an ultra-thin bonded wearing surface approximately every eight years. Advancements in milling, recycling, and asphalt production technologies make it even more likely that perpetual pavements will perform better and longer without requiring major reconstruction fixes. Maintenance performed on a perpetual pavement only needs to address the top layer, saving time. Highway users are less inconvenienced when maintenance is quick and easy.

In addition to durability, perpetual pavement saves money because it does not require a full reconstruction as often as other surface types. Rehabilitating or reconstructing a pavement down to the surface requires a lot more time and effort for planning and execution. However, perpetual pavements usually only need the top surface treated.

Bridges

The bridges and spans will be designed to have useful lives of 75 to 100 years. To achieve that, MaineDOT will utilize a variety of innovative techniques in construction. Corrosion resistant stainless steel concrete reinforcing will be used for all superstructure elements, including abutment backwalls, and will be considered for substructure elements, especially piers. Low permeability concrete will be used in the bridge through performance-based specifications. Good detailing practices will be employed, including use of integral abutments or semi-integral abutments to

eliminate the use of joints; using the minimum number of deck drains possible; and using fiberglass reinforced polymer drains.

d. Performance and Accountability

MaineDOT utilizes performance measures to provide accountability and reach project delivery milestones in a timely manner. As can be seen in Section 6.b - Schedule, MaineDOT has a success rate of around 90% in meeting project delivery/advertised date. Other factors that will help in meeting that delivery are: 1) NEPA and other environmental approvals are already complete; and 2) MaineDOT will be delivering the project in-house, utilizing our multi-disciplinary project team that has been proven to deliver on large-scale projects. MaineDOT scheduling process is proven based on our high performance. Funding has already been established for preliminary engineering and ROW, which are both underway. Additional funding will be programmed in 2018 for those areas, with construction funding to be programmed in 2019 as the project progresses.

6. PROJECT READINESS

a. Technical Feasibility

MaineDOT has technical expertise across professional disciplines to successfully complete this project. This effort is being led by a seasoned Senior Project Manager who directs a multi-discipline team of over 30 professionals from all applicable areas of MaineDOT. MaineDOT is strongly committed to building this project, and has successfully completed an extensive planning study resulting in the *I-395/Route 9 Transportation Study – Final Environmental Impact Statement* (2015) MaineDOT staff were involved in all study aspects, giving them a "head-start" as they move forward on more detailed design and construction.

Following the issuance of a Record of Decision (ROD) in June 2016, MaineDOT received authorization to proceed in August 2016. $7.25 million was allocated for PE and ROW. The PS&E will be completed in June 2021 and the project will be advertised in July 2021 with the award of contract in August, 2021. The request to obligate INFRA 2018 funds will immediately follow the award of contract, well in advance of the September 30, 2021 deadline. ROD can be found at the following http://maine.gov/mdot/projects/I395rt9connector/materials/

The technical feasibility of design, design criteria, and cost estimates have received detailed scrutiny during the NEPA process, which evaluated more than 70 alternative alignments. To arrive at the preferred alternative, highway and bridge design were fit within the project parameters and constraints and required to be economically feasible.

For project final design MaineDOT is utilizing the *MaineDOT Highway Design Guide – Volume 1 National Standards* (February, 2015) which is based on the National Standards set forth by the American Association of State Highway and Transportation Officials (AASHTO) in *A Policy of Geometric Design of Highways and Streets 6th Edition* (2011, Errata 2013). The Guide must be utilized for all NHS projects.

MaineDOT utilizes MaineDOT *Bridge Design Guide 2003* (Revised March, 2017) and the *AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 7th Edition, with 2015 and 2016 Interim Revisions* (2016) The Bridge Design Guide is a companion volume to MaineDOT Bridge Program's *Project Management Guide* (2003) and *Bridge Plan Development Guide* (2007).

