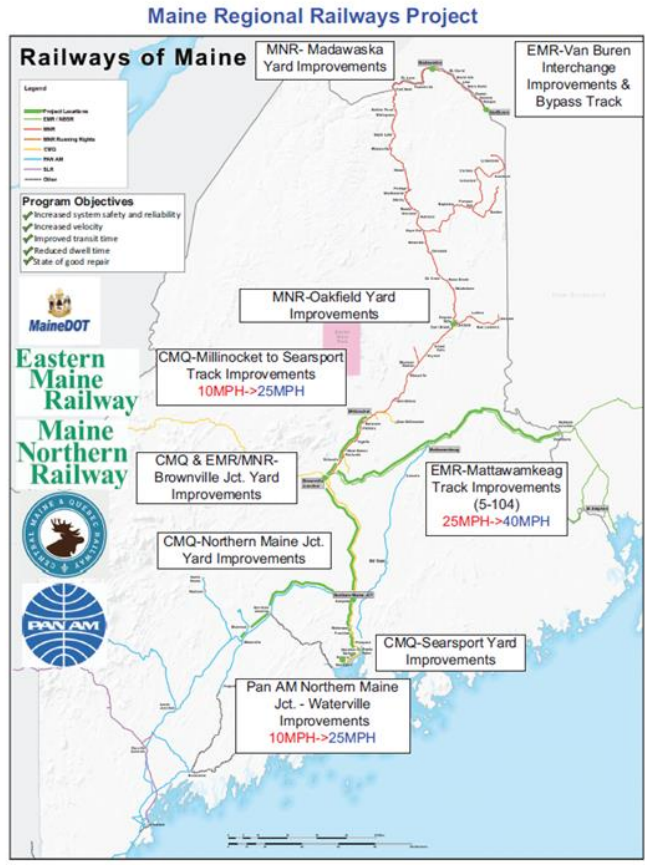


U.S. Department of Transportation

TRANSPORTATION INVESTMENT GENERATING  
ECONOMIC RECOVERY – TIGER FY 2015  
“TIGER VII”  
GRANT APPLICATION

Project Name: Maine Regional Railways Project  
Project Type: Freight Rail  
Project Location: Rural, Maine 1<sup>st</sup> & 2<sup>nd</sup> Congressional District  
Funds Requested: \$22,409,110 (60%)  
Funds Matched: \$14,939,406 (40%)  
Total Project cost: \$37,348,516  
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TIGER ID: nmoulton128



## Project Summary

Maine Department of Transportation (Maine DOT) is seeking \$22,409,110 from a U.S. Department of Transportation (USDOT) Transportation Investment Generating Economic Recovery (TIGER) VII grant. The total cost of the project is \$37,348,516, forty percent (\$14,939,406) of which will be matched by four railways and Maine DOT.

The *Maine Regional Railways Project* will:

- a) Restore a critical component of the national rail system to a state of good repair improving both the reliability and resiliency in a key transportation corridor vital to the regional forest products industry and supportive of the President's export initiative.
- b) Improve the accessibility and long-term prospects for the economy and the environment in an economically challenged region by improving the transportation system that is vital to industry and the jobs that they support.
- c) Remove key bottlenecks and increase velocity for rail traffic creating a virtuous cycle allowing for greater capacity and subsequent future investment resulting in further improvements to the economic competitiveness of the region.
- d) Leverage the unique partnership of four (4) railroads uniting and contributing to create a better corridor where each plays a crucial and inseparable role.

The *Maine Regional Railways Project* ("project") will provide for the rehabilitation and betterment to the rail corridors over 384 miles of track allowing for speed increases of 15 miles per hour and the removal of numerous long-standing bottlenecks.<sup>1</sup> These improvements will create real travel time improvements increasing the capacity on the line and allowing for improved competitiveness for industry in this rural but vital region of the country. This transformative effort will create a rail system with the velocity and resiliency not seen in the region since decades before the Staggers Act deregulated railroads in 1980. It will further allow Maine industries to compete effectively both nationally and internationally. Funds from this TIGER VII grant will leverage recent public and private investment in the rail transportation infrastructure in Maine and create solid and sustainable corridors that will be primed for future investment. This project continues to leverage the Tiger II investments made by Maine DOT and USDOT to ensure the continuation of regional freight rail service. This project will continue to improve the regional rail system creating long lasting positive impacts on industries in the region thus ensuring the preservation and creation of jobs and economic viability in this very rural area of the country.

The project will be ready to proceed immediately upon receiving an award and contracts being let. The work to be completed is within the rail lines' existing right-of-way therefore Categorical Exclusions are expected for each line. Maine DOT anticipates the project to be completed by summer of 2017. All of the parties to this grant application have completed projects with USDOT funding in the past and all have demonstrated the ability and commitment to complete projects early or on-time.

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<sup>1</sup> See Appendix B, Maps with Project Locations, Geospatial Data, Photos.

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

**Project Narrative**

**I. Project Description**

a) PROJECT DETAILS AND BACKGROUND

Preserving a vibrant rail system has long been a goal of the Maine DOT both in words and deeds. Due to Maine’s geographic location, light density of population and abundance of natural resources, connecting Maine to the broader U.S. economy as well as making it competitive as an exporter to Canada, Latin America and Europe, is vital. To accomplish this, the region must preserve existing industry and continue to create access to the global marketplace for Maine’s resources and finished goods. The *Maine Regional Railways Project* (the “Project”) will significantly upgrade the transit speeds and time to market for the major rail corridors on the north and east side of the state running nearly 400 miles, connecting to multiple border crossings, to the Port of Searsport (the second largest port in Maine) and beyond to the US national rail system.

Leveraging the investment that Maine DOT and USDOT made in the Aroostook County Railroad Preservation and Rehabilitation Project in Tiger II, now firmly preserved and having experienced significant growth since 2011, this project extends the investment to the rail infrastructure on the north and eastern side of Maine. Through upgrades including new rail, ties and surfacing, upgraded road crossings as well as the construction of additional yard tracks and more efficient configurations, it combines the customers and traffic flows across four railroads resulting in timetable speeds of no lower than 25 mph throughout the 400-mile corridor and the elimination of numerous bottlenecks that have long plagued traffic in this region.

Led by Maine DOT, the project is backed by a unique partnership of the state-owned but privately operated Maine Northern Railway (MNR), along with the privately-owned Central Maine and Quebec Railway (CMQ), the Eastern Maine Railway (EMR) and Pan Am Railways (PAR). It is a first of its kind project and level of cooperation by this many private rail

companies in New England, and perhaps the country. The project both returns the rail corridor to a state of good repair but also promotes the economic competitiveness of the region.

While Maine enjoys the benefits of the local connections and dedication of numerous short line (Class II and Class III) railroads, it is one of only three states in the US that does not have a Class I railroad within its geography, a critical void in the transportation system of the region.<sup>2</sup> Without the national reach of a major system and the resulting revenues that can be enjoyed by shipping commodities long distances across the same rail network it has proven difficult for Maine's railroads to make the kinds of investments required to keep speeds competitive and the railroads "fit for purpose." Additionally the Maine economy that supported rail investment has historically been driven by the pulp and paper industry. Today there are ten remaining pulp and paper mills, fewer than half the number that existed in the state in 1980.<sup>3</sup> Combined with a light density of industry and customer base and a large geography, the railroads in Maine need this financial lift to create the kind of investment required to return the railroads to speeds they enjoyed in the past when the paper industry was more robust and mill closures were not an unfortunate and too frequent occurrence. Through these investments and improvements to the infrastructure and the resulting improvements in transit time to market, the existing customers in the paper and forest products industry will be more competitive and resilient. This will afford the railroads more traffic and revenues allowing for further and continuous investment in their properties.

This project continues a virtuous investment cycle for Maine industries and railroads that will allow them to compete on more equal footing for decades to come. Better rail service results in more competitive industries, which in turn drives more traffic to the rails and onto the national and international rail network resulting in more capital investment by the railroads. This is a story that has been playing out in the US and Canada for well over a decade and now there is a path to replicate it Maine. The project supports the concept of Ladders of Opportunity as it better connects the major employers of northern and eastern Maine to the national freight transportation system preserving existing good paying jobs and creating new jobs in an area that has seen a decline in industry.

