ENVIRONMENTAL ASSESSMENT

FOR THE

PORTLAND NORTH PASSENGER RAIL SERVICE EXTENSION PROJECT

PORTLAND TO BRUNSWICK

CUMBERLAND COUNTY, MAINE

PIN 09503.20
ME-90-X134

Prepared Pursuant to 23 CFR 771 and 23 USC 138 by the

U.S. Department of Transportation

Federal Highway Administration
and
Federal Transit Administration
and
Maine Department of Transportation

Jonathan McDade
Division Administrator
Federal Highway Administration
Room 614
Augusta, Maine 04330
(207) 622-8350

Date

Judith Lindsey
Bureau of Planning
Maine Department of Transportation
16 State House Station
Augusta, Maine 04333-0016
(207) 624-3300

Richard H. Doyle
Regional Administrator
Federal Transit Administration
55 Broadway, Suite 920
Cambridge, MA 02142-1093
(617) 494-2055

Date

Comments on this Environmental Assessment are due by _____ and may be sent to the addresses above.

Draft November 2004

Contents

Appendices.....

Draft November 2004

Tables

Draft November 2004

Figures

1

Purpose and Need

The Maine Department of Transportation (MaineDOT), in conjunction with the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), is studying alternatives to establish daily passenger rail service between Portland, Maine and Brunswick, Maine as an extension of the current Boston, Massachusetts to Portland Amtrak service. This Environmental Assessment (EA), prepared pursuant to the National Environmental Policy Act (NEPA), provides the FHWA and the FTA with the information needed to make a determination as to whether the Preferred Alternative, with appropriate mitigation measures, would have a significant impact on the human and natural environment. Following review of the EA and comments received, FHWA / FTA will issue a decision document. The decision document will either be a Finding of No Significant Impact (FONSI) or a determination that the project is likely to have a significant impact and therefore requires the preparation of an Environmental Impact Statement (EIS). This EA also provides MaineDOT with the decision-making tool required by the Maine Sensible Transportation Policy Act (STPA).

This chapter introduces the project, defines the Project Area, and presents the Project's Purpose and Need. It also outlines the scope of the environmental analysis and lists the permits that will likely be required for construction of the Preferred Alternative.

1.1 Project History

Consideration of passenger rail service between Portland and Brunswick grew initially out of MaineDOT's 1990 Statewide Rail Passenger Service Study that concluded that the expected ridership in the Boston to Portland to Brunswick corridor was sufficient to warrant further study.[1] Amtrak's Downeaster service between Boston and Portland began in December 2001. In its first year of service, the Downeaster came within one percent of meeting its ridership goal and exceeded its revenue projections by approximately 44 percent. Thus far in Fiscal Year 2005, the ridership and revenue for the Downeaster service have been down. Service was interrupted in the summer due to the Democratic National Convention which prevented trains from traveling to North Station in Boston, and because a bridge collapse in Kennebunk, Maine.

The 1997 *Maine Strategic Passenger Transportation Plan* also recommended the establishment of passenger rail service between Portland and Brunswick as a means of increasing tourism. The plan presented objectives for a multi-modal transportation system that would include passenger rail service on several routes that connect to the Portland-Brunswick corridor, including the continuation of passenger service from Brunswick to Rockland on the state-owned Rockland Branch and service from Portland to Lewiston / Auburn on the

τ

1 *Report on Passenger Needs: Boston-Portland-Brunswick Corridor, Statewide Rail Passenger Service Study Technical Analysis*. Prepared for the State of Maine, Department of Transportation by Stone & Webster Engineering Corporation, October 1990.

St. Lawrence & Atlantic Railroad (SLR) which runs from Portland through Yarmouth Junction to Auburn.[2] Figure 1-1 page 1-3, depicts these rail corridors and their relation to those that run between Portland and Brunswick.

MaineDOT has rehabilitated the Rockland Branch, which extends east from downtown Brunswick to Rockland, primarily to allow for tourist excursions along the scenic mid-coast area.[3] The line was used successfully August 5-8, 2004 for the Maine Lobster Festival Train, an excursion service that made one round trip per day between Brunswick and Rockland with a stop in Bath. The service was operated by Maine Eastern Railroad (MER). MER continued the service on weekends throughout the summer. Full summer service is expected to begin on the Rockland Branch once the service from Portland to Brunswick has begun. In the future, rail passengers may be able to connect with a high-speed ferry from Rockland to Nova Scotia, as a ferry service operator has expressed an interest to MaineDOT to provide such service.

MaineDOT is also in the planning stage for the return of passenger rail service to Lewiston / Auburn, Maine from Portland. Trains traveling between Portland and Lewiston / Auburn would share the track between Portland and Yarmouth with those headed to Brunswick, before diverging toward Auburn. MaineDOT, with FHWA and FTA, is preparing an EA for a new intermodal facility planned for the Lewiston / Auburn Airport. This facility would improve connections for automobile, bus, rail, and air travelers. This service is independent of the Portland to Brunswick service. It aims to serve Lewiston Auburn to Portland commuters and tourists separate from the Brunswick travelers. In the future, MaineDOT hopes to establish seasonal passenger rail service from Portland, through Auburn, and on to Montreal and Quebec.