The I-395/Route 9 Connector Project will be held in-house and design will be undertaken by the Bureau of Project Development's Highway Program and the Bridge Program. Combined, these

two programs will be responsible for project development and oversight of 6.1 miles of new highway and 20 spans of 10 feet or greater in length. These seasoned Professional Engineers have been involved in recent (2016) major highway and bridge projects including 21 bridge replacements at $50 million and 22 miles of highway reconstruction at $90 million. These capital projects were delivered on time 87% (MaineDOT target – 80%) of the time and maintained administrative costs of 7.6% (MaineDOT target – 8%).

MaineDOT will explore whether the entire project should be under one contract or multiple contracts for both highway and bridge construction. Work on both will be staged from existing access points. The first order of business will be clearing of vegetation during the winter months to minimize impacts on the Northern Long-Eared Bat. Temporary structure(s) will be utilized at the I-395/Route 1A (Wilson Street) intersection to manage and maintain traffic flow. Construction that crosses local roads will be staged to minimize detours and maintain traffic flow. Best management practices will be deployed to minimize impacts on the environment.

The following projects are examples that demonstrate MaineDOT's ability to develop and construct this project:

- Reconstruction of 4.76 miles of Route 3 in Bar Harbor. The $25 million highway project is located on one of Maine's most active highways which leads to Acadia National Park. The project is ahead of schedule and within budget, and despite the impact on tourist travel, traffic management has received widespread praise. (on-going to 2019)

- Reconstruction of 4.6 miles Route 4 in Madrid. The $10.35 million (non-TIGER) project is the final unbuilt segment of Route 4 leading to Rangeley, one Maine's premier tourist destinations. The project will also replace the Weymouth Bridge at a cost of $2.4 million.

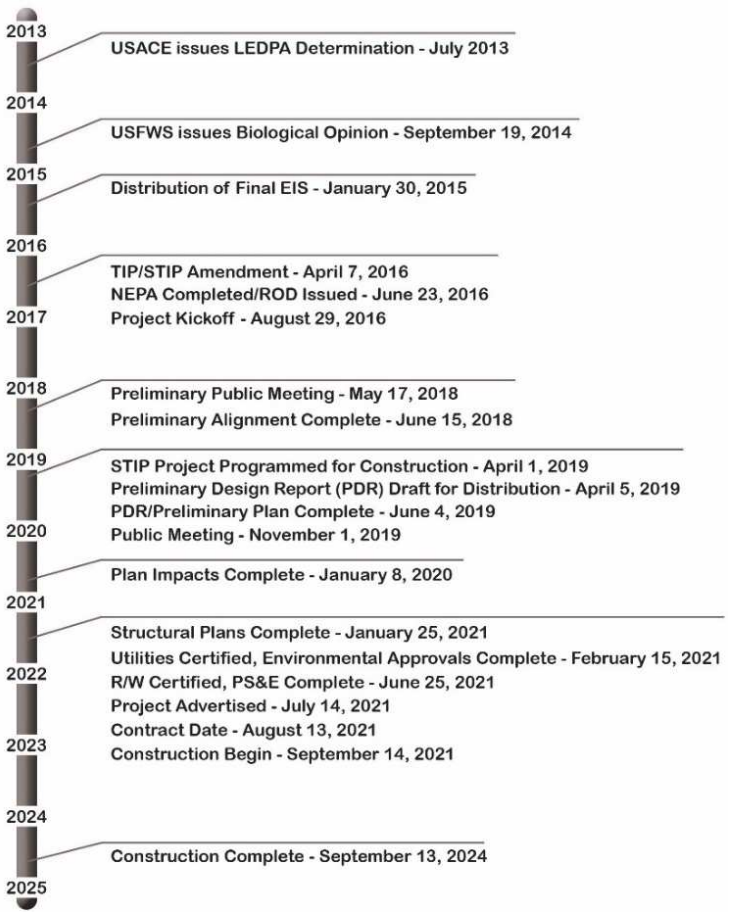
- Kennebec River Bridge replacement with an estimated cost of $18.2 million and a final delivered cost of $17.9 million, of which TIGER provided $8.1 million. (Completed 2016)