Pulp, paper and allied products along with lumber or wood are the primary commodities originating in this section of Maine. They combine for over 30 percent of Maine exports overall and 96 percent of originating rail traffic in Maine.<sup>4</sup> This is important for our country as this region is one of the largest sources of wood fiber east of the Mississippi River and this important resource is needed by industries both within the region and outside of the northeast. Upgrading these rail lines will allow products to get to ports and the national rail systems of the US and Canada in an efficient, reliable and timely manner. This is particularly important in the US which relies on a just in time economy. In addition, this region of the northeast is

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<sup>2</sup> See Appendix B, Maps with Project Locations, Geospatial Data, Photos.

<sup>3</sup> Paper Mill Closings Take Their Toll, Patrick Whittle, The Boston Globe, Nov. 11, 2014 "Decline of Maine's paper mills hurts middle class."

<sup>4</sup> See 2014 Draft Maine State Rail Plan, <http://maine.gov/mdot/ofbs/docs/drafrailplan2014.pdf> (last visited May 28, 2015).

experiencing a growth in the new “green” economy. Movements have already commenced for wind blades imported through the Port of Searsport, Maine for furtherance via rail, and prospects are strong for exports of wood pellets to Europe. By improving the corridor to the Port of Searsport, rail remains an efficient and environmentally friendly component to these new supply chains.

Ultimately the benefits of the project are accrued by shippers and customers not only within the region and but to areas far outside of the region. An August-2009 study funded in part by USDOT entitled “Northeast CanAm Connections: Integrating the Economy and Transportation” (the “NE CanAm Study”) focused on transportation in the northeast states of Maine, New York, New Hampshire and Vermont and the eastern Canadian Provinces.<sup>5</sup> The study reached several important conclusions supportive of the regionally significant and transformative impacts of this project. It found in the rail transportation improvement scenarios, the “benefits are almost entirely accrued by shippers outside of the NE CanAm Region.”<sup>6</sup>

### **Quantitative Facts**

#### **Project Name: Maine Regional Railways Project<sup>7</sup>**

- The \$37,348,516 in freight rail infrastructure investment will yield \$112,045,548 in economic output for this region.<sup>8</sup>
- This project will invest in new rail, ties, surfacing and upgraded road crossings and signal systems on the railroad mainlines from Millinocket to Searsport (78 miles), from Vanceboro to Brownville Junction (99 miles) and from Northern Maine Junction to Waterville (48 miles). It will add trackage, new rail and upgrade turnouts at Searsport, Oakfield Yard and the Van Buren Interchange and it will make improvements at Northern Maine Junction (the connecting point of PAR and CMQ) and Brownville Junction (the connecting point of MNR, EMR and CMQ), and Madawaska Yard thereby removing crucial bottlenecks at each location.
- The project has a total Net Present Value (NPV) benefit of at least \$175 million and a benefit-cost ratio of at least 2.93 to 1. For the purposes of this TIGER grant application, the Benefit Cost Analysis is extremely conservative, as it assumes no growth after 2020.
- The project is regional in scope and is located in a rural region of the country.

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<sup>5</sup> See NORTHEAST PANAM CONNECTIONS: INTEGRATING THE ECONOMY AND TRANSPORTATION FINAL REPORT, Wilbur Smith, <http://canamconnections.com/bm~doc/Final-Report.pdf> (last visited May 28, 2015).

<sup>6</sup> See id.

<sup>7</sup> See Appendix A, Benefit-Cost Analysis, for an explanation of the statistics cited below.

<sup>8</sup> Association of American Railroads studies indicate that every dollar invested in freight-rail infrastructure created by investment tax incentives generates more than three dollars in total economic output due to investment, purchases and employment occurring among upstream suppliers. See ASSOCIATION OF AMERICAN RAILROADS, INFRASTRUCTURE INVESTMENT, <http://www.aar.org/incongress/infrastructuretaxincentive/infrastructuretaxincentive.aspx> (last visited May 25, 2015).

- The project runs through seven counties; Aroostook, Kennebec, Penobscot, Piscataquis, Somerset, Waldo and Washington counties.
- The project runs through Maine Congressional Districts 1 and 2 (Representative Chellie Pingree and Representative Bruce Poliquin, respectively). The state is represented by U.S. Senators Susan Collins and Angus King.<sup>9</sup>
- Total Cost of the Project: \$37,348,516
- Total amount of TIGER VII funds requested: \$22,409,110 (sixty percent of the total cost of the project). A match has been committed from each railway and the Maine Department of Transportation in the amount of \$14,939,406 (forty percent).<sup>10</sup>
- The project saves, at a minimum, over 23.54 million gallons of fuel over the life of the project. Over a twenty-year period, the fuel savings is valued up to \$41.62 million using a seven percent discount value.
- The project reduces greenhouse gas emissions by 75 percent by moving freight by rail instead of truck.<sup>11</sup>
- The NPV of the reduction in carbon emissions is at minimum \$2.198 million over twenty years.
- The NPV of the reduction in NO<sub>x</sub> and Particulate Matter emission is \$1.2 million over twenty years using a seven percent discount value.
- Within year one, the project will remove 11,768 trucks from the national highway system annually.
- The NPV of the savings on highway maintenance costs is \$38 million over twenty years.
- The project's geospatial data can be located on maps in Appendix B.
- This analysis is conservative because it assumes that trucks will only travel the distance this TIGER grant request covers over the three rail lines. The work to be completed on this grant request consists of six rail yards and track work. The improvements on the Central Maine and Quebec Railway (CMQ) will occur throughout various sections of the rail over 78 miles and three rail yards, the work on the Pan Am Railway will occur throughout various sections of the rail over 48 miles, the Eastern Maine Railway will occur throughout various sections of the rail over 99 miles, and the Maine Northern Railway will occur in three rail yards. However, if a shipper were to move freight by truck instead, trucks would travel more than the length of each of the short line railways.

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<sup>9</sup> See Appendix D, Support Letters.

<sup>10</sup> See Appendix E, Match Letters.

<sup>11</sup> See ASSOCIATION OF AMERICAN RAILROADS, FREIGHT RAILROADS HELP REDUCE GREENHOUSE GAS EMISSIONS, <http://www.aar.org/incongress/energyandenvironment/%7E/media/aar/backgroundpapers/freightrailroadsofferasmarteffectivewaytoreducegreenhousegasemissions.ashx> (last visited May 25, 2015).

MAINE REGIONAL RAILWAYS PROJECT

Maine Regional Railways Project Summary				
Infrastructure	Location	Improvements	Old	New
Mainline	Vanceboro - Brownville Jct (99 miles)	Rail, ties, surfacing, crossings	25 mph	40 mph
Mainline	Millinocket - Searsport (78 miles)	Rail, ties, surfacing	10 & 25 mph	25 mph throughout
Mainline	Northern Maine Jct - Waterville (48 miles)	Rail, surfacing, signal and grade crossings upgrades, bridge timbers	10 mph	25 mph
Connection	Van Buren	New and improved tracks	Capacity issues for interchange with CN	Faster more efficient interchange with CN
Connection	Brownville Junction	New ties, surfacing, turnouts	Walking speed and frequently out of service	Solid Class I and reliable operation
Connection	Northern Maine Junction	New turnouts	Walking speed and frequently out of service	Solid Class I and reliable operation
Yard	Searsport	New rail, turnouts, ties, surfacing	70 lb rail, walking speed, frequently out of service	115 lb rail, solid Class I and reliable operation
Yard	Madawaska	New rail, turnouts, ties, surfacing	Inefficient yard supporting Twin Rivers Paper and haulage freight for interchange and points south	Faster more efficient switching for the mill and haulage freight
Yard	Oakfield	New rail, turnouts, ties, surfacing	Walking speed and frequently out of service	Faster more efficient switching for interchange

b) Current and Future Conditions

All of the infrastructure improvements are integrated across multiple railroads to provide the optimum improvement to track speeds, efficiency and reliability. The success of each of the improvements is contingent upon the completion of all improvements. The rail lines work as a system and without all of the improvements completed significant bottlenecks will remain.

