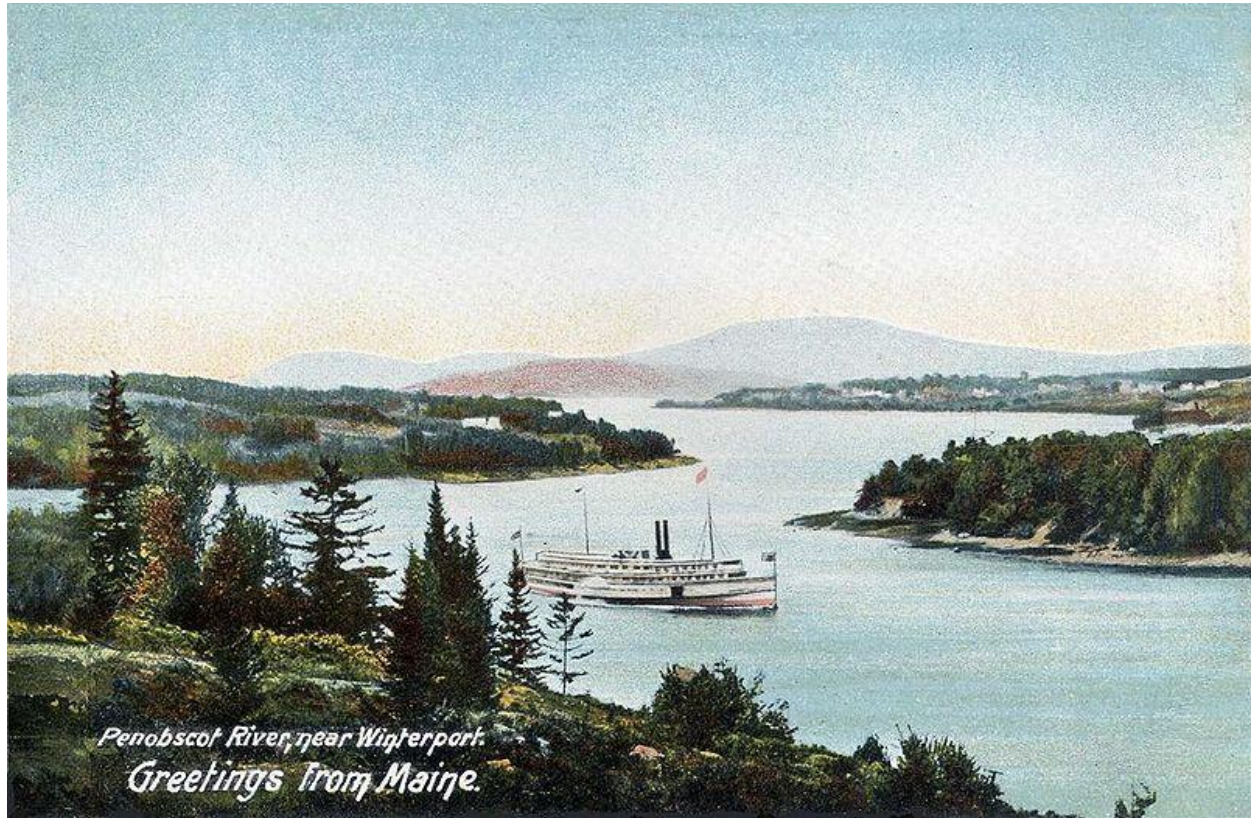


Multi-Modal Corridor Management Plan for the Eastern Penobscot Corridor UPDATE



Prepared by the Hancock County Planning Commission
for the
Maine Department of Transportation
Winter 2015-16

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1.0 INTRODUCTION

This document provides an update to the Multi-modal Corridor Plan for the Penobscot River Corridor, prepared by HCPC and Eastern Maine Development Corporation in 2011. This plan focuses on the Eastern Penobscot Corridor, and provides a resource for long-range transportation planning, for both Maine Department of Transportation (MaineDOT), and regional municipalities.

1.1 Overview of Corridor

As defined in the original corridor plan, the Penobscot River Corridor extends from Searsport to Bangor on the west side of the river, and from Verona Island to Brewer on the east side. The corridor includes several highways, the Penobscot River, the Bangor International Airport (BGR), two rail lines, and commercial port facilities at Searsport, Bucksport, and Brewer. The Corridor also includes facilities such as the Maritimes and Northeast pipeline, which crosses the Penobscot River at Orrington. The Penobscot River carries a variety of freight, passenger and recreational vessels. This corridor, though functioning as one system serving the transportation needs of communities and businesses on both sides of the river, has two major components: the west side and the east side. The Penobscot River is the common thread that ties the two sides together.

Western Penobscot Corridor

Highways include US Route 1A in Bangor extending to Stockton Springs, US Route 202 in Bangor extending (and parallel to US Route 1A) to US Route 1A in Hampden, and US Route 1 in Searsport extending to the Penobscot Narrows Bridge between Prospect and Verona. These roads are all two-lane rural highways, except for US Route 202 in Hampden, which is a two-lane limited-access highway and functions as a bypass around Hampden for vehicular traffic. The Western Penobscot Corridor is not the focus of this update.

Eastern Penobscot Corridor

This plan update focuses on the Eastern Penobscot Corridor, which runs from Brewer to Verona Island. Highway routes in the Eastern Penobscot Corridor include US 1, passing through Verona Island into Bucksport, and State Route (SR) 15 from Bangor/Brewer, through Orrington, and into Bucksport. State Route 46 intersects with US 1/SR 15 in Bucksport and provides an alternative connection to Route 1A in Holden and on to northern Hancock and Washington Counties. These roads are predominantly two-lane rural highways that accommodate local and regional travel.

Significant intermodal transportation connections between the existing port facilities at Stonington, Bucksport, the greater Bangor region, rail connections between Bucksport, Bangor and Northern Maine Junction, and the interstate highway system add to the economic importance of the corridor.

1.2 Purpose and Needs Statement

The purpose of this plan is to gather and analyze information that supports transportation and land use decisions that are in the best interests of US Route 1 and SR 15 corridor communities; the people and businesses that depend on the corridor; the region; and the state. This study uses

previous studies as its foundation and expands on those efforts by looking to the future needs of the corridor with a prioritized list of action steps and implementation schedules.

This plan update evaluates the needs and recommendations identified in the original corridor plan for the Eastern Penobscot Corridor to determine which have been resolved, and which are still relevant and needed today.

1.3 Public Participation

When preparing the 2011 Plan for the Penobscot River Corridor, HCPC met with transportation organizations representing segments of the Route 15 Corridor and transportation modalities. Transportation committees included:

- 1) Local and Regional Transportation Organizations
 - a. Route 15 Committee for Stonington, Deer Isle, Sedgwick, Blue Hill, Penobscot and Orland
 - b. Deer Isle/Stonington Transportation Committee
 - c. Bucksport Comprehensive Plan Committee, Penobscot Bay Healthy Communities
- 2) Transit Providers
 - a. Downeast Transportation, Inc.
 - b. Washington Hancock Community Agency
 - c. Friends In Action
- 3) Freight Movers
 - a. Truck
 - b. Rail
 - c. Shipping
- 4) Bicycle Pedestrian Organizations
 - a. Bicycle Coalition of Maine
 - b. Maine East Coast Greenway Committee
 - c. Maine Bicycle Council

EMDC and HCPC also organized two advisory committees, on the west and east sides of the Penobscot River, consisting of community representatives, interested residents, business leaders, regional planners, MaineDOT personnel, and individuals representing each of the transportation modes (marine, trucking, rail, air, transit, and bike and pedestrian). The committees were tasked with developing a vision, goals, and implementation and investment strategies for the corridor. The committee also provided oversight during the development of this plan.

EMDC held several corridor committee meetings on the west side of the river in 2008 and 2009 while HCPC and EMDC co-hosted meetings on the east side of the river in 2009 and 2010.

2.0 EXISTING CONDITIONS

2.1 Transportation

2.1.1 Highways in and adjacent to the Eastern Penobscot Corridor

SR 15 between Bucksport and Bangor is a minor arterial roadway that connects the commercial, business, tourism and residential activities of the coastal communities south and east of Bucksport, to Bangor. SR 15 originates in Stonington, a coastal community with an active fishing harbor on Deer Isle, but is classified as a major collector highway through Orland. The majority of SR 15 has paved shoulders of at least one to three feet in width. According to MaineDOT, there are no un-built sections of SR 15 between Bucksport and Brewer because the corridor has undergone major upgrades over the past 15 years.

SR 46 is a two-lane major collector roadway that extends from US 1/SR15 in Bucksport to SR 9 in Eddington and is heavily used as a commuter and truck route. SR 9 is a major east-west corridor connecting I-95 and the greater Bangor area to the west and Washington County and the Canadian Maritime Provinces to the east.

US Route 1 and SR 15 are all-purpose routes that cater to the access and mobility needs of locals and longer-distance travelers. The routes are not congested, except for short durations at peak times in certain locations, especially where more urban conditions are encountered in Brewer and Bucksport.