- Martin Memorial Bridge with a delivered cost of $9.8 million, of which TIGER provided $4.9 million. (Completed 2015).

b. Project schedule

Many required approvals for the project were completed during the planning study phase. Attachment D lists major milestones of the Planning Study while Attachment E shows the current project schedule. The schedule shown is only a portion of the full Gantt chart of over 100 Activities/Milestones that MaineDOT Project Managers use. Schedules are based upon templates determined by the scope of work and complexity of a project. These templates have been in use for several years and have helped MaineDOT to improve their performance in developing, maintaining, and complying with proper schedules. "Work Delivered on Time" is one of MaineDOT's Capstone Performance Measures, as noted in its Strategic Plan. In 2016, Work Plan capital work was advertised/delivered (advertised) on time 87% of the time. In 2017, the performance for delivering projects on time is 90% for both Highway and Bridge capital projects.

Some of the major milestones of the Planning Study and/or Project are as follows:



- **STIP.** The Planning Study was listed in various STIP's beginning in the 1990s. Preliminary Engineering (PE) and ROW were added into the STIP on April 7, 2016 in anticipation of the Record of Decision (ROD) that was issued on June 23, 2016. This allowed PE and ROW to begin at the time of the ROD issuance. Additional PE and ROW funds will be programmed in the 2018-2021 STIP, with Construction funds to be programmed in the 2019-2022 STIP. The project has and will continue to be included in the Bangor Area Comprehensive Transportation System (BACTS - the MPO for the greater Bangor area) TIP.
- **Authorization.** The Study was "Authorized to Proceed" on August 3, 1998, by the Federal Highway Administration.
- **NEPA.** The study was initiated in 2000 as an Environmental Assessment (EA) under the NEPA. Numerous Public Advisory Committee (PAC) meetings were held between 2001 and 2003. In October 2005, the Study was elevated to an Environmental Impact Statement (EIS) because of concerns regarding the potential for substantial impacts to wetlands and for the potential for habitat fragmentation. From 2001 to 2011, more than 70 build alternatives and the No-Build Alternative were conceptually designed and analyzed for impacts leading to the distribution of the Draft EIS on March 23, 2012, and the Final EIS (FEIS) on January 30, 2015. The Record of Decision (ROD) was issued by the FHWA on June 23, 2016, which selected Alternative 2B-2 as the environmentally preferred alternative. This NEPA approval decision gave MaineDOT approval to proceed with final design and to transition from a Planning Study to a Design Project.
- **Permitting.** The USACE selected the Least Environmentally Damaging Practicable Alternative (LEDPA) on July 31, 2013. This alternative, 2B-2, was the same preferred alternative selected in the NEPA process. Once final impacts are determined (Plan Impacts Complete), MaineDOT will apply for a final USACE permit. It is anticipated that final impacts will be known at the milestone of Plan Impacts Complete on February 7, 2020, with this and all other environmental permits being in place by March 16, 2021.

- **Design Completion.** The schedule shows Final Highway Design being completed by January 8, 2020. This date is the milestone of Plan Impacts complete where MaineDOT will know definitively those environmental, utility, and ROW impacts needed to finalize those processes. On January 25, 2021, the Final Structural Impacts for project bridges will be known. The design completion, along with the finalization of environmental, utility, and ROW, will allow us to meet our Plans, Specifications, and Estimate date of June 25, 2021. To achieve these dates, Highway and Bridge Design will be done in-house.

- **Right of Way Acquisition.** The acquisition of ROW is scheduled for June 19, 2021, and ROW will be certified on June 25, 2021. ROW activities are included in the overall capital projects scheduling and are therefore part of the 90% on-time delivery performance measurements. MaineDOT has confidence in the ROW schedule because under State Law, MaineDOT has the authority to use blanket condemnation to exercise eminent domain authority in acquisitions. This allows MaineDOT to have sole discretion in determination of exigency. With blanket condemnation process, all property can be acquired 30 days from the date the last offer is made. The property is acquired by filing a "Notice of Layout and Taking" in the County Registry of Deeds along with payment of just compensation to the owner at that time. Under Maine Law, the property owner does not need to reach settlement prior to this as their appeals rights continue even though the property is now owned in fee by the State of Maine.