The result of the project will be a nearly 400-mile railroad corridor of greatly improved infrastructure, the elimination of numerous long standing roadblocks resulting in far greater efficiency and reliability that industries can rely on for their delivery of inbound and outbound goods. Industries on the line have made it clear that the current lack of reliability inhibits their shipments by rail and forces them to direct many of the rail shipments they do have across the Canadian border where the railroad there is more reliable. Among those industries, Twin Rivers Papers and Maibec, Inc., the recent acquirer of the former Fraser Timber mill, made it clear that greater reliability of rail service into this isolated part of the country will make them more competitive. Each has made substantial recent investments in these industries in Maine and need reliable transportation to allow them to succeed. Their geographic isolation makes truck service nearly impossible or prohibitively expensive. A good portion of Twin Rivers' customers are in New England and the Mid-Atlantic States and they are normally forced to route their traffic into Canada only to have it return to the United States. These are revenues that US companies could be earning. Maibec ships their products down the eastern seaboard as far as Florida and reports significant losses in sales to their customers this past winter because

rail service was not reliable.<sup>12</sup> They have a goal to increase investment in their plant, facilities and production hours but can only do so by achieving their goal of 20 percent sales growth and reliable rail service is vital to that success. All of which will likely result in more jobs to this economically challenged region.

The improvements can be grouped into the following three major categories.

**1. Mainlines**

Three sections of the corridor will involve bringing railroad mainlines up to a state of good repair with speed improvements from 10 mph to 25 mph and from 25 mph to 40 mph.

1. CMQ from Millinocket to Searsport (MP 29 to MP 107)

Current conditions on this line vary and track speeds range from 10 mph to 25 mph. The section of track from Millinocket to Brownville Junction is shared-use track with both the CMQ and the MNR. The portion of the line from Brownville Junction to Northern Maine Junction (Hermon) is operated under a new cooperative arrangement whereby CMQ is hauling freight for EMR and NMR allowing for greater traffic density on that line. The line south of Northern Maine Junction to the Port of Searsport is the sole connection for the second largest port in Maine to the national rail freight network. In 2014, immediately following purchase of the bankrupt line, CMQ invested approximately \$1 million in rehabilitation work that brought portions of the line up to 25 mph. However, a majority of the line remains at 10 mph. The project will install 34,650 ties focusing on the key clusters where conditions are most poor. Additionally all 78 miles will have new ballast and surfacing and 10,000 linear feet of rail will be installed in worn curves. Upon conclusion the entire section will be 25 mph.

2. EMR from Vanceboro to Brownville Junction (MP 5 to MP 104)

Several items must be upgraded to allow for speeds of 40 mph, up from 25 mph. This is the key line connecting the Maine railroads to New Brunswick, Canada.<sup>13</sup> The line is the origin or destination of over 5,000 annual carloads of fiber and other forestry and paper products for export as well as additional carloads of fiber to support the Woodland Pulp mill at the Canadian border in Baileyville, ME. Over \$7 million will be spent on upgrading over 150,000 linear feet of rail from 90 lb to 100lb and 115 lb. Additionally, 25,000 new ties will be installed again focusing on breaking up clusters and ballast, and surfacing will be done on nearly the entire 43 miles of rail. Furthering safety and motorist comfort on the line, four public signaled crossings, three public crossings with cross bucks and 15 private crossings will be upgraded as part of the project as well.

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<sup>12</sup> See Appendix D, Support Letters.

<sup>13</sup> See Appendix B, Maps with Project Locations, Geospatial Data, Photos.



3. PAR from Northern Maine Junction to Waterville (MP 65 to MP 113)

Current track conditions on this segment of the project are Class I (no greater than 10 mph) with a signal system that dates back to the 1950s. Tie and rail conditions are in need of upgrade to support faster transit times. In 2015, PAR will be installing over 40,000 ties and surfacing this entire line. This project will continue these upgrades by installing 80,000 linear feet of 115-lb continuous welded rail, new turnouts and surfacing enabling an upgrade of the track class speeds on the line from 10 mph to 25 mph. The project will rehabilitate 20 road crossings and include the addition of motion sensing technology for crossing warnings and signal system modernization again improving safety and motorist comfort. This line is crucial as PAR connects the Maine industries to both Norfolk Southern and CSX, the two largest Class I railroads in the US east of the Mississippi River.

**2. Connections**

Three significant locations where connections between railroads regularly occur that have long been bottlenecks to an efficient interchange will also be improved.

1. Van Buren – Connection between MNR and Canadian National (CN)

Presently MNR traffic going to the Canadian National Railway (CN) for export or entering the US (almost exclusively for facilities in northern Maine) interchanges on one track on an international bridge. Current capacity of that interchange is only for ten rail cars. When MNR has filled up the interchange, additional traffic must wait until CN has pulled the interchange of those railcars; MNR moves those railcars and then begins filling the interchange again. That process causes delays to rail traffic of days or more. This project will create both a wye and by-pass track allowing the interchange to occur on two tracks effectively doubling daily capacity to twenty rail cars in each direction. Adjacent switching tracks will also be upgraded increasing switching velocity and reliability.

2. Brownville Junction – Connection between CMQ, EMR and MNR

Brownville Junction is the epicenter of traffic coming into central Maine where it either comes/goes north onto the MNR, east to the EMR and into New Brunswick, Canada or south to the CMQ for furtherance to Searsport or PAR. Currently the yard is in very challenging shape with old turnouts, ties and in need of ballast and surfacing work. The project will replace 16 turnouts, install 2,400 new ties and surface eight track miles enabling the railroads to switch more efficiently and reliably. During this past winter when conditions were very impacted by snow and ice, they were further complicated by the lack of reliability of the switches in the yard. That will be remedied by this project.

3. Northern Maine Junction – Connection between CMQ and PAR

Conditions at this handoff location are hampered by old turnouts forcing interchange to be slow and deliberate to ensure safety but harming efficiency. This is further degraded during the winter months when the turnouts are impacted by snow and ice. The project will upgrade eight turnouts to enhance reliability and make the exchange of traffic more swift and efficient.

And it furthers the investment being made by PAR in 2015 where new ties, switch ties and rail are being installed in the yard.

### **3. Yards**

Three yard locations where interchange traffic is classified, key customers are switched and the Port of Searsport is supported will also be permanently improved.

#### **1. Searsport - CMQ**

The second largest port in Maine has only one rail connection and a yard that is old and in need of upgrading. The new influx of wind turbine blades has begun arriving from Europe and is entering the US through the port. The present state of the yard makes it challenging to efficiently handle those blades and other imports and exports. The project will allow for a significant rehabilitation and capacity expansion to the yard improving conditions to allow for far greater reliability. The project will install eight new turnouts, critical for handling the long cars that the blades require, as well as install 18,000 linear feet of new rail. The reliability of switching operations will greatly increase allowing more goods to flow through the port. This investment will build upon significant Maine state investment over the past 15 years in a new pier, equipment and warehousing. In addition, Maine was a recipient of a new mobile harbor crane under a TIGER I grant award at the Port of Searsport. This project will further enable the Port of Searsport to reach its full potential.

#### **2. Madawaska - MNR**

The largest customer and employer in the region is Twin Rivers Paper. The Madawaska Yard is the primary support yard for rail traffic going to and from the mill as well as for the Van Buren interchange with CN and the Van Buren truck to rail lumber transload. Located very proximate to the Canadian border, this mill had not shipped traffic direct by rail for ten years prior to 2014. The lack of reliability for both the long haul and the switching at the mill was the cause. Old rail, ties and poor surfacing in the yard delay the switching operation, making it inefficient and unreliable. The project will install 9,700 linear feet of 115-lb rail replacing worn rail all less than 100-lb. The yard will have new ballast and surfacing over two and a half miles of track and 2,800 new ties and 400 new switch ties installed. When completed switching operations will be smoothed, more reliable and completed in less time.

#### **3. Oakfield - MNR**

The focus of the Tiger II grant on MNR was on the mainline and safety but with less emphasis on yard switching efficiency. Oakfield is the main classification yard for this end of the rail corridor and it needs significant rehabilitation to allow it to efficiently build blocks of traffic for delivery to Brownville Junction and furtherance into the rail network, to industries as well as to deliver the new shipments of wind blades that flow through this yard. Since the MNR began operations in 2011 and these State-owned lines were rehabilitated with the TIGER II grant, rail carload volumes on the line have more than tripled also straining capacity in the yard. Old rail and ties and worn ballast will be replaced with 6,500 linear feet of 115-lb rail, three miles of surfacing, 5,000 new ties and 400 new switch ties. The result will be more cars

making faster connections and greater reliability resulting in greater velocity through the corridor.