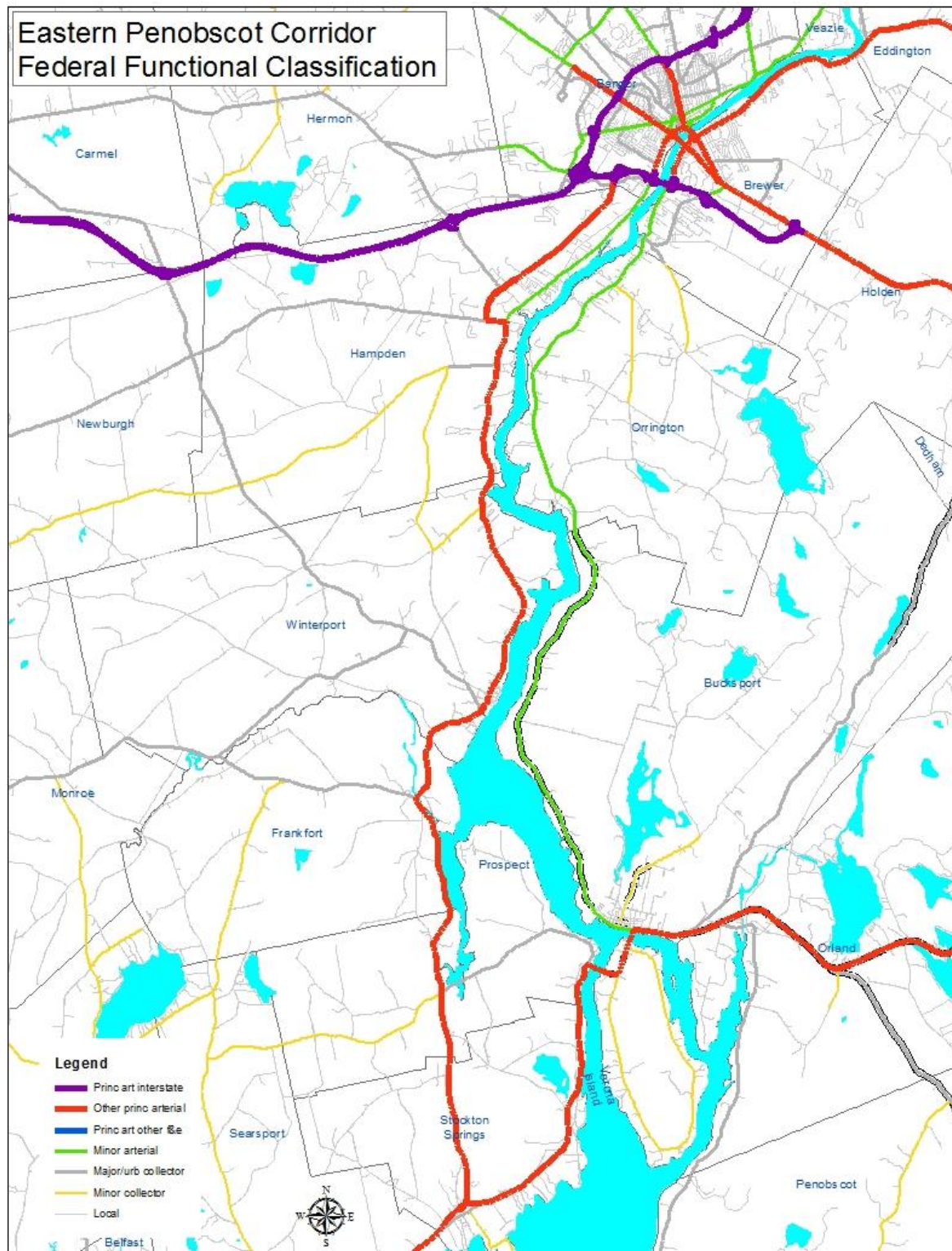


Figure 1. Roadway Federal Functional Classification

Highway Safety

MaineDOT rates accidents according to a Critical Rate Factor (CRF), which corresponds to the number of times the actual accident rate exceeds the expected (average) accident rate. A CRF of 1.0 or more indicates a higher than usual number of accidents at that specific intersection or stretch of road, and is termed a 'High Crash Location'.

Eastern Penobscot Corridor

Along the section of Eastern Penobscot Corridor that connects Brewer and Bucksport, there was one HCL as calculated in 2012 by MDOT, located at the intersection of US Route 1 and Main Street (Route 15) in downtown Bucksport. That location, with a CRF of 1.96 in 2012, was not designated as a HCL in 2014.



Figure 2. High Crash Locations on Eastern Penobscot Corridor

Crash by Type 1998-2008 Penobscot River Corridor

CRASH TYPE	Count	Percent
Bear	1	0%
Deer	712	8%
Moose	23	0%
All other animals	14	0%
Bike	51	1%
Pedestrians	76	1%
Train	1	0%
Fire	45	1%
Head-on/sideswipe	360	4%
Intersection movement	2,172	25%
Jackknife	9	0%
Object in road	292	3%
Ran off road	1,328	15%
Rear end/sideswipe	3,555	40%
Rollover	29	0%
Other	181	2%
Total	8,849	100%

Source: MaineDOT 1998 – 2008

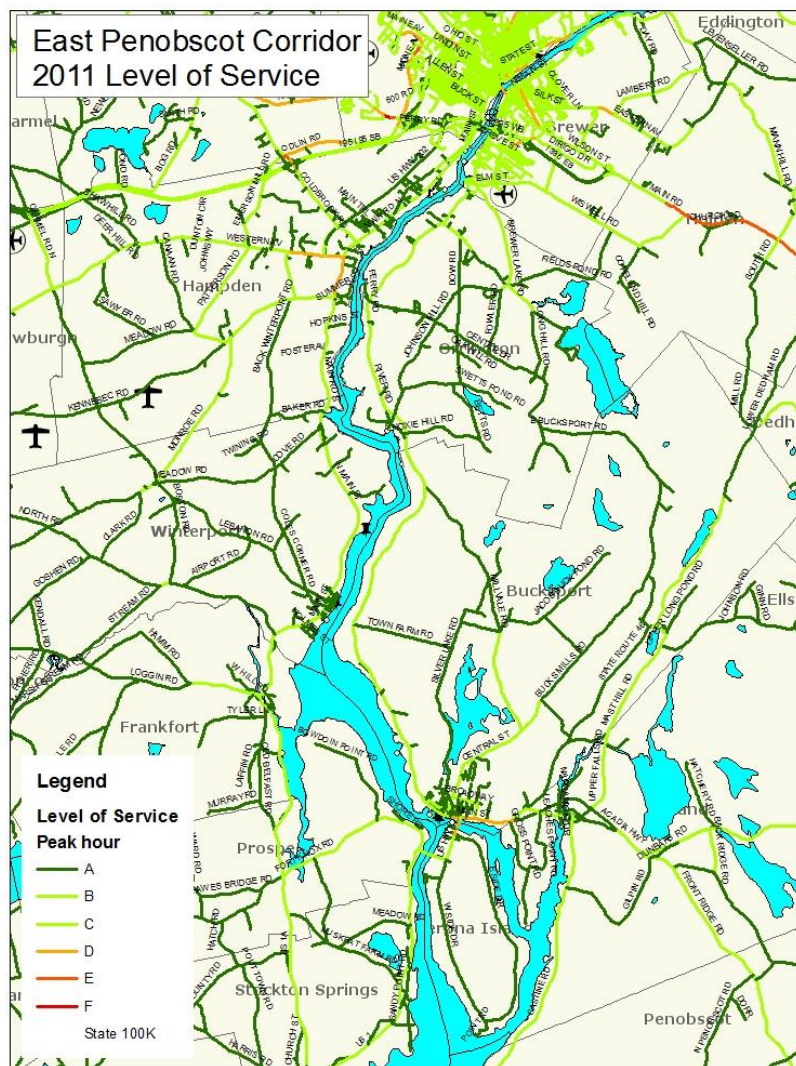
Traffic volume data in the Eastern Penobscot Corridor generally indicate higher volumes at the northern end of the corridor, between Brewer and Orrington. Figure 3 indicates that the 2015 Annual Average Daily Traffic (AADT) ranges from a high of over 15,000 in Brewer to a low of 3,990 in northeastern Bucksport. AADT has decreased between 2008 and 2015 throughout the Eastern Penobscot Corridor, except for a slight decrease in traffic volumes in downtown Bucksport.



Level of Service

Traffic congestion can lower a roadway's level of service (LOS). There are six levels of service, given letter designations from A to F. LOS A represents the best "free flow" operating conditions, while LOS F represents the worst, breakdown flow. LOS E is defined as the maximum flow or capacity of a system. For most purposes, however, a level of C or D is usually used as the maximum acceptable volume. As an annual average, however, LOS does not reveal the increased congestion during the tourist season. Therefore, for planning purposes, a seasonally adjusted LOS should be used when analyzing the need for local traffic management improvements.

The majority of the corridor is operating at an overall LOS of A and B. Localized congestion during peak times in village centers contribute to short sections designated C and D in Orrington and Bucksport, respectively.



The [Highway Capacity Manual](#) and [AASHTO](#) Geometric Design of Highways and Streets ("Green Book") list the following levels of service:

- A= Free flow
- B=Reasonably free flow
- C=Stable flow
- D=Approaching unstable flow
- E=Unstable flow
- F=Forced or breakdown flow

Figure 4. Peak Hour Level of Service on Eastern Penobscot Corridor

Posted Speed Limit

The Posted Speed Limit map, below, indicates the posted state speed limit throughout the corridor. Speed limits on US Routes 1 and 1A and State Routes 15 and 1A vary from 25 mph in village areas to 50 mph in the more rural portions of the corridor.