- **Plans, Specifications, and Estimate Approval.** The PS&E date is scheduled for June 25, 2021. The above-mentioned milestones lead to this date. In addition to on-time delivery, a.k.a., the advertise date, PS&E is also measured for on-time performance. For 2017, 87% of MaineDOT projects meet the PS&E date.

- **Advertise, Award, Construction Begin.** Based on MaineDOT's improvements to project delivery over the past several years and the rate of at or near 90% of projects advertised on time, MaineDOT is confident that the project schedule as shown in Attachment E can be met. This schedule shows both the advertisement and award dates prior to the required obligation date of September 30, 2021.

c. Required Approvals

Information about the NEPA Status

MaineDOT and the FHWA – Maine Division, acting as co-sponsors, completed the NEPA process for the I-395/Route 9 Connector. The FEIS was signed and circulated in January 2015 and the ROD was issued on June 23, 2016. The ROD was issued with relatively few commitments and mitigation measures with the exception of the unavoidable impacts to Waters of the U.S. Copies of both the FEIS and ROD, as well as many of the other documents supporting this application, are on MaineDOT's I-395/Route 9 Connector website: http://maine.gov/mdot/projects/I395rt9connector/materials/

Throughout the NEPA process, the USEPA, USFWS, USACE, NOAA–NMFS, Maine DEP, and Maine Historic Preservation Commission (MHPC) acted as cooperating agencies; all were heavily involved in the planning and delivery of the project. These agencies, except for the MHPC, continue to participate in the development of the mitigation for the unavoidable impacts to Waters of the U.S.

Prior to completing the NEPA process and in support of both the EIS and the individual permit under Section 404 of the Clean Water Act, the USACE issued its Least Environmentally Damaging Practicable Alternative (LEDPA) determination for the Preferred Alternative for the I-395/Route 9 Connector on July 31, 2013. A copy of the USACE (LEDPA) determination is on the MaineDOT's I-395/Route 9 Connector website.

Interchange Modification Request

MaineDOT prepared an Interchange Modification Request (IMR) to analyze, document, and justify the changes to the Interstate system required to build the I-395/Route 9 Connector. The IMR analyzed each of the policy points in detail. The FHWA issued its conditional approval of the IMR on February 7, 2013, and, with the completion of the NEPA process, issued its final approval of the IMR on August 30, 2016. (See Attachment F).

Information of Reviews, Approvals, and Permits by Other Agencies

MaineDOT will be required to obtain the following permits and approvals prior to the advertisement of construction; in each case, they have started the process of preparing the required application or information:

- Section 404 (of the CWA) Individual Permit: MaineDOT submitted a preliminary Section 404 permit application to the USACE during the NEPA process. In response to the preliminary permit application, the USACE issued a public notice soliciting comments on the study and range of issues addressed in the DEIS. The preliminary Section 404 permit application assisted the USACE in its public interest finding and LEDPA determination. A final Section 404 permit application and permit will be required. MaineDOT is currently developing mitigation for the unavoidable impacts to Waters of the U.S. in support of the Section 404 permit.

- Natural Resources Protection Act (NRPA) Permit: In Maine, a NRPA Permit is required from the Maine DEP for projects in, on, over, or adjacent to protected natural resources. Protected resources are coastal wetlands, great ponds (ponds greater than 10 acres), rivers, streams, significant wildlife habitat, and freshwater wetlands. A joint permit application process – including both the Section 404 Individual Permit and the NRPA Permit – is used. The MaineDOT is currently developing mitigation for the unavoidable impacts to Waters of the U.S. in support of the NRPA permit. Maine Department of Environmental Protection (Maine DEP), Natural Resource Protection Act (NRPA**).** Once final impacts are determined, i.e., Plan Impacts Complete, MaineDOT's Environmental Office will apply for the Maine DEP NRPA permit for wetland and other natural resource impacts. Maine DEP utilizes an In Lieu Fee Compensation Program for the wetland mitigation process, which can help to accelerate the permit approval.