**II. Project Location and Parties**

a) Location - Maps, geo-spatial information<sup>14</sup>

The *Maine Regional Railways Project* will improve the state of good repair for railroads in seven different counties in Maine, stretching over 400 miles. By Census Bureau definition, over 98 percent of project spending will occur in “rural areas,” not designated as urbanized. In fact this is some of the most rural area east of the Mississippi River. All but approximately five miles of the project is in the US 2<sup>nd</sup> Congressional District which is the largest district in the eastern half of the country. However, keeping this area vibrant is important to the country as Maine has over 600 miles of border with Canada and more miles of shoreline than California (3<sup>rd</sup> most of any state). Exports to Canada via surface transportation and overseas via ports is crucial to the national economy as well as the region. While Maine overall has unemployment on par with the national average, over \$33 million of the project spending, more than 90 percent of the total project, will take place in counties that currently exceed the national unemployment rate of 5.6 percent, some by as much as 70 percent.<sup>15</sup>

<u>Area Name</u>	March-2015 Unemployment <u>Rate %</u>	<u>vs. US</u>
United States	5.6	
Maine	5.6	0%
Washington County	9.5	-70%
Aroostook County	7.0	-25%
Piscataquis County	6.8	-21%
Waldo County	6.8	-21%
Penobscot County	5.7	-2%

The counties’ unemployment rates were reduced by 0.9% or more over the prior year; this despite the fact that more mills and plants closed as recently as last fall. The Eastern Maine Economic Development Corporation recently charged Camoin Associates to assess the job losses to the region associated with those closures and their modelling determined that it resulted in 3,233 job losses in counties where the project will occur.<sup>16</sup> Continued economic support of the existing industry in the region is crucial to countering any continued reduction in employment. The project will allow larger employers to improve competitiveness by affording more transportation options. The improved state of good repair realized by the project will greatly

<sup>14</sup> See Appendix B, Maps with Project Locations, Geospatial Data, Photos.

<sup>15</sup> STATE OF MAINE, Center for Workforce Research and Information, <http://www.maine.gov/labor/cwri/laus.html> (last visited May 28, 2015).

<sup>16</sup> See Camoin Associates Economic Development Memorandum, Economic Impact of Paper/Pulp Mill and Edwards Plant Closures (Nov. 4, 2014), [http://www.emdc.org/image\\_upload/Memo%20v2%20-%20Economic%20impact%20-%20EMDC.pdf](http://www.emdc.org/image_upload/Memo%20v2%20-%20Economic%20impact%20-%20EMDC.pdf).

enhance reliability making the US routing of rail shipments a viable and consistent option for the long term. As the transportation network in this region becomes more reliable, the region will be able to attract new businesses, such as those importing wind blades and manufacturing companies.

b) Project Parties

1. Maine Northern Railway

Of the total project cost, \$3.27 million will be spent on the MNR in furtherance of improvements that were realized from a TIGER II grant. As previously detailed, the MNR line runs from Madawaska at the Canadian border in northern most Maine in Aroostook County to Millinocket, ME in the center of Penobscot County. Since 2011, the railroad has been owned by the State of Maine and operated by MNR. It includes several branch lines and operates over a trackage rights agreement to access the interchange with CMQ at Brownville Junction, Maine. Primary customers for that railroad include the Irving Woodlands, Twin Rivers Papers, Maibec, Inc., Woodland Pulp, Huber Engineered Wood and Louisiana Pacific which ship and receive forest and paper industry products. Additionally there are several agri-businesses such as McCain Foods, Cavendish, Maine Foods and Maine Potato Growers and customers who receive heating oil and propane such as GAC Chemicals, and Maine Energy. Total rail carload volumes are expected to exceed 18,000 in 2015, increasing to over 19,100 by 2019. Over 60 percent of those carloads originate or terminate in Canada making this an important trade corridor.

2. Eastern Maine Railway

The railroad is divided into two distinct segments, one that runs through eastern Maine from the Canadian border at Baileyville to Brownville Junction, where it interchanges with CMQ, and another runs through northern Maine where it interchanges with MNR at Madawaska to Van Buren on the Canadian border. The EMR portion of the project is \$14.11 million, \$12.98 million in mainline track improvements and an additional \$1.3 million to improve the interchange track in northern Maine at Van Buren. Customers of the EMR are also concentrated on paper and forest industry products. The largest include Irving Woodlands, Irving Paper, Woodlands Pulp, Atlantic Wallboard and Irving Pulp & Paper. Shippers also include Moosehead Breweries, Praxair Canada and Irving Oil Commercial. Total rail carload volumes are expected to exceed 16,800 in 2015, increasing to over 18,300 by 2019. Over 90 percent of those carloads originate or terminate in Canada also making this an important trade corridor.

The MNR and EMR have made significant investments in the rail lines since 2011. Combined, MNR and EMR will contribute \$6.54 million in private matching contributions for the project. From 2011 - 2014, these railroads spent a combined \$9.67 million in capital investments and will continue to spend an additional \$3 million in 2015. This is in addition to approximately \$2 million in track maintenance expense every year. Nearly \$19 million in private capital investment for the railroads indicates a clear commitment to the railroad now and in the future. The two railroads employ 88 people in the state of Maine making it a sizable employer in the rural area.

### 3. Central Maine & Quebec Railway

In the center of the corridors of the project lies the CMQ line. The CMQ connects with the MNR to the north and with the EMR to the east, both at Brownville Junction. CMQ connects with PAR at Northern Maine Junction (Hermon, ME) and terminates at the Port of Searsport at its most southern point. It is at the epicenter of the Project and for railroads in northern and eastern Maine. The CMQ portion of the Project is \$9.99 million and CMQ will provide a private match of \$3.99 million. Much of the traffic on the CMQ is traffic where CMQ is a connecting carrier bridging the carloads from one railroad to the next. Carloads might include forest products from the north going to the south or east but also kaolin clay for example, coming from the Port of Searsport and exported to eastern Canada. Other customers include GAC Chemical, Maine Energy, Dead River and Pine Tree Propane.

Recently CMQ and MNR and EMR have entered into a unique and experimental relationship where CMQ trains are combining traffic and are concentrating that traffic on the CMQ line between Northern Maine Junction and Brownville Junction for furtherance to MNR or EMR. Although only a few months have passed since this arrangement has begun, benefits include greater density on one main line in lieu of two light density lines. This is expected to have long-term positive effects for the freight traffic and the public. This unique partnership of the railroads led to the pursuit of the combined TIGER grant application. The pursuit is the first of its kind in New England and likely in the US and can transform rail traffic in the region.

The management team that operates the newly formed CMQ has already spent over \$10 million in track capital in the first year of operation. As stated, that is more than prior owners of the bankrupt MMA spent in the prior ten years of operation despite the State of Maine supporting the railroad with a similar amount of public investment. In 2015, CMQ will spend another \$4 million of track capital. The management team that operates the CMQ has a long history of proper stewardship of government funds and the successful commitment to and execution of public private partnerships. Much as the MNR and Maine DOT partnership was the first to complete a TIGER II grant, the CMQ management team, led by the same project manager who will oversee this project, completed the first major rail corridor project under the Federal Railroad Administration's (FRA) High-Speed and Intercity Passenger Rail (HSIPR) program, part of the American Recovery and Reinvestment Act. The \$72 million project on the New England Central Railroad received \$52.7 million in Recovery Act funds and was matched with \$19 million of private money. The improvements resulted in increased freight and passenger rail speeds, reduced travel time, greater reliability and an increased number of trains traveling each day. CMQ employs 65 people in the state of Maine and 67 throughout the entire US.

### 4. Pan Am Railways

The southern and western most portion of the project will be focused on Pan Am Railways. These improvements will increase the speed from Northern Maine Junction to its large yard in Waterville, ME, from 10 mph to 25 mph throughout. This connection to PAR is vital as this large regional railroad connects the Maine railroads and their customers to the two large Class I

railroads in the eastern US - CSX and NS. In addition to the customers on the other railroads, the section of PAR is also home to Sappi Fine Paper, Galt Block and Consolidated warehouses, Northeast Ag Feed Commodities and American Iron & Metal. PAR is expecting growth from existing and new customers across the line as well as shipping wood products to customers in other parts of Maine and New England.