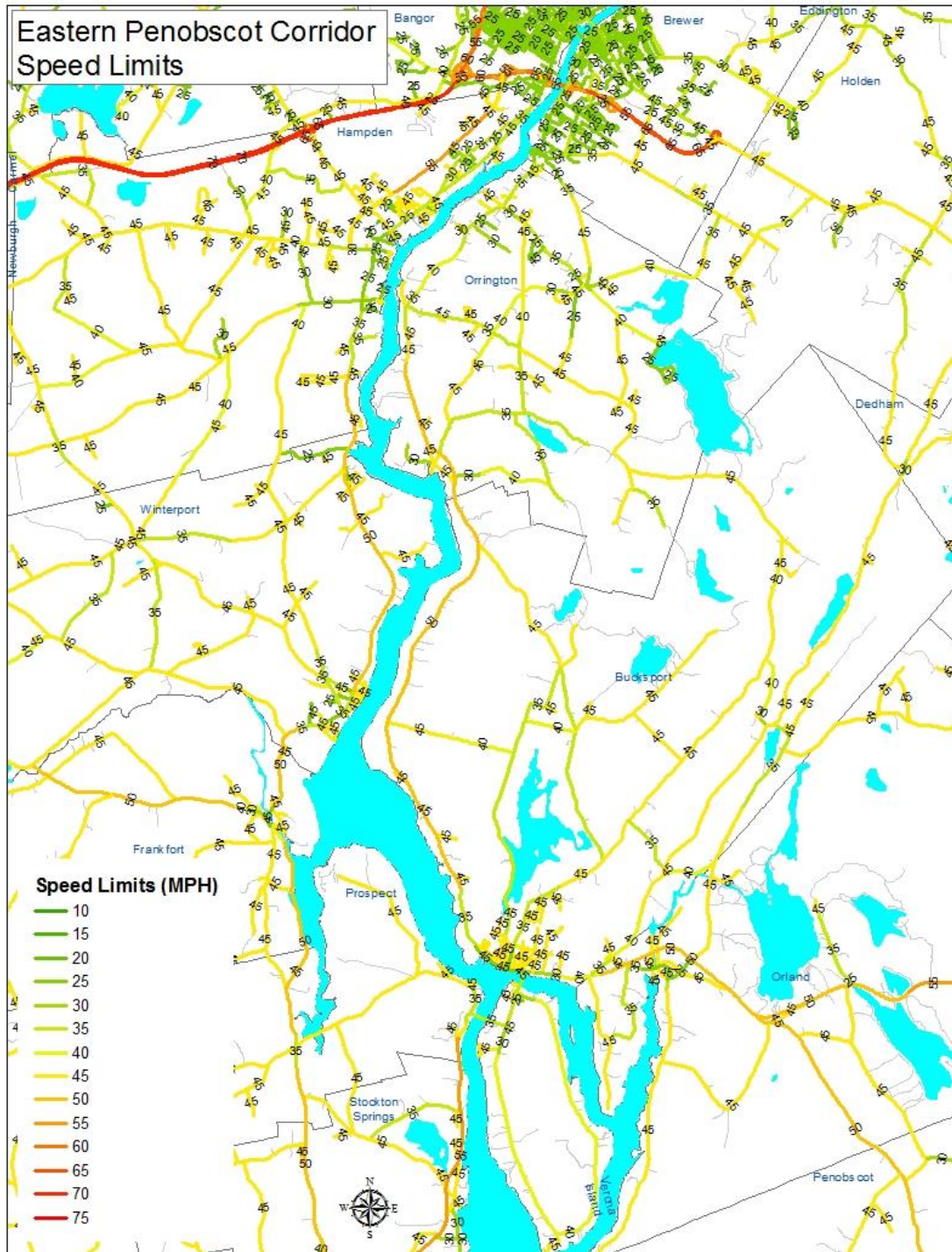


Figure 4. Posted Speed Limit

Access Management and Mobility

Access Management is the planned location and design of driveways and entrances to public roads to help reduce accidents and prolong the useful life of an arterial. While arterial highways represent a relatively small percentage of the state-maintained highway system, they carry a relatively large percentage of the statewide traffic volume. The purpose of access management is to preserve, to the extent possible, the existing traffic-carrying capacity of Maine's arterial highways. At a minimum, access management should defer costly highway reconstruction due to the proliferation of driveways and curb cuts associated with unmanaged development along Maine's arterials.

MaineDOT has established standards, including greater sight distance requirements for the permitting of driveways and entrances for three categories of roadways: mobility corridors, retrograde arterials, and all other state and state-aid roads. Mobility arterial corridors are defined as those corridors that connect service centers to service centers or an Urban Compact Area (UCA) to another UCA, have a posted speed limit of 40 mph or higher, and carry at least 5,000 vehicles per day for 50 percent of their length. Retrograde arterials are mobility arterial corridors where the access-related crash per mile rate exceeds the 1999 statewide average for arterial highways with the same posted speed limit.

The major arterials in the corridor, U.S. Route 1 and State Route 15, are classified as mobility corridors. U.S. Route 1 from Bucksport through Verona Island to Prospect is classified as a retrograde arterial. Several highway improvements and construction of the new Penobscot Narrows Bridge have significantly changed traffic flow through Verona Island and Prospect, but difficulties remain at the intersection of Route 1 and Route 15 in Bucksport.

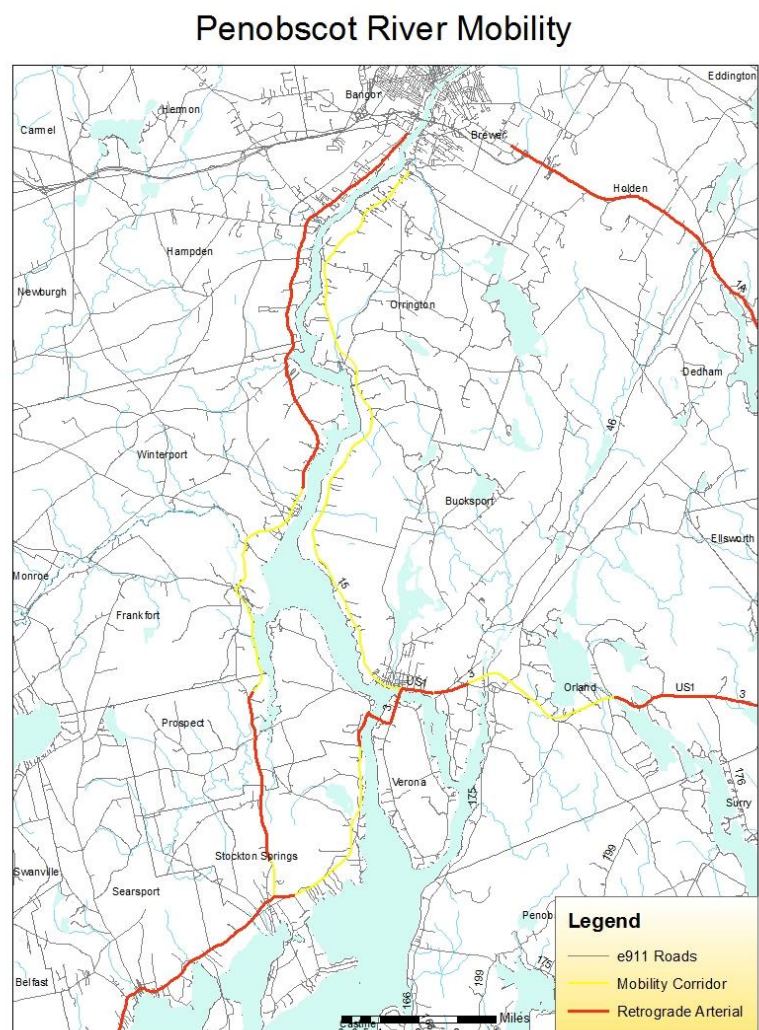


Figure 5. Mobility Corridors

Heavy Haul Truck Network

Maine DOT commissioned a study to identify a statewide network of highways suitable for commercial truck traffic. The study, entitled “A Heavy Haul Truck Network for the State of Maine,” was conducted by Wilbur Smith Associates (2001). The study also identified deficiencies on those highways proposed to be part of the Heavy Haul Truck Network (HHTN) and recommended reconstruction projects and associated costs to address those deficiencies.

Eastern Penobscot Corridor

Maine DOT designated SR 15 from Bucksport to Brewer and US Route 1/SR 3 from Bucksport to Searsport as part of HHTN.