- Section 401 Water Quality Certification: A Section 401 Water Quality Certification will be required from the Maine DEP to ensure I-395/Route 9 Connector will comply with state water-quality standards. Typically, the Section 401 Water Quality Certification will be issued concurrently by the Maine DEP with the NRPA Permit.

- Coastal Zone Management Consistency Determination: A portion of the project is within the state's statutory coastal zone and subject to the provisions of the Coastal Zone Management Act (CZMA) of 1972 and the Maine CZM Program. The Maine Department of Agriculture, Conservation and Forestry administers the Maine Coastal Program. For efficiency,

consistency reviews and determinations are rendered following the review and approval of state permit applications. This project will require a NRPA Permit and a CZM Consistency Determination will be issued concurrently with the NRPA Permit.

Public Involvement

MaineDOT worked diligently to involve the public and incorporate their concerns in the planning of the I-395/Route 9 Connector. Public participation was initiated early in the NEPA process to ensure that public concerns were incorporated into the development of the I-395/Route 9 Connector. The public involvement program included scoping meetings, meetings of the Public Advisory Committee (PAC), public information in the form of newsletters, and information kiosks, a website, public meetings, and public hearings.

Two public scoping meetings were held; each was preceded by an open house and plans display. At the initiation of NEPA, a PAC consisting of local officials, business owners, the MPO, and private citizens from the towns of Bangor, Holden, Brewer, Eddington, Clifton, Bucksport, and Calais was formed. The purpose of the PAC and its meetings was to provide a forum and support the overall public involvement program. The PAC participated in the NEPA process by meeting 20 times with MaineDOT and FHWA and providing guidance on local issues and concerns and suggestions for improving the I-395/Route 9 Connector. The PAC meetings were working sessions open to the public and included time for questions and answers.

Public information was released throughout the study in the forms of newspaper articles, press releases, newsletters, and posters for display in city and town offices.

Three public meetings were held during the NEPA process. The suggestions received for improving the I-395/Route 9 Connector were to look for more immediate ways to ease congestion on I-395 and Route 1A, seek ways to minimize impacts to individual properties, consider wildlife mortality in the evaluation of alternatives, and consider actions to improve the safety on Route 46. In response to these suggestions, MaineDOT reduced the width of the ROW for the I-395/Route 9 Connector, committed to constructing wildlife underpass structures large enough to pass moose, and committed to performing safety audits of the highways in the area to see if additional improvements were possible.

MaineDOT and the FHWA announced the availability of the I-395/Route 9 Transportation Connector DEIS on March 23, 2012 with a 60-day comment period which included two open houses and a public hearing. The comments received on the DEIS were addressed throughout the FEIS and in the Responses to Substantive comments. In support of the FEIS, additional public meetings were held. Following the issuance of the ROD, a public informational meeting was held. Public meetings will continue during preliminary engineering.

STIP/TIP Approvals

The STIP is generally published April 1st each year and incorporates the TIPs. The I-395/Route 9 Connector will be listed for preliminary engineering and property acquisition for use as ROW for the Connector in the 2018-2021 STIP to be published in April 2018. It will also be listed in *MaineDOT's 2018-2020 Work Plan* to be published January 1, 2018, and funded for preliminary engineering and property acquisition.

Risks and Mitigation

The project risks and measures to mitigate and minimize those risks are presented in Exhibit 6.1 below.