PAR's portion of the project is \$10 million and they are committed to a \$4 million private match. In anticipation of this project, PAR is spending in excess of \$5 million in 2015 on ties, ballast and surfacing. In the event that Maine DOT receives this TIGER award, the portion of the project that will be on the Pan Am line will add new rail to this partially rehabilitated section. on the same track as for their portion of the project. Like the other partners in the project, PAR has a strong commitment to and history with public-private partnerships. The state of Massachusetts was the recipient of a grant award as part of the American Recovery and Reinvestment Act (ARRA) High-Speed and Intercity Passenger Rail program. U.S. Department of Transportation awarded \$70 million for final design and construction of the "Knowledge Corridor" along the Connecticut River rail line in western Massachusetts and with Pan Am as a partner; the project was recently completed and has resulted in the reroute of the Vermonter Amtrak train and the savings of more than thirty minutes of transit time. Additionally PAR hosts the Downeaster on its line from Brunswick, ME, to Massachusetts and has successfully completed numerous track improvement projects that benefit that service. PAR is one of the larger private employers in Maine with over 450 on the payroll there and 800 employees overall.

Despite the fact that there are many partners in this project, all four railroads and Maine DOT have extensive track records of following through on their financial commitments completing projects on time and on budget and this project will be more of the same. The only obstacle to completing the entirety of the \$3 million project by 2016 is the brevity of the Maine construction season. All of the parties are committed to completion and full spending of project funds by 2017. The work done on each line can be done concurrently. Combined these railroads alone are crucial to employment in the region with 603 employees in Maine and nearly 1,000 in the northeast US.

**III. Grant Fund Sources/Uses**

a) Table showing sources and uses of project funds

Fund Source and Use	Project Amount	Project Percentage
TIGER Discretionary Grant Funds	\$22,409,110	60.0%
Maine Northern Railway and Eastern Maine Railway	\$6,541,026	17.5%
Pan Am Railways	\$4,000,000	10.7%
Central Maine & Quebec Railway	\$3,998,380	10.7%
Maine DOT	\$400,000	1.1%
TOTAL	\$37,348,516	100%

b) Private Matching Funds

The private railroads contributing to the 40 percent match for the project have signed commitment letters to the Secretary of Transportation and can begin the project upon receipt of the award.<sup>17</sup> Each has previously received USDOT grant funding in the past and is able to fund, manage and complete their portion of the project.

c) State Matching Funds

Funding for Maine DOT’s portion of the project comes from the State’s Multi Modal Freight Account that was created by the Maine state legislature to support long-term transportation planning efforts.<sup>18</sup> Maine DOT is well equipped to manage and administer this grant having received and managed numerous USDOT grants for highway, railroad and transit programs including previous TIGER awards as well as significant rail rehabilitation projects with Maine DOT funds.

**IV. Federal Selection Criteria**

a) Introduction

All manufacturers require shipping options to bring in raw materials and to get their product to market. More options result in a more competitive environment for transportation costs resulting in lower prices for their product and a better chance in the marketplace. Industry in northern and

<sup>17</sup> See Appendix E, Match Commitment Letters.

<sup>18</sup> See id.

eastern Maine is isolated and shipping options are few. Road infrastructure is limited and backhaul opportunities for trucks are rare each driving up costs and minimizing opportunities which in turn challenges the competitiveness of industry in the region. This, coupled with degraded rail service due to years of less than required investment by prior rail owners, has resulted in unreliable and inconsistent service exacerbated by Maine's harsh and lengthy winter season. Because the only domestic route to the US national rail network is through these lines, rail traffic is often forced into Canada for furtherance back into the US.

First and foremost the project addresses the State of Good Repair for the railroads in northern and eastern Maine, but because rail is the most efficient and safest mode of ground transportation and because non-rail transportation is so expensive in that region the benefits of the project also extend to all areas of the primary and secondary selection criteria. The partners in the project have come together to develop a corridor improvements project that will reduce bottlenecks and increase speed thus providing improved, consistent and reliable service for the long term.

b) Primary Selection Criteria

1) State of Good Repair

To appreciate the current challenges of the short line industry some historical context is important. Following World War II, rail volumes began to decline over a period of fifty years. This decline was exacerbated by the construction of the interstate highway system in the 1950s and 1960s. The nation's large railroads identified rail branch lines where traffic had fallen to financially unsustainable levels. The railroads were largely unable to sell or abandon these lines due to the Interstate Commerce Commission regulations in place at the time. As these "economically challenged" lines were identified, railroads significantly reduced the amount of capital invested in the line and deferred needed repairs and maintenance. This disinvestment translated into slower operating speeds and resulted in more erratic service, which further compromised their level of utility to a shipper or receiver.

In 1980, Congress passed the Staggers Act. This Act dramatically changed the rules and regulations governing large railroads and provided a mechanism to divest branch lines that could not justify reinvestment. While some short lines have existed since the 1800s, the short line industry, as we know it today, was created as a result of the opportunities provided by the Staggers Act. Today, there are over 500 short line railroads operating 50,000 miles of track in forty-nine states, which is more than one-third of our nation's network. And short lines that once existed in sparsely populated areas are now finding themselves located in some of the fastest growing regions of the country.

In spite of decades of underinvestment, short line railroads are still able to preserve and protect rail service for customers and communities that would otherwise have lost access to the national rail network. One primary reason is the nature of their lower overhead and streamlined cost structures. However, the struggle to overcome years of previous neglect is continuous. Although short lines reinvest in their property as much as they can, this often amounts to maintaining the status quo, not making the improvements necessary to upgrade the infrastructure to divert additional truck traffic to rail. If an efficient, dependable, safe railroad does not exist, shippers are competitively disadvantaged and will continue to move their goods by truck instead



of rail. Public-private partnerships created through the administration of federal and state grants are one way to address the infrastructure needs of short line railroads.

Prior owners of the railroad lines in this TIGER project have struggled financially for decades. In fact, the lines now owned and operated by the CMQ and the MNR fell into bankruptcy several times. During this period there were little to no investments made in the lines. Now under new ownership the railways have begun making the investments needed to bring the lines up to a state of good repair. However, due to the years of neglect the lines will consistently be playing catch up unless a significant upfront capital investment is made. Therefore, with this TIGER investment the operations and maintenance costs of the rail lines are not expected to be reduced, but rather are expected to remain static. What will occur is that the rail lines will be brought up to a state of good repair in an accelerated timeframe. This will ensure competitive speed, consistency and reliability on the rail line is a benefit that will be passed on to the customers through the shippers.

The flow of goods into and out of northern and eastern Maine has important national ramifications. Over half of the rail traffic presently moving crosses the US border. Improving the competitiveness of the shippers is thus vital to the national interest. For example, the once thriving newsprint industry that drove the economic health of the region for many decades has now dwindled due to the advent of electronic medium and challenges from overseas. This has resulted in many years of unsustainable investment and degraded reliability and the resulting performance of the railroads in the region. It becomes a vicious cycle. Less customer shipping via rail results in less money for the rails to invest which results in poorer service driving the remaining customers away. More than half of the project funds will be spent on railroad lines that have thrice gone bankrupt – prior to current ownership. The end result is the undercapitalized rail network that exists in the region today.

The rail infrastructure in the region currently has average track speeds of 10 mph and no greater than 25 mph. In addition, these speeds are often reduced due to temporary slow orders. There are several connection points between railroads, with customers and ports that are in various states of disrepair or not efficiently configured for current traffic flows. There are yard tracks that are often out of service. This reduced state of good repair results in unreliable transit times which, in turn negatively impacts shipment time and consistency. The lack of resiliency is further exacerbated during the winter months and spring thaws that follow. This state of the infrastructure resulted from the downward investment spiral driven by mill closures, the weakness of the economy in previous years and the recent bankruptcy of the former Montreal Maine and Atlantic (MMA), now the CMQ and MNR. To emphasize, during 2014, the first CMQ's first year of ownership, the CMQ invested \$10 million in its track infrastructure in the US and Canada. This amount was more than the owners of the MMA, invested in the ten years prior to bankruptcy. The NE CanAm Study supports this by concluding, “[s]everal short line railroads exist in the region, but the service levels are significantly lower than those offered by Class I railroads – principally the result of low trade volume and the limitation of infrastructure that inhibits handling of industry-demanded weights or speeds.”<sup>19</sup> This conclusion is despite over \$10 million in investment by Maine DOT supporting MMA between 2003 and 2011.