2.1.2 Rail

The paper industry is the principal customer of the railroads in Maine, followed by other forest products industries. According to the Association of American Railroads (AAR), pulp and paper products make up more than 64% of the total commodities originating in Maine and transported by rail, and lumber & wood make up 13.5% of the total. *Note: This data is from 2012, prior to the recent closure of several paper/pulp mills in Maine, including the paper mill in Bucksport.*

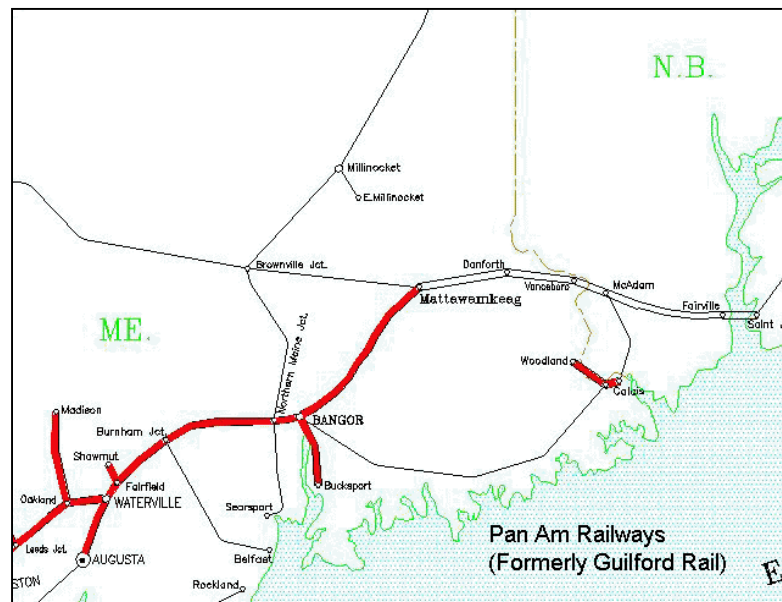


Figure 6. Pan Am Rail Network

Only one rail line exists in the Eastern Penobscot Corridor. The “Bucksport Branch”, owned by PanAm railways, runs adjacent to Route 15 from Brewer to Bucksport. Formerly a vital link between the paper mill in Bucksport and points north, the rail line’s future has been uncertain since mill closure. The new owner of the mill property intends to dismantle the facility and recycle/scrap the demolition debris. It is unclear if the rail line will have a role in the transportation of these materials destined for repurpose. PanAm has confirmed that the line is active with some business at this time, but the use is considered temporary, and they are aggressively marketing the line to find new users. PanAm intends to keep the line active as long as it remains economically feasible to do so.

Typical products hauled by Pan Am in the past for the paper mills have included finished paper rolls, clay, tapioca, chlorine, and other chemicals. The 17.5-mile Brewer-Bucksport rail corridor has seven level-grade crossings over Route 15, in addition to level-grade crossings on several local roads. Travel speed along this corridor is thus restricted. While it has only been used to carry freight in recent memory, this rail corridor skirts the eastern bank of the Penobscot River and

features numerous scenic views. Much of the land between the tracks and the river remains undeveloped.

Dead River Company owns petroleum facilities in both Bucksport and Brewer (see *Existing Marine Facilities*, below). The facility in Bucksport, which is actively used, has a rail siding, and Dead River has explored the possibility of using the Bucksport Branch line for petroleum shipments. The company has concluded that the benefit realized from rail shipment would not justify the costs of maintaining the rail equipment. However, Dead River has expressed interest in future use of the line if the economy permits.

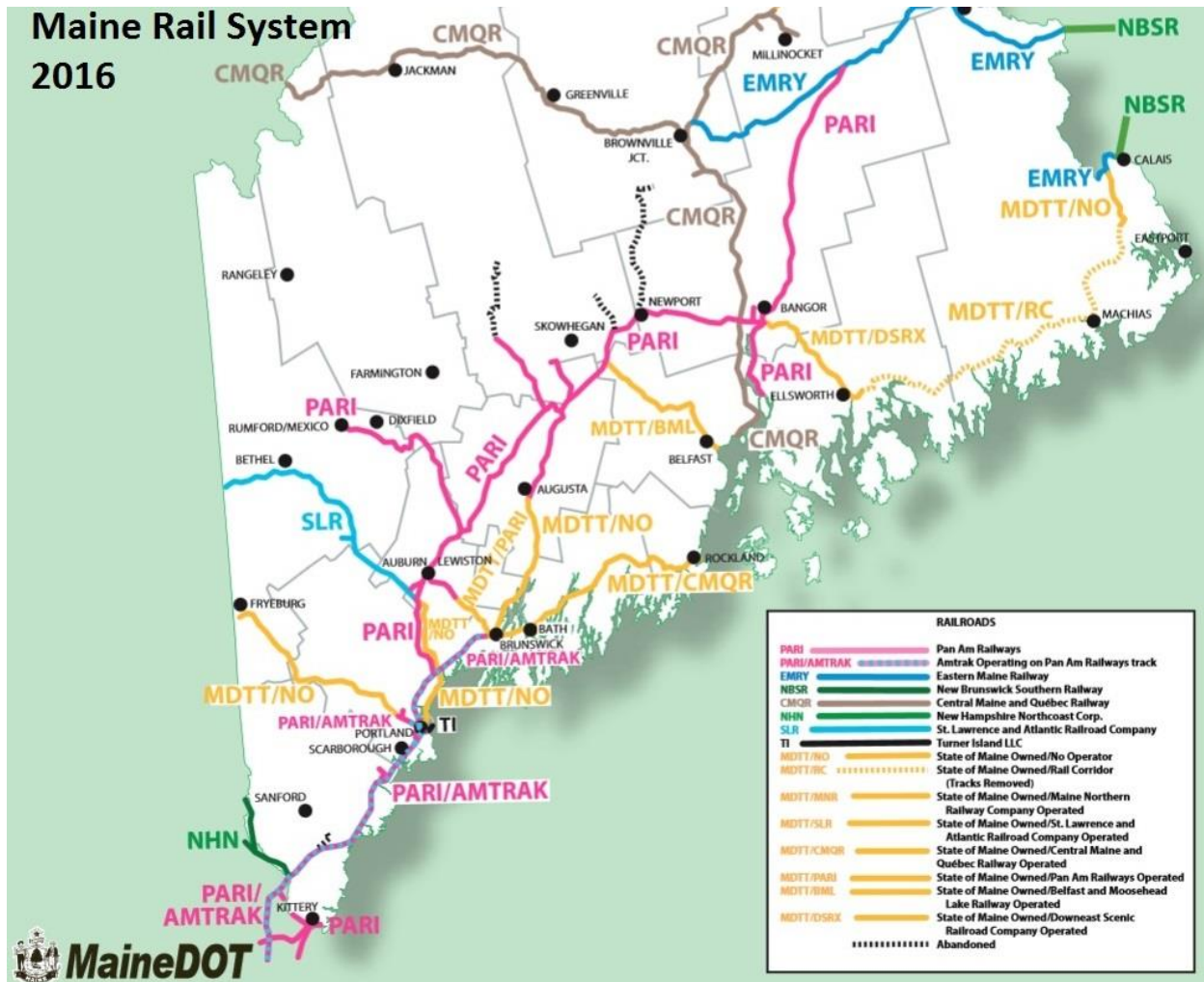


Figure 7. Rail Network

2.1.3 Marine Transportation

Historically, the Penobscot River played a key role in shaping the development of central and eastern Maine. Beginning in the late 1700s, the river served as a freight and passenger transportation corridor to the region. The river was used to power sawmills and to float and boom logs in the 1800s for the lumber and ship-building industries. The river was later used to generate power and support pulp and paper mills as well as other industries. Settlement patterns of the corridor communities along the Penobscot reflect the importance of the river to their respective historical economies. The importance of the river as a transportation corridor has declined significantly over the last century.

Passenger Transportation

Passenger transportation is primarily comprised of private recreational craft. Bangor, Brewer, and Bucksport have active waterfronts with owner-operated motor boats, and occasional cruise ships and tour boats.

Freight Transportation

At the time the original corridor plan was written, minimal commercial marine transportation was taking place north of Bucksport other than occasional asphalt and petroleum barge shipments. Now that Cianbro Corporation occupies the former Eastern Fine Paper site on the riverfront in Brewer, commercial water transportation on the Penobscot River is again a reality. Cianbro is able to transport large manufactured items globally by utilizing the river to access the ocean.

Operations and Maintenance

The Penobscot River's controlling depth in the marked channel is 13 feet between Winterport and Bangor. Buoys, day-beacons, and lights on bridges mark the channel. The head of navigation for commercial vessels is immediately downstream of the Joshua Chamberlain Bridge, while smaller recreational vessels can travel to a point about one mile upstream of the Penobscot Bridge. Ice impedes but usually does not prevent navigation above Winterport for nearly 5 months of the year, beginning around December. The river is kept free of ice to a point upstream of the I-395 Veterans Remembrance Bridge by a Coast Guard icebreaker.