While the proposed passenger rail service between Portland and Brunswick is one element in the overall multi-modal transportation system envisioned by MaineDOT, the project has logical termini, independent utility, and would provide useful service for passengers traveling to and from the proposed stops in Brunswick and Freeport, regardless of whether additional service to other areas is also established.

MaineDOT held scoping meetings in April of 2002 to introduce the project to the public and to gather feedback on potential environmental issues and the Purpose and Need.

1.2 Project Area

Figure 1-2 page 1-4, depicts the Project Area for this EA. The Project Area is entirely within Cumberland County, and includes parts of six municipalities: Portland, Falmouth, Cumberland, Yarmouth, Freeport, and Brunswick.

The Project Area stretches approximately 30 miles from the Portland Transportation Center to downtown Brunswick and is generally confined to existing rail corridors including the Mountain Division Line from the Portland Transportation Center to the proposed Portland Wye, the Guilford Rail System (GRS) Freight Main Line from the proposed Portland Wye to the Union Branch, the Union Branch from the proposed Portland Wye

τ

2 *Maine Strategic Passenger Transportation Plan, Final Report*, prepared for the Maine Department of Transportation by Wilbur Smith Associates, *et. al.*, July 14, 1997.

3 Rehabilitation of the Rockland Branch was reviewed under NEPA through a Categorical Exclusion prepared by MaineDOT (PIN Number 7952.00, May 20, 1999).

Figure 1-1
Planned Passenger Rail System

Figure 1-2
Project Area

to the proposed Relocated Union Branch, the Relocated Union Branch from the existing Union Branch to the proposed Back Cove Bridge, the St. Lawrence and Atlantic (SLR) Railroad from the proposed Back Cove Bridge to Yarmouth Junction, and the GRS Brunswick Branch from Yarmouth Junction Church Road in Brunswick, and the State-owned Lower Road railroad, to the Proposed Brunswick Platform.

The Project Area contains a mix of urban, suburban, and rural areas. Portland is Maine's largest city with a population of approximately 64,249.[4] Falmouth, Cumberland, Yarmouth, and Freeport are suburban / rural coastal communities. The largest of these is Falmouth, with a population of 10,310. Brunswick is a larger community than the towns between it and Portland, with a population of 21,172. Brunswick is home to Bowdoin College and the Brunswick Naval Air Station. The rail corridor, examined in this EA, passes through heavily developed areas of Portland, rural and suburban residential areas of Falmouth, Cumberland, Yarmouth, and Freeport, as well as the "downtown" village / retail areas of Yarmouth and Freeport. The rail corridor passes through rural residential and commercial areas of Brunswick, ending just west of Maine Street and the town common in downtown Brunswick.

1.3 Project Purpose and Need

The **Purpose** of the Project is to establish passenger rail service between Portland and Brunswick as an extension of the existing Boston to Portland Downeaster Amtrak service, and as the first step in providing future interconnected service to Rockland and the Lewiston / Auburn area.[5] Furthermore, the establishment of rail service between Portland and Brunswick would help MaineDOT achieve several other goals set out in the *Strategic Passenger Transportation Plan* and the current *Twenty Year Transportation Plan*.[6] These include the following:

- Increasing access and mobility options for all modes of transportation;
- Enhancing integration and connectivity of the transportation system, across and between modes throughout the state, for people and freight; and
- Protecting and enhancing the environment, promoting energy conservation, promoting economic growth, and improving the quality of life for Maine citizens.

The establishment of rail service between Portland and Brunswick will also address several needs identified in the *Maine Strategic Passenger Transportation Plan* and MaineDOT's *Twenty Year Transportation Plan*.

Specific elements of the **Need** as described in the plan for transportation improvements are:

- the lack of access and mobility alternatives other than automobile for people traveling to and from the Brunswick area;
- the lack of integrated alternative modes of transportation for tourists to reach local attractions; and

τ

4 All population data are from the 2000 U.S. Census.
5 The proposed service to Rockland (Pin Number 7952.00) received NEPA clearance via a Categorical Exclusion (CE) May 20, 1999. An EA is currently being prepared for a proposed passenger intermodal center in Auburn. Any track rehabilitation if required for service to Auburn would also likely be processed under a CE.
6 *Twenty Year Transportation Plan, 2000-2020, Keeping Maine Moving*, January 2001. Maine Department of Transportation

- the increasing levels of traffic on Maine highways such as the Maine Turnpike, I-95, U.S. Route 1, and I-295.

1.4 Scope of this Environmental Analysis

MaineDOT has consulted with federal and state resource agencies, and municipalities within the Project Area, and the public regarding issues of potential impact and concern. MaineDOT presented the project at its interagency review meetings on March 11 and May 14, 2002. Public scoping meetings were held in Portland and Brunswick on April 23 and April 25, 2002, respectively. Issues raised at the scoping meetings that were of most concern fall into the following general categories:

- impacts to water resources, including wetlands and floodplains, caused by new construction in and adjacent to surface waters;
- impacts to coastal fisheries;
- maintaining access to businesses and grade crossings;
- land use impacts in areas of new construction;
- potential for hazardous materials contamination;
- impacts to public recreation and conservation lands, particularly the Eastern Promenade Trail in Portland;
- utility impacts;
- air quality impacts, particularly near new stations and layover facilities;
- noise and vibration impacts from rail operations; and
- economic effects.