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<sup>19</sup> NORTHEAST PANAM CONNECTIONS: INTEGRATING THE ECONOMY AND TRANSPORTATION FINAL REPORT, Wilbur Smith, <http://canamconnections.com/bm~doc/Final-Report.pdf> (last visted May 28, 2015).

The State of Maine and the private railroads partnering on the project recognize that rail is vital for the region. In recognition of this, the parties have invested well over \$50 million over the last decade in these properties to keep them at a minimum viable. The investments of the project will transform rail service in the region in numerous ways. They are focused on the Critical Rail Corridors that Maine DOT has outlined in their rail plan submitted to FRA. It will reverse the currently poor rail, tie and surfacing condition of the portions of these properties targeted by the project. Rail speeds that are currently 25 mph and below and burdened with numerous slow orders will be improved to a consistent 40 mph and 25 mph greatly reducing transit times. Future investment in the line by the railroads will then be spent to maintain that solid foundation. Additionally, connection and interchange facilities will be upgraded to make all of the railroads in the region more efficient, furthering the pace of goods flow. These interchanges were designed over 100 years ago and often are not efficient for today's operations. Access to the Port of Searsport will be greatly enhanced as "last mile" impediments will be removed and products such as the newly imported wind turbine blades that have begun to flow into Maine can be moved without interruption and by rail.

By removing the bottlenecks in the corridors, transit time improvements will be realized in terms of days and shipment cycle times will shrink accordingly. The improvements will also harden the infrastructure as new turnouts and signal systems will be better able to endure the increasingly harsh Maine winters. This will satisfy the shippers demand for year round reliability, create confidence in the railroad's ability to meet those demands and result in more traffic on the railroads. And with increased traffic volumes comes increased re-investment into the railroads and increased competitive pricing for shippers. The project and investment of this kind creates a transformative reversal of the previously mentioned vicious cycle.

## 2) Economic Competitiveness

Short lines provide a great economic advantage to companies that need to move their goods in a cost-efficient manner. Railroads are more reliable and generally more cost effective than trucks on long distance routes and companies have set up distribution centers along rail corridors to lower inventory costs. As a consequence, rail transportation will become more attractive to shippers because of improved economics and velocity as well as more reliable service.

The following snapshots of the railroads provide examples of how companies have been able to increase their competitiveness through the use of rail and are illustrative of the future growth that will result from this project being funded. With the investments made through this TIGER grant, over the course of twenty years the railways are projected to move over 62 billion gross ton miles of freight.

Customers in the region describe how the most efficient routing of their traffic to the mid-Atlantic region, for instance, would be down the corridors of the project. But because this routing is not reliable, especially during the harsh winter months, the customers and the supply chain cannot accept the lack of reliability. Instead they route the traffic across the border into Canada and utilize a Canadian Class I railroad. The traffic then returns to the US further west and makes it way to the mid-Atlantic. This is far less efficient for the customer, elongates the

cycle time for the traffic and brings less revenue into the US. With increased reliability, customers will route their traffic through these corridors from northern Maine, across PAR and onto the US Class I network improving the country's and the customers' economic competitiveness.

### 3) Quality of Life

The quality of life for the residents of Maine is an important consideration when making any transportation investments. This project will improve the resident's quality of life by reducing truck traffic and thus reducing noise pollution, greenhouse gas exposure and highway and road congestion.

The project will eliminate over 5.26 million vehicle miles from the regional highway system in project year one (i.e. 2017). This is equivalent to 11,768 trucks being eliminated from the regional highway system making room for 47,072 cars (as described in the Benefit-Cost Analysis, one truck takes the space of approximately four automobiles on a highway).<sup>20</sup>

An additional benefit of removing heavy trucks from the highway system is the reduction in damage to the national highway infrastructure, particularly the aging bridges throughout the region. It is estimated that each truck removed from the highway saves \$.01 per truck ton mile of highway maintenance costs.<sup>21</sup> Looking at the future growth that will exist if this project is completed yields, at minimum, \$34 million in highway maintenance savings over twenty years using a seven percent discount rate.

Highway congestion in the United States costs \$87 billion in wasted travel time (4.2 billion total hours or nearly a full week for every traveler) and results in 2.8 billion gallons of wasted fuel per year. Using conservative numbers in the Benefit Cost Analysis, 453,384 trucks will be removed from the highway system over the next twenty years. By project year one, these short lines will be able to transport a total of 5,884 additional carloads. Over the next twenty years, a minimum of 226,692 additional truckloads will be taken off the highway system. This equates to an additional 204 million vehicle miles being diverted to rail.

In addition, in year one of the project, the short lines are projected to move more than 161 million additional gross tons of freight using 5,884 additional railcars. This equates to an estimated 11,768 trucks being kept off the rural road and national highway system each year. The American Association of Railroads has calculated that one truck takes the space of approximately four automobiles on the roadway system. This means in year one, the number of trucks kept off the rural road and highway system is equivalent to creating capacity for more than 47,000 automobiles. The immediate benefit is an increase in livability standards for Maine residents due to a considerable reduction in congestion and improved air quality. The region also

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<sup>20</sup> See Appendix A, Benefit Cost Analysis.

<sup>21</sup> See CONGRESSIONAL BUDGET OFFICE, SOCIAL COST PRICING IN FREIGHT TRANSPORTATION, [https://www.cbo.gov/sites/default/files/cbofiles/attachments/49838-Social\\_Cost%20Pricing\\_Freight\\_Transportation.pdf](https://www.cbo.gov/sites/default/files/cbofiles/attachments/49838-Social_Cost%20Pricing_Freight_Transportation.pdf) (last visited May 25, 2015).

benefits by saving and reinvesting highway maintenance funds. Each ton of freight moved by rail instead of truck reduces greenhouse gases by seventy-five percent.<sup>22</sup>

The elimination of these trucks from the highway decreases travel time for the average highway user. This travel time benefit has not been quantified, but clearly exists. However, travel time has been calculated for locomotive engineers. This project will increase the speed on each of the rail lines by fifteen miles, in some cases from ten miles to twenty five miles and in others from twenty five miles to forty miles. The increase in speed will save locomotive engineers pulling ten cars, an average of 3.05 hours each way. This equates to a savings of \$4.2 million over a twenty year period using a seven percent discount value.

Looking only at the incremental growth that would occur if this project were completed, capacity for more than 47,000 automobiles will be created annually by year one by diverting truck traffic to rail. The benefit of not having to build additional capacity to accommodate these automobiles is unknown and therefore is not quantified in this application. However, according to The American Road & Transportation Builders Association, the cost to construct a new 2-lane undivided road in rural areas is at least \$2 million per mile.<sup>23</sup> Therefore, the cost to build highway capacity for these additional vehicles would be significant. According to the Federal Highway Administration the congestion savings per ton mile eliminated from the road system is \$0.009. Therefore, the congestion savings for this project has a NPV of more than \$35 million over 20 years using a seven percent discount rate.<sup>24</sup>

#### 4) Environmental Sustainability

The project has significant environmental benefits resulting from moving freight by rail as opposed to by truck. Railroads are four times more fuel-efficient than trucks and are able to move one ton of freight 480 miles on one gallon of fuel.<sup>25</sup> A single truck requires the same highway capacity as almost four automobiles. Additionally, the Environmental Protection Agency (EPA) estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive.<sup>26</sup>

#### *Pollutants of Concern*

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<sup>22</sup> See ASSOCIATION OF AMERICAN RAILROADS, FREIGHT RAILROADS HELP REDUCE GREENHOUSE GAS EMISSIONS, <http://www.aar.org/incongress/energyandenvironment/%7E/media/aar/backgroundpapers/freightrailroadsofferasmar effectivevaytoreducegreenhousegasemissions.ashx> (last visited May 25, 2015).

<sup>23</sup> See AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION, FAQs, <http://www.artba.org/about/faqs-transportation--general-public/faqs/#20> (last visited May 25, 2015).

<sup>24</sup> See CONGRESSIONAL BUDGET OFFICE SOCIAL COST PRICING IN FREIGHT TRANSPORTATION, [https://www.cbo.gov/sites/default/files/cbofiles/attachments/49838-Social\\_Cost%20Pricing\\_Freight\\_Transportation.pdf](https://www.cbo.gov/sites/default/files/cbofiles/attachments/49838-Social_Cost%20Pricing_Freight_Transportation.pdf) (last visited May 25, 2015).