Penobscot River Marine Facilities

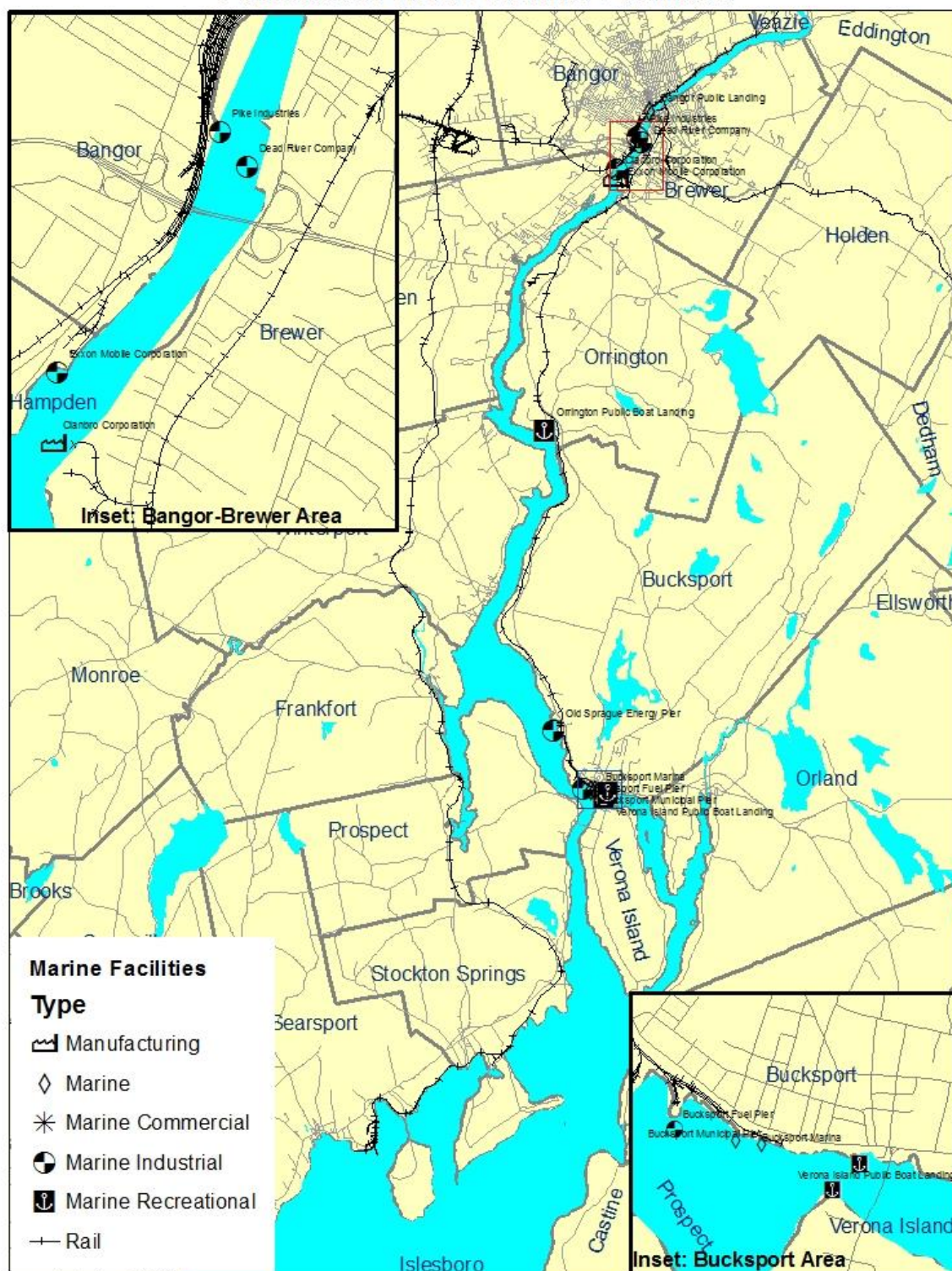


Figure 8. Marine Facilities

Existing Marine Facilities

(former) *Webber Dock*. The “Webber Dock” in Bucksport is now owned and operated by Penobscot Bay Terminal, a corporation wholly owned by Dead River Company. Petroleum products are off-loaded from oceangoing ships and transferred via pipeline to off-site tanks, and from there distributed by truck to commercial and retail customers throughout central and coastal Maine. The pier can accommodate tankers and barges up to 500 feet long and with drafts of up to 33 feet.

Bucksport Municipal Waterfront Facilities. The Town of Bucksport maintains a public dock facility with pier, floats, and temporary tie-ups. The waterfront is adjacent to public parking facilities and a scenic walkway.

The Town operates a marina located on the Penobscot River in downtown Bucksport. The marina offers water and electric hook-ups and approximately 40 slips for vessels up to 40 feet in length.

Bucksport also maintains a dock for fishing and hand-launching of small boats. The facility is located in the east channel, down-river from the larger public dock, and is grounded out at low tide.



Verona Island Public Boat Landing. The Verona Island Public Landing is a publicly owned facility that features a boat ramp and parking for vehicles and trailers. The U.S. Coast Guard maintains an equipment building on the premises that supports emergency operations for the Penobscot River and Bay. The boat ramp also serves as an access point for water-related emergencies in the area. The 2006 Verona Island Comprehensive Plan notes, “The boat ramp area does not allow for convenient loading or unloading of boats since there is no dock to temporarily tie up to while an unloaded vehicle is being parked. Other inadequacies of the boat launch area include lack of fuel facilities, lack of protection against strong tides and lack of a sewage pump-out facility.”



Orrington Public Boat Landing. The Orrington Public Boat Landing is a publicly owned ramp located off an old section of SR 15 in South Orrington. The facility provides parking for vehicles and boat trailers.

(former)Exxon-Mobil Oil Corporation. Exxon-Mobil formerly owned and maintained a riverfront petroleum facility located in Bangor. The facility includes an earth-filled timber crib bulkhead with a gravel deck approximately 30 feet wide and 40 feet long, nine storage tanks, two tanks for storing additives, and a single-story building used as an office and warehouse. The facility was sold to Buckeye Partners, LP in 2011, and is now referred to as the Buckeye Terminal, LLC. The facility has not received marine shipments of petroleum products in decades, and although the owners have maintained the pier, it is not actively used for shipping of any sort.

Pike Industries. Pike Industries is a privately-owned liquid asphalt supply facility on the Bangor shore that includes one 700-foot pier, seven medium-sized storage tanks, an office, and a boiler building. The storage tanks, formerly used to store liquid asphalt, are empty. Pike Industries does not currently receive shipments of any kind via barge, and has no immediate plans to. Pike Industries maintains the pier and empty tanks, so that future use of this infrastructure is a possibility.

(former)Webber Energy Fuels. Webber Energy formerly operated a privately owned petroleum facility, located in Bangor, with a steel-and-concrete dock 30 feet wide by 40 feet long, 11 storage tanks, and an office building. Webber is no longer in the petroleum business, has removed the waterfront tanks, and no longer conducts shipping of any sort from its riverfront facility.

Bangor Waterfront Facilities. The Bangor Waterfront has been significantly enhanced in recent years and includes docks for both small and large recreational vessels with steel ramps, a harbor master's office, public restrooms, drinking water, and parking. The landing is located in Bangor's riverfront park immediately downstream of the Joshua Chamberlain Bridge, and is adjacent to the riverfront trail network and downtown amenities.

(former) Dead River Company Dock in Brewer. Dead River operates a privately owned petroleum facility located in Brewer that includes a timber crib dock approximately 30 feet wide by 40 feet long, five storage tanks, and an office building. While the tanks and buildings are still actively used, the dock and pier have been decommissioned as a marine facility and are no longer maintained. Dead River receives the majority of its heating oil, diesel fuel, and kerosene via truck originating from their Bucksport terminal facility.

2.1.4 Ferries

There is no public- or privately-operated ferry service within the corridor. The Maine State Ferry Service provides ferry service to major islands in Penobscot Bay.

2.1.5 Air Transportation

Bangor International Airport (BGR) offers scheduled domestic air service to the region with non-stop flights to major connecting hubs and one-stop connecting service to top destinations in the

US and Europe. BGR serves as a transit point for commercial, corporate, and cargo international flights. The airport is also home to the 101st Maine National Guard Air Refueling Wing. Bangor International Airport and Bangor Aviation Services, its wholly-owned Fixed Base Operator, comprise an experienced, full-service ground handling organization.

Strategically located on the Great Circle Northern Route and the closest full-service U.S. airport to Europe, BGR maintains 24-hour dispatchers to coordinate an aircraft's arrival, servicing and departure with base operations, 24-hour refueling, Customs and Immigration services, and complete ground handling services including catering, maintenance with a FAA/EASA certified repair station and cleaning services.

At 11,440 feet (3,486 meters) long and 200 feet (61 meters) wide, BGR's runway is one of the longest on the east coast of the U.S and can accommodate any aircraft flying today. BGR has 12 million square feet (1.1 million square meters) of open ramp space. BGR is an all-weather CAT III access airport with de-icing services, hydrant and truck fueling.

BGR continues to face challenges based upon economic and demographic conditions and the volatility of the aviation industry. Since the 2009 global economic collapse and the fuel crisis of 2007-2008, scheduled air passenger service at BGR has grown from 372,220 passengers in 2009 to 477,244 passengers in 2015 with a high of 489,977 scheduled air passengers in 2014.