Exhibit 6.1 – Risks and Minimization Measures

Risks	Minimization Measures
Environmental permitting/Restriction • Having completed the NEPA process, MaineDOT has provided extensive scientific information to support the project. The receipt of the Record of Decision and the Authorization to Proceed articulates the acceptable levels of environmental impacts allowed by this project. • Risks associated with this project would include failure to receive the few remaining permits from the Maine Department of Environmental Protection and the US Army Corps of Engineers and from failure to track and comply with any commitments made through the NEPA and permitting process.	Mitigation of possible risks include: • Reviews to be undertaken during preliminary design to insure the selected alternative is buildable given the various environmental restrictions • Final design that minimizes impacts on water bodies and wetlands and ensure that the design is consistent with compliance commitments made. • MaineDOT Environmental Office supports Construction Project Management throughout the construction phase to ensure best management practices are met and to ensure compliance with NEPA and permits. • Funds are available to provide through the In Lieu Fee Program for wetland impacts associated with the project via the USACE and Maine DEP permit process.
Cost control • While the preliminary design phase has begun for both the highway and bridges and while the extensive NEPA process identified costs for a range of alternatives, the final recommended designs of the highway and bridges could lead to additional scope and cost increases, especially if additional required work is identified to comply with permits.	Mitigation of possible risks include: • Preliminary design will evaluate a range of options for design that are constructible, meet all permit requirements, and are cost effective. • All project information is shared among the Project Team members, leading to rapid response should elements of the design conflict with regulatory requirements or are cost ineffective. • Constructability reviews will be a key focus during preliminary design with a focus on most constructible and cost effective as affected by NEPA compliance and regulatory permit considerations. • Should additional costs emerge during the design phase or construction, recommendations will be made for the use of contingency funds through MaineDOT's existing Work Plan Management process.
Right of Way and Acquisition • Properties affected by the project and targeted for acquisition within the project corridor have been identified. There may be some minor adjustments on details, such as slope easements or acquisitions.	Mitigation of possible risks include: • State of Maine law has authorized MaineDOT to use the power of eminent domain to acquire property needed for transportation projects. • MaineDOT has the authority to use blanket condemnation to exercise eminent domain authority in acquisitions. • The takings process is established to be completed expeditiously and in accordance with Maine State Law and a well-established process.

Risks	Minimization Measures
	• The takings process follows a 5-step process: 1) mapping, 2) appraisal, 3) negotiation, 4) offer, and 5) condemnation. • 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.

7. LARGE PROJECT REQUIREMENTS

Exhibit 7.1 – Large Project Requirements Summary

Large Project Determination	Summary and Cross Reference
1. Does the project generate national or regional economic, mobility, safety benefits?	Yes. • The project will improve safety and system continuity for regional travel by providing a new controlled-access highway with improved uniformity in speeds and roadway geometry. (Please refer to Section 1.a, "System Linkage") • The project will create an opportunity to re-designate a portion of the NHS and to redirect traffic from downtown Bangor and Brewer to the new limited access alignment, providing a vital link to the regional transportation system in Maine. (Please refer to Section 1.d, "Traffic Congestion") • The project improves transportation infrastructure to support economic growth for north-central Maine. Section 5.a – Support for Regional Economic Vitality
2. Is the project cost effective?	Yes. The benefit to cost ratio is 1.3. Section 5.a – Benefit Cost Analysis Results
3. Does the project contribute to one or more of the Goals listed under 23 U.S.C. 150 (and shown below)? (b) National Goals-It is in the interest of the United States to focus the Federal-aid highway program on the following national goals:	Yes. Section 5 – Merit Criteria
(l) Safety: To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.	Yes. The project has a lower crash potential than the No-Build Alternative. The project will have a lower number of potential crashes across all crash types due to fewer vehicle conflict points. Section 5.a – Support for Regional Economic Vitality
(2) Infrastructure condition: To maintain the highway infrastructure asset system in a state of good repair.	Yes. To compensate for Maine temperature extremes and weather conditions, MaineDOT will utilize Perpetual Pavement to meet the varied weather conditions and to provide for safer travel. Perpetual pavement is a flexible but strong asphalt pavement that does not exhibit structural damage even with very high traffic flows over long periods of time. Section 5.c – Use of New or Experimental Technologies