<sup>25</sup> See *id.*

<sup>26</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY, FREIGHT LOCOMOTIVE OVERVIEW, <http://www.epa.gov/midwestcleandiesel/sectors/rail/materials/ls.pdf> (last visited May 27, 2015).

Most freight transportation is powered by diesel engines, which are major sources of emissions of nitrogen oxides (NO<sub>x</sub>), Sulfur Dioxide, and particulate matter (PM). NO<sub>x</sub> reacts with volatile organic compounds (VOC) to form ground-level ozone, commonly known as smog. Ground-level ozone can trigger a variety of health problems, including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like asthma, pneumonia, and bronchitis. Many scientific studies have linked breathing PM to a series of significant health problems including aggravated asthma, difficult breathing, chronic bronchitis, myocardial infarction (heart attacks) and premature death. 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.<sup>27</sup>

Freight truck transportation is a major source of greenhouse gas (GHG) emissions, which contribute to global climate change. By far the most important greenhouse gas to monitor is carbon dioxide (CO<sub>2</sub>).<sup>28</sup> In 2003, truck freight accounted for more than three-quarters (77 percent) of freight-related GHG emissions, while rail freight accounted for only 8.7 percent, the balance being from marine and air transportation modes.<sup>29</sup> Several Class I railroads have CO<sub>2</sub> Emissions Calculators included in their websites for rail versus truck comparisons. Using the BNSF Carbon Calculator and an escalating cost of carbon ton as stated in the Federal Register Notice of Available Funding for TIGER VII, the reduction in CO<sub>2</sub> emissions is valued at approximately \$2.197 million over the next 20 years using a seven percent discount value.<sup>30</sup>

Emissions of Sulfur Dioxide and Volatile Organic Compounds also will be reduced through this project. Sulfur Dioxide is valued at \$0.097 g/mile, at a seven percent discount value this project will produce a savings of \$450,778 over a twenty-year period. Volatile Organic Compounds are valued at \$0.445 g/mile, at a seven percent discount value this project will produce a savings of \$17,436 over a twenty-year period.

Trucks produce approximately 9.191 g/mile of NO<sub>x</sub>. The TIGER VII BCA Guidance value the cost of NO<sub>x</sub> reduction to be approximately \$7,147/short ton. Using incremental growth that would result from the improved rail infrastructure, over a 20 year period, the reduction in NO<sub>x</sub> emissions could be valued up to \$7.226 million using a seven percent discount value. The reduction of these greenhouse gases will improve the air quality throughout the state.

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<sup>27</sup> See U.S. DEP'T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, CHAPTER 2: NATIONAL FREIGHT TRANSPORTATION TRENDS AND EMISSIONS, <http://www.fhwa.dot.gov/environment/freightaq/chapter2.htm> (last visited May 25, 2015).

<sup>28</sup> See U.S. DEP'T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, CHAPTER 2: NATIONAL FREIGHT TRANSPORTATION TRENDS AND EMISSIONS, <http://www.fhwa.dot.gov/environment/freightaq/chapter2.htm> (last visited May 25, 2015).

<sup>29</sup> See U.S. DEP'T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, CHAPTER 2: NATIONAL FREIGHT TRANSPORTATION TRENDS AND EMISSIONS, <http://www.fhwa.dot.gov/environment/freightaq/chapter2.htm> (last visited May 25, 2015).

<sup>30</sup> See Appendix F, BNSF Carbon Calculator Example.

*Fuel Savings*

Railroads are extremely fuel efficient, which reduces the nation’s dependence on foreign oil and shrinks its carbon footprint. A freight train, on average, can carry one ton of cargo 480 miles on a single gallon of fuel. Based on past fuel consumption, the combined total gallons the lines are projected to use in 2017 for the additional carloads is 203,676 gallons of diesel fuel.<sup>31</sup> According to the American Association of Railroads (AAR), railroads are four times more fuel-efficient than trucks.<sup>32</sup> That means trucks would haul the same freight using 814,707 gallons of fuel—a difference of more than 600,000 gallons each year.

Lower fuel costs will enable shippers to pass cost savings directly on to consumers. This analysis is conservative because it assumes there is no growth in fuel use between 2021 and 2035 even though the number of carloads will increase if this project is completed. Over the next twenty years, these benefits translate into saving a minimum of 23.5 million gallons of fuel by moving the freight in the region by rail instead of truck. This project will see an annual transportation cost savings of more than \$1.9 million (using an average price of \$3.123/gallon for diesel fuel as of May 2015).<sup>33</sup> Looking at the incremental growth resulting from truck-to-rail diversions, and using Department of Energy estimates for the cost of diesel fuel each year for the next twenty years, the fuel savings has an NPV of \$41.62 million using a seven percent discount value.<sup>34</sup>

A key goal of the Obama Administration is to reduce America’s dependence on foreign oil, which will serve the purpose of increasing the country’s energy security, while at the same time reducing the carbon footprint caused by transportation modes. The improvement of air quality in these regions is a direct result of this goal and the “green” nature of rail is a perfect complement to existing climate change policies. The investment to rehabilitate the short lines will directly affect the PM, GHG, and Ozone levels in the rural region in which the railroads operate. The proposed project is one small step towards energy independence and a cleaner environment.

5) Safety

The safety benefits of moving freight by rail instead of truck will help address safety issues on the rural roadway system. According to the U.S. Department of Transportation, rural *roads carry less than half of America’s traffic yet they account for over half of the nation’s vehicular deaths.*<sup>35</sup> In 2008 a Federal Motor Carrier Safety Administration (FMCSA) study stated that the

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<sup>31</sup> See Appendix A, Benefit Cost Analysis.

<sup>32</sup> See ASSOCIATION OF AMERICAN RAILROADS, ENERGY AND ENVIRONMENT, <http://www.aar.org/incongress/energyandenvironment/energyandenvironment.aspx> (last visited May 25, 2015).

<sup>33</sup> See U.S. ENERGY INFORMATION ADMINISTRATION, GASOLINE AND DIESEL FUEL UPDATE, <http://www.eia.doe.gov/oog/info/gdu/gasdiesel.asp> (last visited May 25, 2015).

<sup>34</sup> See Appendix A, Benefit Cost Analysis.

<sup>35</sup> See U.S. DEP’T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, PUBLIC ROADS, <http://www.fhwa.dot.gov/publications/publicroads/08july/alongroad.cfm> (last visited May 25, 2015).

number of large trucks involved in fatal crashes per 100 million vehicle miles traveled was 1.79.<sup>36</sup> Using an average that one railcar eliminates four trucks from the highway system and that a truck would travel to and from the destination (i.e. make a roundtrip), 204 million truck-miles are eliminated from the highway system over twenty years if this project is completed. Using FMCSA data, the NPV for lives saved is expected to be \$16.57 million. The same FMCSA study stated that in 2008 the number of large trucks involved in crashes that resulted in injuries per 100 million vehicle miles traveled was 29.1. To be conservative, this application assumes that all the injuries would be minor (i.e. Maximum Abbreviated Injury Scale Level 1). The NPV for the value of preventing injuries is \$819,041 over a twenty-year period.<sup>37</sup> This is a conservative figure since there would be accidents involving large trucks with minor injuries sustained. The economic impact of these crashes is \$3,927 per accident, which also assumes that all the crashes are classified as a MAIS Level 1 accident.<sup>38</sup> The benefit of eliminating these crash impacts has a NPV of \$121,071 over a twenty-year period.<sup>39</sup>

In addition, EMR will be upgrading four public signaled crossings, three public crossings with cross bucks and 15 private crossings. And Pan Am will be rehabilitating 20 road crossings that will include the addition of motion sensing technology for crossing warnings as well as signal system modernization again improving safety and motorist comfort.

c) Secondary Selection Criteria

1) Partnership

Perhaps the unique aspect of the project that separates it from others like it is the cooperation and partnership of the participating railroads and Maine DOT. The State and four different railroads are making large financial commitments towards the same corridors improvement project addressing identified issues within the Critical Rail Corridors of the state. This partnership is a natural result of the interconnections between the rail lines. There is no single railroad that traverses the region so the railroads have become accustomed to collaborating in order to improve efficiency and reliability for their customers. For example, leading up to the project the participants having begun working on a joint use program where they are combining the freight of two railroads onto one line to increase the traffic density of that line. Only several months

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<sup>36</sup> See U.S. DEP'T. OF TRANSPORTATION FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION, 2008 LARGE TRUCK CRASH OVERVIEW, <http://www.fmcsa.dot.gov/facts-research/LTCO2008/2008LargeTruckCrashOverview.aspx> (last visited May 25, 2015).