More than \$14 million has been spent on capital improvements at BGR since 2010, including reconstruction of the general aviation apron, a runway weather information system, and taxiway Alpha milling and repaving. Currently, the domestic passenger terminal is undergoing a \$14 million remodeling project to enhance passenger usability and airline operations. Other capital

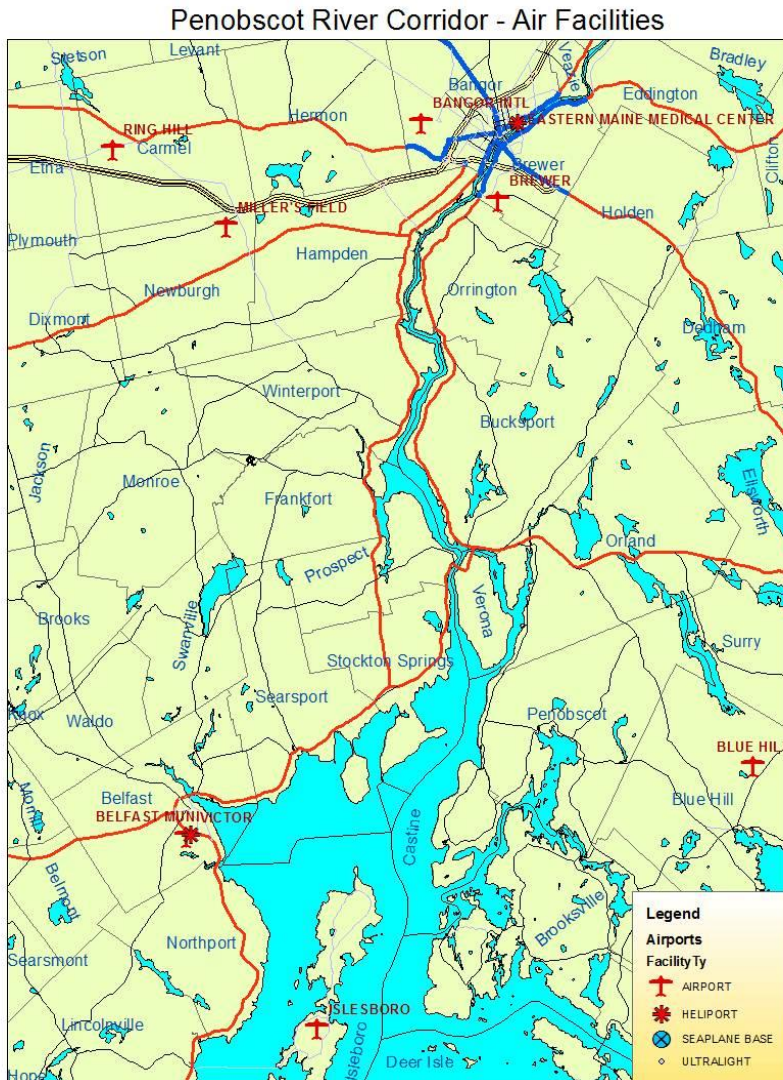


Figure 9. Air Facilities

investments include \$3.5 million to expand and refurbish buildings for C&L Aerospace expansion, and \$.5 million for building improvements for the relocation of LifeFlight.

BGR is home to Foreign Trade Zone No. 58, a 33-acre complex within the Port of Entry. It operates in a 25,000 square-foot processing building, with seven individual offices and “flex” space units for rent for warehousing or light manufacturing. There are also 25 acres of industrial lots located within the zone.

In 2004, MaineDOT completed Phase I of the Aviation Systems Plan. This plan includes a detailed examination of airport facilities and needs, and an analysis and projection of overall system needs over the next 20 years. The Aviation Systems Plan serves as a guide to MaineDOT’s airport investment decisions.

In addition to BGR, there are several small airports and landing strips adjacent to the corridor. These include runways in Brewer, Belfast, and Islesboro and helicopter landing sites at hospitals in Bangor and Belfast. Additional small runways are located to the east and west of the corridor. Among these facilities only BGR supports regular passenger and freight services.



Bangor International Airport
www.airnav.com/airport/KBGR



Brewer Municipal Airport
www.airnav.com/airport/0B2

2.1.6 Bicycle and Pedestrian Facilities

Eastern Penobscot Corridor

Bicycle Facilities. There are no dedicated bicycle facilities located along SR 15. However, the East Coast Greenway has recently been re-routed to traverse this corridor as noted below.

Shoulders. The urban areas of SR 15 in Bucksport and Brewer have paved shoulders ranging from four to eight feet in width. Other sections of the roadway from downtown Bucksport to Orrington have narrow paved shoulders ranging from two to four feet in width. US Route 1/SR 3 from Bucksport to Stockton Springs has paved shoulders ranging from six to 8 feet wide.

Sidewalks. Sidewalk facilities are limited to some of the village areas within the corridor including Brewer and Main Street in Bucksport.

Trails. The City of Brewer has embarked upon a long-term plan to create a continuous waterfront walkway from South Brewer to Freedom Park at the Penobscot Bridge. Currently, a section of the trail has been completed, and includes a paved path, lighting, benches, landscaping, and pedestrian water access. The Brewer Land Trust also oversees trails on its land holdings.

The town of Bucksport has developed trails that run along the riverfront, through the woods adjacent to the high school, and along town-owned land at Silver Lake.

The Orrington Conservation Commission maintains a series of nature trails throughout scenic locations in the town.

EMDC and HCPC worked with the city of Brewer and the towns of Orrington and Bucksport with the goal of developing a plan for a regional trail that parallels the Penobscot River and connects to the waterfront walkways of Brewer and Bucksport. The most promising routes for the proposed trail would follow power line and pipeline rights-of-way. These rights-of-way are already used by snowmobiles and ATVs and, if completed, would provide a regional trail connection between the greater Bangor area and coastal Hancock County.

In 2010 the East Coast Greenway (www.greenway.org) adopted a Brewer-to-Bucksport route that follows a series of local roads connecting Brewer with Bucksport, rather than directly traversing Route 15. Riders meet Route 15 again in Bucksport, and travel thence east to Ellsworth along Route 1. While this route typically does not have paved shoulders, traffic volumes are low and several sections are scenic.

Bicycle and Pedestrian Plans

BACTS completed an update to the bicycle and pedestrian section of its Long Range Plan in 2009. This plan will be used to guide investments in the transportation system over the next 20 years.

Bucksport undertook preparation of a bicycle-pedestrian plan in 2008, but it does not appear that a final document was ever produced.

The Town of Orrington is in the process of preparing a sidewalk plan.

2.1.7 Pipelines and Other Utility Rights-Of-Way

Maritimes and Northeast. Natural gas pipeline rights-of-way extend southerly from Brewer into South Orrington before crossing under the Penobscot River into Winterport. A lateral gas pipeline extends from the main line in South Orrington to the Verso Mill in Bucksport. Right-of-way for the pipeline is approximately 100 feet wide, except along the Silver Lake Road.

Bangor Hydro Electric Company (BHE). BHE operates a transmission line that extends southerly from Brewer to the Verso Mill in Bucksport with lateral lines to the Penobscot Energy Recovery

Company and the former HoltraChem facility in Orrington. Right-of-way for the utility line is approximately 250 feet wide.

2.1.8 Public Transportation

Bangor Area Transit (BAT) – Community Connector. The greater Bangor area is served by the BAT – Community Connector, a fixed-route, federally-subsidized bus service. The system is centrally operated out of Bangor, and provides interconnecting service across the federally designated urban area, in the communities of Bangor, Brewer, Hampden, Old Town, and Orono, providing about 941,000 rides, system-wide, in 2014.

Downeast Transportation, Inc: DTI provides fixed-route services to many towns in Hancock County with connecting services to Bangor. The service mix changes periodically, but currently includes:

- a weekly Wednesday local shuttle around Bucksport
- a weekly Wednesday Blue Hill-Orland-Bucksport service

Details are available at www.downeasttrans.org.

Penquis. Penquis is a nonprofit social service agency that operates the Lynx, an on-demand transportation service in Penobscot and Piscataquis Counties. The Lynx provides transportation to and from medical appointments for eligible cancer patients within its service area. The Lynx also provides ADA paratransit service for clients of the BAT who cannot physically access the BAT service, even though they are located within 0.75 mile of the bus route. Additional transportation services are provided for individuals with an eligible mental health diagnosis. The service also provides transportation for the general public to each town within its service area at least once weekly. Lynx transportation is provided via advance reservation.

Washington-Hancock Community Agency (WHCA): WHCA, like Penquis Lynx, provides on-demand, point-to-point transit services using a mix of buses and volunteer drivers for eligible riders. Riders are required to contact WHCA in advance to request transportation. Eligibility for some transportation services is based on DHHS referral or participation in MaineCare. WHCA also operates the SunRides community bus transit program, which provides fee-service transit to the general public and free rides for senior citizens to and from points in Downeast Maine. SunRides operates a Bucksport to Bangor bus route on the third Thursday of each month.

Go Maine. Go Maine is a program sponsored by Maine DOT and the Maine Turnpike Authority, providing services and information to commuters and other travelers who live, work, or travel in the State of Maine, such as carpool ride sharing, vanpool formation, transit information, and bicycling and walking information. Go Maine works with commuters, employers, and other partners throughout the state to build demand and advance the mutual goals of improved air quality, reduced traffic congestion, and lower commuter transportation costs.

2.1.9 Transportation Objectives

The transportation objectives listed below were initially developed by two corridor committees representing the Western Penobscot Corridor and the Eastern Penobscot Corridor, and were combined into a unified list of transportation objectives for the entire corridor. Objectives focusing wholly on the Western Penobscot Corridor and those irrelevant to the Eastern Penobscot Corridor have been removed from the list to reflect the focus of this plan update

- Highways: Identify and prioritize needed intersection and shoulder improvements to improve safety and mobility.
- Highway Route 1A: Improve safety standards for access to US Route 1A.
- Transit: Improve public transportation to serve the aging, disabled and limited-income populations, including expanded shuttle bus service, volunteer driver and taxi services to reach dispersed rural residences.
- Freight: Increase weight limits on Maine's interstate system to reduce heavy-truck impacts to the state highways.
- Freight: Improve efficiency of rail service to promote expanded use for freight.
- Economic Development: Support traditional industries with high-quality transportation and communications infrastructure.
- Trails: Develop trails, bikeways and other alternative corridors connecting communities, schools, and venues for tourism, where appropriate.
- Transit: Promote school-town collaboration in providing community transit services.
- Water Transportation: Expand access to the Penobscot River for recreational and passenger excursions.