Large Project Determination	Summary and Cross Reference
(3) Congestion reduction: To achieve a significant reduction in congestion on the National Highway System.	Yes. The project will bypass portions of Routes 1A and 46 that lack continuity, reducing traffic congestion. Section 5.a – Summary of Improvements to Regional Economic Vitality
(4) System reliability: To improve the efficiency of the surface transportation system.	Yes. The project will create an opportunity to re-designate a portion of the NHS from downtown Bangor and Brewer to the new limited access alignment, providing a vital link in the regional transportation system in Maine. Section 5.a – Summary of Improvements to Regional Economic Vitality
(5) Freight movement and economic vitality: To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.	Yes. The new alignment will eliminate a bottleneck in the freight supply chain for the region, which serves as the economic and employment center for north-central Maine. Section 5.a – Summary of Improvements to Regional Economic Vitality
(6) Environmental sustainability: To enhance the performance of the transportation system while protecting and enhancing the natural environment.	Yes. The Felts Brook bridge crossing(s) will follow the "stream sim" method committed to under the Programmatic Agreement for Atlantic Salmon. Design metrics will include building the structure to a 1.2 bank full width. Substrate will be consistent with surrounding natural stream dimensions, profiles, and dynamics. Section 5.c – Environmental Review and Permitting
(7) Reduced project delivery delays: To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.	Yes. The NEPA process is complete, and MaineDOT's management procedures have ensured that 87-90% of Work Plan capital work has been delivered/advertised on time in 2016-2017. Section 6.0 – Project Readiness
4. Is the project based on the results of preliminary engineering?	Yes. Section 6.a – Technical Feasibility
5a. With respect to non-Federal financial commitments, does the project have one or more stable and dependable funding or financing sources to construct, maintain, and operate the project?	Yes, see Exhibit 4.1. Section 4.0 – Grant Funds, Sources and Uses of Project funds
5b. Are contingency amounts available to cover unanticipated cost increases?	Yes. MaineDOT maintains a department-wide contingency fund to accommodate all projects. Section 4.0 – Grant Funds, Sources and Uses of Project funds.
6. Is it the case that the project cannot be easily and efficiently completed without other Federal funding or financial assistance available to the project sponsor?	Yes. By requesting 43% INFRA funds MaineDOT can use the savings to meet other demanding transportation needs statewide. Without those funds, MaineDOT would likely proceed but that would have a major ripple effect in funding other needed work. INFRA funds would allow MaineDOT the opportunity to leverage funds across a range of projects to achieve the greatest benefit. Section 4.0 – Grant Funds, Sources and Uses of Project Funds and Section 5.b Leveraging Federal Funds

Large Project Determination	Summary and Cross Reference
7. Is the project reasonably expected to begin construction not later than 18 months after the date of obligation of funds for the project?	Yes. • MaineDOT has completed an extensive planning study resulting in the *I-395/Route 9 Transportation Study – Final Environmental Impact Statement* and a *Record of Decision* from FHWA. • Following the issuance of a Record of Decision in June 2016, MaineDOT received authorization to proceed in August 2016. $7.25 million was allocated for PE and ROW. • The PS&E will be completed in June 2021, and the project will be advertised in July 2021, with the award of contract in August 2021. • The request to obligate INFRA 2018 funds will immediately follow the award of contract, well in advance of the September 30, 2021 deadline. Section 6.0 – Project Readiness

8. SUMMARY OF ATTACHMENTS

- Attachment A - Benefit Cost Analysis (Excel)
- Attachment B – Match Commitment Letter (PDF)
- Attachment C – Federal Wage Rate Certification (PDF)
- Attachment D – Schedule – Planning Study (PDF)
- Attachment E – Schedule - Project (PDF)
- Attachment F – Interchange Modification Report – Approval Letter (PDF)
- Attachment G – Letters of Support (PDF)

*The above attachments, as well as this narrative, can also be found at the MaineDOT INFRA Grants webpage located here: http://mainedot.gov/grants/infra