<sup>37</sup> The fraction of the Value of a Statistical Life used for a MAIS Level 1 accident is .0020. Memorandum from Tyler Duval, Assistant Secretary for Transportation Policy & D.J. Gribbin, General Counsel to Secretarial Officers/Modal Adm'rs (Aug. 2, 2005) <http://ostpxweb.dot.gov/policy/reports/080205.htm>.

<sup>38</sup> See U.S. DEP'T. OF TRANSPORTATION NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, THE ECONOMIC IMPACT OF MOTOR VEHICLE CRASHES 2000, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.131.9418&rep=rep1&type=pdf> (last visited May 25, 2015).

<sup>39</sup> It is again noted that the calculations are conservative since the Benefit Cost Analysis assumes that trucks would only travel 225 miles.

into practice, it has worked well to date and all of the railroads involved are seeing efficiencies and transit time improvements. But it has also made clear that the bottlenecks that the project aims to address are the right ones as increased traffic density at the interchange points has challenged the current infrastructure. Each participant in the project is focused on improvements that are best for the region to create transformative results for their shippers allowing them to get move the goods onto the national rail network and, in some instances, out of the country. The project ensures that there are no weak links in the chain. It improves line of road and transit speeds as well as efficiency and reliability while railcars are in yards, going to customer sidings, interchanging between the railroads and connecting to and from the Port of Searsport.

Led by Maine DOT, all of the participants have strong histories of completing projects of this size and scale on time and on budget. As evidenced by the letters of support, this project has broad and enthusiastic support from all stakeholders including levels of government, the Port of Searsport, local associations and industry throughout the region.<sup>40</sup>

## 2) Innovation

If Maine DOT is recipient of a TIGER VII grant award, Maine DOT will work to combine the purchasing power and efficiency of the project for all of the railroads to complete the project work as swiftly and economically as possible. This may be for materials such as rail, ties, ballast and crossings but also for contractors who may be employed for the project.

This project will complement other Maine DOT rail program initiatives, including the Industrial Rail Access Program (IRAP) and Freight Rail Improvement Program (FRIP) that provide funding to enhance the free flow of goods via rail throughout Maine. Since 2001, Maine has invested \$11,391,550 in IRAP which leveraged an additional \$16,013,181 in private business matching investment. This project further leverages the nearly 20-year Maine DOT IRAP program that combines public and private funds to build rail access directly to customers. The project makes those connections to the railroad mainlines more valuable as shipping options increase with the reliability that will result. The FRIP in Maine has had \$2.2 million in investment, leveraging another \$2.2 million in private railroad matching funds. Additionally, the goals and objectives of the 2014 Draft Maine State Rail Plan (currently under review at FRA) all are supportive and consistent with this project, including safety by improving crossings and reliability, mobility by improving the dependability of rail freight transportation, preserving and strengthening the current rail network and enhancing system efficiency by improving interchange between freight carriers.<sup>41</sup> The corridors scheduled for improvement by this project are all cited as “Critical Rail Corridors for the State of Maine” in the State Rail Plan.

Additionally, the project combines the financial contributions of three different kinds of entities. There is the private contribution from three different private rail company sources and that is

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<sup>40</sup> See Appendix D, Letters of Support.

<sup>41</sup> See 2014 Draft Maine State Rail Plan, <http://maine.gov/mdot/ofbs/docs/drafrailplan2014.pdf> (last visited May 28, 2015).



added to the public contribution from the State of Maine as well as the federal contribution from USDOT and this TIGER grant.

**V. Results of Benefit Cost Analysis**

See Appendix A.

**VI. Project Readiness**

All of the participants are committed to a quick start and timely completion. All matching funds, both state and private, are committed. There are no pending agreements or legislative approvals required. The project focuses exclusively on corridors already identified as critical in the Maine State Rail Plan and all work in the project will be done on existing railroad right of way with no change of purpose for use. Pursuit of a Categorical Exclusion for each line under the National Environmental Policy Act is already under way.<sup>42</sup> Maine DOT expects full completion and receipt of environmental approvals by September/October. With expectations of awards in the fall of 2015, work “turning dirt” could not take place in Maine until April - 2016 at the earliest due to the winter months. After a grant agreement is reached, but during the expected six months until construction can commence, materials and contractors will be ordered to fully take advantage of the entire work season and force account construction agreements will be reached with participating railroads.

Gantt Chart for the Project schedule<sup>43</sup>

Project	2015			2016												2017								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
All	Grant Award/Contract																							
	Bid Process: Material	█	█																					
	Bid Process: Labor		█	█																				
Pan Am	Material Procurement and Distribution				█	█	█	█	█	█	█	█	█	█										
	Install New Rail																							
	Install Relay Rail																							
	Spread ballast, surface & line																							
	Turnout Replacement																							
	Bridge Timber Replacement																							
	Grade Xing Warning/Train Control System Upgrade																							
	Crossing Rehabilitation																							
CMQ	Material Procurement and Distribution				█	█	█	█	█	█	█	█	█	█										
	Rail Program																							
	Tie Program																							
	Ballast Program																							
	Surfacing Program																							
MNR/EMR	Turnout Replacement																							
	Material Procurement and Distribution																							
	Rail Program																							
	Tie Program																							
	Ballast Program																							
	Surfacing Program																							
	Brush Program																							
	Ditching Program																							
Crossing Program																								
Switch Program																								

<sup>42</sup> See Appendix G, Draft Categorical Exclusion Worksheets.

<sup>43</sup> See Appendix C, Cost Estimate, Budget and Gantt Chart.

**VII. Federal Wage Rate Certification**

*See Appendix H.*

## **Grant Request Supporters**

The Maine DOT's grant request for TIGER VII funds is supported by a diverse group of elected officials, shippers and rail stakeholders due to the significant economic impact the project will have on the region. This list of supporters includes:

### **Members of Congress**

U.S. Senator Susan Collins  
U.S. Senator Angus King  
U.S. Congressman Chellie Pingree  
U.S. Congressman Bruce Poliquin

### **State Elected Officials/Offices**

Governor Paul LePage  
Maine State Legislature Aroostook Delegation – 2 Senators and 8 Representatives  
Penobscot County – Court of County Commissioners  
Piscataquis County Commissioners  
Town of Brownville, ME – Manager  
Town of Millinocket, ME – Manager  
Town of Milo, ME – Chairman and Board Members  
Town of Searsport, ME – Board of Selectmen

### **Government**

Maine Port Authority – Executive Director

### **Customers**

All States Asphalt, Inc. – President  
GAC Chemical Corporation – President and CEO  
Galt Block Warehouse Company – Owner  
Huber Engineered Woods  
Irving Paper Limited  
Irving Pulp Paper  
Irving Lake Utopia Paper  
Seven Islands Land Company – President

### **Local Organizations**

Action Committee of Fifty (Bangor) – President  
Aroostook Partnership for Progress – President and CEO  
Bangor Area Comprehensive Transportation System – Executive Director  
Bangor Region Chamber of Commerce – President and CEO

MAINE REGIONAL RAILWAYS PROJECT

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Bangor Savings Bank – Sr. Vice President

Eastern Maine Development Corporation – President and CEO

James W. Sewall Company – President and CEO

Leaders Encouraging Aroostook Development – Executive Director

Loring Commerce Centre – President and CEO

Mobilize Eastern Maine – Co-Chairs

Northern Maine Development Commission – Executive Director

\*\* As additional letters of support are submitted, Maine DOT will place them on the website noted above.

**APPENDIX**

Please visit <http://www.maine.gov/mdot/tigergrants/tiger2015/>

Benefit-Cost Analysis Worksheet	A
Maps with Project Locations, Geospatial Data, Photos	B
Cost Estimate, Project Budget & Gantt Chart	C
Letters of Support	D
Match Commitment Letters	E
BNSF Carbon Calculator Sample	F
Draft Categorical Exclusion Worksheets	G
Wage Certification Letter	H