2.2 Land Use

Typical of many Maine arterial highways, commercial and residential development pressures along the Penobscot Corridor result in increasing friction between through-travelers and driveways and entrances. Development presents local economic opportunities, but also reduces mobility while raising transportation costs for businesses and commuters, affects the efficient delivery of municipal services, and results in a higher number of entrance-related vehicle crashes.

The highest densities of population are found in the Bangor urban area. Elsewhere, there are pockets of medium density scattered along the corridor in village centers. Between 2000 and 2010, their population varied along the corridor as indicated in the population change map.

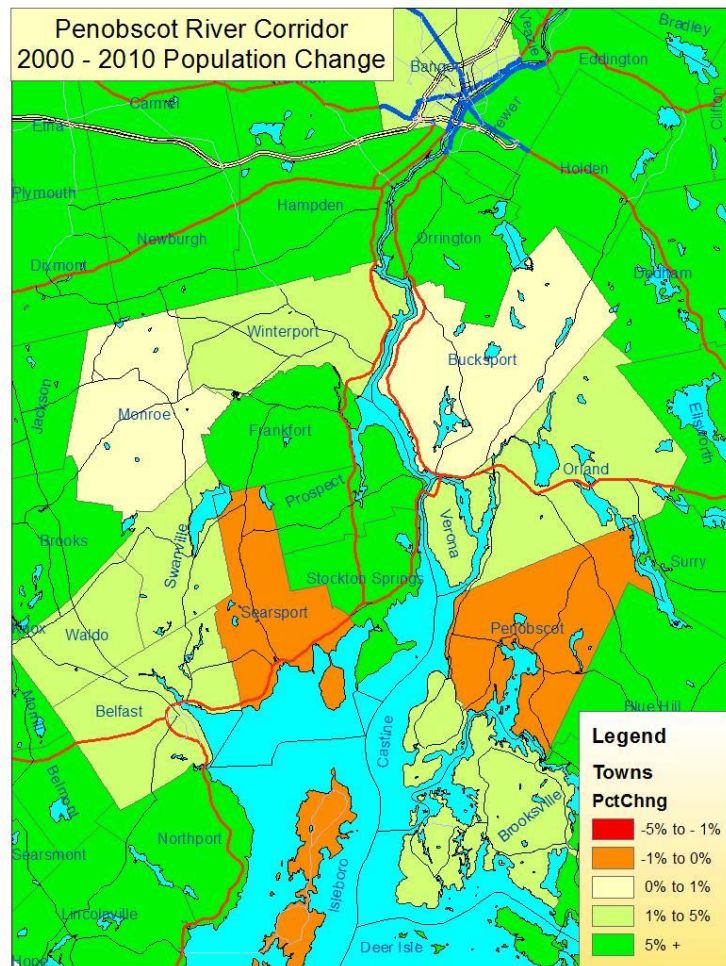


Figure 10. Population Change: 2000 - 2010

Overall, the population increased along the corridor, and the percentage of the population that forms the workforce has also increased. The three major employment destinations for corridor residents are Bangor, Bucksport and Belfast. Fast growth in the towns that are not employment centers is resulting in an increased number of longer commuting trips. The predominant mode of travel is the automobile.

The impact of expanding rural residential development is already being felt by transportation and social service providers in the region. Aging residents living in relatively remote rural homes are creating a challenge for transit and paratransit providers and will require creative solutions to effectively serve an increasingly dispersed elderly and disabled population. Unless changes are made to improve connections to rural elders, the movement towards allowing residents to “age in place” will make these limitations more evident and problematic.

2.2.1 Comprehensive Plans and Ordinances

Comprehensive planning for municipalities is mandated by the State of Maine, and many towns have accepted planning grants offered by the state to develop and implement plans. In today's economic climate, however, funds to assist communities in developing plans are scarce. Comprehensive plans are particularly important to communities for two reasons: (1) comprehensive plans provide a "blueprint" for a community's future growth needs, including transportation, infrastructure, and land use requirements, and (2) comprehensive plans form the supporting legal basis for local ordinances, which are the only measures available to control unlimited highway access (on roads other than arterials), inappropriate land uses, and strip development.

A land use ordinance is the local regulatory document that sets standards and permitted uses for future development. Beyond MaineDOT's access management regulations and the Natural Resources Protection Act (NRPA), the state of Maine has few tools to control development adjacent to its highways. The table below indicates the corridor towns that have locally adopted comprehensive plans and land use ordinances.

City/Town	Comprehensive Plan			Land Use Ordinance
	Adopted Locally	State Consistent	Year of Plan	Adopted
Bangor	Yes	Yes	2012	Yes
Brewer	Yes	Yes	2015	Yes
Bucksport (update underway 2016)	Yes	Yes	2003	Yes
Orrington	Yes	Yes	2000	Yes
Verona Island	Yes	Yes	2006	Yes

The Maine Legislature passed a law authorizing MaineDOT to regulate new curb-cuts and driveway entrances along arterial highways. The measure is aimed at preserving the capacity of Maine's highways and eliminating (or at least deferring) the need for costly highway improvements necessitated by poorly managed growth. The law applies only to arterial roadways and considers both safety and capacity issues as the basis of design standards.

2.2.2 Land Use Objectives

The corridor committee identified the following objectives as being important to the future of the corridor and the region:

- Encourage residential and commercial investment in corridor service centers.
- Assist corridor towns to develop consistent comprehensive plans and land use ordinances to discourage inappropriate roadside development.

- MaineDOT should work with corridor communities to develop consistent, corridor-wide access management standards that complement state access regulations.
- Work with communities and businesses to develop an impact fee schedule for major projects that may impact mobility and safety along the corridor.

2.3 Corridor Needs and Deficiencies

2.3.1 Eastern Penobscot Corridor

- Roads
 - Orrington: A high-crash segment at the Snows Corner intersection of Route 15 had 30 reported crashes between 1998 and 2008. Of these, 76% were either intersection movements or rear-end/sideswipe collisions. Alternative road designs should be considered that will reduce uncertainty for cars entering onto Route 15.
 - Update: MDOT data indicates far fewer crashes have occurred at this intersection in recent years.
 - Orrington: Representatives also discussed the need for better pedestrian facilities at the Snows Corner intersection. The lack of sidewalks and crosswalks make it difficult to walk in this area.
 - Update: there are still no sidewalks or crosswalks at Snows Corner.
 - Route 15: Traffic volume is declining in the Route 15 corridor. This unexpected pattern has raised concerns that traffic is diverting around the corridor using local roads. Additional research will be needed to determine whether this is the case and what steps are needed to maintain a good level of service on the arterial highway.
 - Update: Recent AADT data suggests that Route 15 traffic volume is increasing.
 - Route 15: Lacks shoulders in several sections, making it unsafe for cycling and contributing to stop-and-start traffic when cyclists or pedestrians use the travel lane.
 - Update: Although the majority of Route 15 has paved shoulders, some areas between the downtown areas of Orrington and Bucksport have very narrow shoulders. Unfortunately, these coincide with the hilliest and winding sections of the road, where cyclists and pedestrians could most benefit from wider shoulders.
 - Level-grade rail crossings present safety and efficiency concerns for drivers as well as rail operators.
 - Update: Crossings have been updated/repared as sections of the road are rebuilt.
 - Route 46 presents many problems for truck movement. Several sections require major reconstruction, including the addition of paved shoulders.
 - Update: While some significant reconstruction has occurred on Route 46, there are still areas with no paved shoulders and rough, crumbling pavement.
- Rail
 - Observations of derailments, poor condition of tracks, and aging rolling stock.

- Difficulty moving freight among different railroad operators leads to delays and uncertainty.
 - Difficulty balancing freight in and freight out. Additional coordination is needed to avoid deadheading ships, trains and trucks.
 - Wood and pulp coming in by truck
 - Paper going out by truck and rail
 - Clay coming in by ship and truck
 - Fuel oil coming in by tanker ship
 - Natural gas coming in by pipeline.
 - Update: It is unclear whether changes have been made to address these situations. Presently, the Bucksport Branch, the only section of railroad in the Eastern Penobscot Corridor, is unused and the future of rail transportation and expenditures in this location is unclear.
- Maritime
 - Shipping regulations may be hindering users of the blue highway. In particular, the Jones Merchant Marine Act is preventing non-U.S. carriers from carrying freight to other U.S. ports.
 - Need to bring cargo back by ship to avoid deadheading.
 - Update: It is unclear whether changes have been made to address these situations, which may be more relevant to the Western Penobscot Corridor than the Eastern.
 - Air
 - Bangor International Airport routes and schedules are not efficient for corporate travel. The time delays and lack of timely connecting flights causes some travelers to drive to Portland.
 - Update: The addition of new carriers and additional daily flights at BGR in recent years has improved this situation somewhat.
 - Transit
 - Bucksport Bay Healthy Communities encourages additional transit services between Bucksport and Bangor, particularly to assist elderly residents of Bucksport to reach health services in Bangor.
 - Update: A once-weekly round-trip between Bucksport and Bangor has been added by SunRides.

3.0 RECOMMENDATIONS AND INVESTMENT STRATEGIES

The Corridor Committee identified several recommendations and investment strategies, discussed below, which attempt to address the corridor needs, deficiencies, and objectives outlined in this Corridor Management Plan. Some issues to note:

- The region's economy is of prime importance. The region relies on a wide variety of businesses and industries that use and rely on the transportation infrastructure.
- Energy costs will continue to be an important issue for consumers and businesses into the future.
- An aging population will also require more diverse transportation options. Expanding transportation alternatives and educating residents will prepare this region for the future.
- Health consequences of sedentary lifestyles suggest a need for safe opportunities to walk and bike, particularly in village areas.
- Legal and administrative barriers may hinder the efficient movement of freight.

3.1 Both Eastern and Western Corridors

1. Consolidate excess railroad grade crossings: This project identifies redundant local and private railroad crossings and identifies opportunities to encourage shared crossings, where feasible, to reduce maintenance costs and enhance safety.

Location: Throughout corridor.

Responsible Parties: MMA, Pan Am, MaineDOT, municipalities, landowners.

Timeframe: Short-term.

Update: The Bucksport Branch, the only section of railroad in the Eastern Penobscot Corridor, currently has only temporary use, and the future of rail transportation and rail line investment in this location is unclear.

2. Invest in improvements in tracks and rolling stock for rail transportation: Create a revolving loan fund for rail transportation investments, including reconstructing tracks and upgrading rail cars and locomotives.

Location: Throughout corridor.

Responsible Parties: MMA, Pan Am, MaineDOT, DECD, USDOT, Federal Rail Administration.

Timeframe: Intermediate to long-term.

Update: The Bucksport Branch, the only section of railroad in the Eastern Penobscot Corridor, currently has only temporary use, and the future of rail transportation and rail line investment in this location is unclear.

3. Update existing or develop new comprehensive plans and land use ordinances consistent with adjacent towns which recognize the important link between land use transportation mobility.

Location: Throughout corridor.

Responsible Parties: Municipalities, State Planning Office, MaineDOT, EMDC.

Timeframe: Short-term to intermediate.

Update: Since the original corridor plan was completed, Bangor and Brewer have prepared and adopted comprehensive plans that are consistent with state standards, and Bucksport is in the process of drafting one.

4. Conduct a study to determine the feasibility of developing air cargo services at BGR for niche markets such as Maine lobster.

Location: Bangor.

Responsible Parties: City of Bangor, MaineDOT.

Timeframe: Short-term to intermediate.

Update: Although little progress has been towards meeting this recommendation thus far, a meeting to discuss this issue has been planned for early 2016.

5. Improvement of navigation channels in the Penobscot River: This project will conduct dredging in the Penobscot River to provide all-tide access for oceangoing vessels to Bangor and Brewer.

Location: Penobscot River from Bucksport to Bangor and Brewer.

Responsible Parties: Army Corp of Engineers, Coast Guard, MaineDOT, MaineDEP, municipalities.

Timeframe: Long-term.

Update: The Army Corp of Engineers confirms that no dredging of the Penobscot River is proposed.

6. Develop legal and logistical protocol for shipping on the “blue highway”: This initiative will assist manufacturers in balancing loads of inputs and exports to reduce transportation costs and overcome restrictions such as the Jones Merchant Marine Act.

Location: Bangor, Brewer, Bucksport, Searsport.

Responsible Parties: MaineDOT, businesses, Department of Marine Resources, federal agencies.

Timeframe: Intermediate to long-term.

Update: No known efforts have been made to address this recommendation, however, this recommendation may be of more significance in the Western Penobscot Corridor, rather than the Eastern Penobscot Corridor.

3.2 Eastern Penobscot Corridor

1. Improve mobility and safety on Route 15 (Brewer to Bucksport): This project will improve the efficiency and safety of the corridor. The corridor currently accommodates a mix of commuter vehicles and heavy truck traffic associated with paper manufacturing. Improvements may include implementing access management, constructing passing lanes, reducing level grade crossings and improving road shoulders to facilitate more efficient movement of goods and people.

Location: Throughout the corridor, particularly unbuilt sections of Route 15.

Responsible Parties: MaineDOT, Municipalities, HCPC.

Timeframe: Long-term.

Update: The permitting process in place for new entrances onto state roads is currently the most effective access management tool in place. A full reconstruction on a 2-mile segment of Route 15 in Orrington was completed in 2012, and included redoing one level-grade rail crossing. New passing lanes, and the expansion of paved shoulders along this stretch of Route 15 have not been completed, and are not currently proposed. Note that with the closure and dismantling of the paper mill in Bucksport, heavy truck traffic in this area may be significantly reduced.

2. Improve crosswalks and pedestrian facilities in low-speed village areas using better signage, crosswalk lighting, and pavement markings: This project will enhance safety for pedestrians in low speed village areas. Crosswalks require a “safe landing” zone, such as sidewalks on both sides of the road.

Location: Brewer; Orrington, particularly at Snows Corners; Bucksport Main Street; and Verona Island, connecting Bucksport and Penobscot Narrows Bridges.

Responsible Parties: MaineDOT, Municipalities, HCPC

Timeframe: Short and Intermediate

Update: While some improvements, such as repainting and signage, may have been made, additional pedestrian improvements are required. No pedestrian facilities exist at Snows Corner, however, the MDOT workplan lists an on-road bicycle-pedestrian project planned for 2017/18, extending from just south of the Orrington/Brewer line to just south of Snows Corner. Additionally, the Town of Orrington is in the process of preparing a sidewalk plan.

3. Highway upgrades that support heavy-haul truck movements through the corridor: Route 46 was particularly noted for sections of unbuilt and substandard construction in Bucksport and Dedham. Improvements should include better site distance, paved shoulders, and drainage improvements. Freight movement on Route 15 is impeded in part by level-grade rail crossings, inadequate shoulders, and increasing volumes of local traffic, particularly on the northern end in Brewer and the southern end at the bridge to Verona Island.

Location: Throughout.

Responsible Parties: MaineDOT, municipalities.

Timeframe: Intermediate to long-term.

Update: A series of improvements have been along Route 15 in recent years, including the rehabilitation of a section of the road in Holden in 2015, and reconstruction and vertical alignment to improve sight distance in a section in Bucksport. The section of Route 46 along Long Pond was rehabilitated in 2005, but is in need of an overlay, which is currently not funded.

4. *Invest in improvements in tracks and rolling stock for rail transportation:* Create a revolving loan fund for rail transportation investments, including reconstructing tracks and upgrading rail cars and locomotives.
Location: Throughout corridor.
Responsible Parties: MaineDOT, DECD, USDOT, Federal Rail Administration.
Timeframe: Intermediate to long-term.
Update: The Bucksport Branch, the only section of railroad in the Eastern Penobscot Corridor, currently has only temporary use, and the future of rail transportation and rail line investment in this location is unclear.
5. *Continue testing fixed-route transit services between Bucksport and Bangor.*
Location: Throughout corridor.
Responsible Parties: MaineDOT, Downeast Transportation, Inc., HCPC.
Timeframe: Short-term to intermediate.
Update: A once-weekly round-trip between Bucksport and Bangor has been added by SunRides. Other than this, no further efforts have been made to address this recommendation.
6. *Establish vanpool and carpool routes between Bucksport and Bangor-Brewer:* This project will utilize an existing MaineDOT program, Go Maine, to create a new van or car pool route transporting commuters moving commuters.
Location: Throughout corridor.
Responsible Parties: Municipalities, Go Maine, MaineDOT, businesses.
Timeframe: Short-term to intermediate.
Update: No known efforts have been made to address this recommendation.

3.3 Updated Recommendations (2016)

1. *Improve alternative transportation (bicycle and pedestrian) facilities on Route 15 (Brewer to Bucksport):* Given the increased attention to alternative modes of transportation, healthy lifestyles, and the marketing of ecotourism, demand for safe ways to walk and bike are higher than ever. Efforts should be made to create and enhance these facilities, building upon the plans recently and currently being developed.
Location: Throughout the corridor.
Responsible Parties: MaineDOT, Municipalities, HCPC.
Timeframe: Long-term to short-term.
2. *Research the potential needs and uses of Bucksport Branch rail line:* The dismantling of the Bucksport paper mill makes it unlikely that significant freight will be moving on this line in the near future. However, at least one petroleum entity has expressed a potential interest in using the line for shipping. Given the limited fixed-rate transit options in the Corridor region, the rail line could be reviewed for that potential. If the rail is found to be unnecessary, the possibility for a multi-use rail trail, similar to the Downeast Sunrise Trail in Hancock and Washington Counties, should be considered. Such a trail might make for a safer route for the East Coast Greenway.

Location: Bucksport Branch line, from Bucksport to Brewer.

Responsible Parties: MaineDOT, HCPC.

Timeframe: Intermediate to long-term.

3. Reevaluate Marine Shipping in the Penobscot River north of Bucksport: None of the petroleum-based marine shipping entities that formerly operated out of Bangor and Brewer are active. What little shipping that does occur north of Bucksport appears to be associated with the large-scale manufacturing products produced by Cianbro. The marine shipping needs of this new sector should be evaluated, with the possible realignment of future marine shipping policies to reflect these needs. This may also open up a market for other types of similar manufacturing, spurring economic development along the corridor.

Location: Penobscot River from Bucksport to Bangor and Brewer.

Responsible Parties: Army Corp of Engineers, MaineDOT, municipalities.

Timeframe: Intermediate to long-term.