Information was gathered on the resources and constraints within the Project Area, and some resources/constraints were determined to be not applicable to this project either because they are not present; or if present, they would not be affected by or affect the construction of the Preferred Alternative. These resources will not be analyzed further in this EA. Information regarding these resources is provided in the *Environmental Technical Analysis*.

1.5 Potential Permits

Table 1-1 page 1-7 lists the permits and certifications that are expected to be needed to allow MaineDOT to construct the Preferred Alternative.

Receipt of all necessary state and municipal permits generally constitutes the State's determination that the project is consistent with the enforceable policies under the Coastal Zone Management Act.

For a list of the laws and regulations that are applicable to this project, please refer to the *Environmental Technical Analysis*.[7]

Table 1-1
Environmental Permits and Certifications Expected to be Required for the Preferred Alternative

Agency	Permit	Status
USCG	Bridge Permit	Application not yet filed
USACE	Section 10/404 Permit	Application not yet filed
EPA	National Pollutant Discharge Elimination System General Permit for Construction	Application not yet filed
MDEP	NRPA Permit	Application not yet filed
MDEP	Stormwater Permit Under Storm Water Management Law	Application not yet filed
MDEP	Section 401 Water Quality Certification (issued with NRPA)	Application not yet filed
	Approvals	
MHPC	Section 106 Clearance	Concurrence Requested
FHWA/FTA	NEPA Decision Making Document and Final Section 4(f) Evaluation	EA and Draft Section 4(f) Evaluation

τ

7 *Portland North Passenger Rail Service Extension Project, Environmental Technical Analysis,*. May 2003, Maine Department of Transportation.

2 Alternatives

This chapter discusses the analysis conducted to identify a Preferred Alternative. It discusses the No-Action Alternative and Non-Build Alternatives that were considered and identifies the rail corridors examined for operating passenger rail service between Portland and Brunswick. This chapter explains how the **"Preferred Corridor"** (*i.e.*, the general route of the corridor to be followed) was selected. It also discusses alternatives that have been studied for the various rail facilities along the **Preferred Corridor**, including track alignments, bridges, and locations for a layover facility and platform sites. Throughout this EA, the term **"Preferred Alternative"** refers to the overall program of passenger rail improvements, including the types and locations of facilities along the **Preferred Corridor**. This chapter also discusses potential future actions that are likely to occur along the **Preferred Corridor** if passenger rail service is re-established and operated, and provides a summary of the predicted transportation, environmental, and social impacts of the **Preferred Alternative**.

2.1 Sensible Transportation Policy Act Analysis

STPA provides a decision-making framework for examining a range of transportation alternatives. STPA requires MaineDOT to "evaluate the full range of reasonable transportation alternatives for substantial highway construction or reconstruction projects." The intent of STPA is to ensure that all reasonable transportation alternatives are given full consideration. STPA also ensures a public process for all substantial highway studies or projects that are of substantial public interest.

The alternatives studied for this EA include the No-Action Alternative, Non-Build Alternatives, segments of new location railway within a Preferred Corridor, and upgrades of existing railway. The alternatives studied meet MaineDOT's policy objectives set forth in the STPA (23 MRSA Chapter 3 § 73 Subchapter 1 Section 4B). The Preferred Alternative would:

- Promote the coordinated and efficient use of all available and future modes of transportation;
- Provide a necessary link in the system providing a safer, more efficient transportation network;
- Help to minimize the harmful effects of transportation on public health, air and water quality, land use, and other natural resources; and
- Be consistent with local comprehensive planning processes.

2.2 No-Action Alternative

Under the No-Action Alternative, no new construction or upgrades to existing railroads would occur and no new passenger rail service between Portland and Brunswick would be operated. The No-Action Alternative was dismissed because it would not satisfy the Project's Purpose and Need; however it is included in the EA to provide a baseline to which the other alternatives are compared.

2.3 Non-Build Alternatives

Three corridors were analyzed having the potential to accommodate passenger rail service between Portland and Brunswick. In addition to these "build" alternatives, several Non-Build Alternatives were considered, including: bus service, Transportation Systems Management (TSM) alternatives, Transportation Demand (TDM) Alternatives, as well as the No-Action Alternative.[8]

2.3.1 Bus Alternative

The use of buses was considered as an alternative to provide passenger rail service between Portland and Brunswick. Concord Trailways and Greyhound Lines currently provide bus service between Portland and Brunswick each making two to three trips per day. While MaineDOT recognizes that there would be a lower capital, operating, and maintenance cost associated with improved bus service compared to trains, a bus alternative would not help to create the interconnected passenger rail service to locations such as Rockland and Auburn that is needed to provide opportunity for tourist excursions to destinations north of Portland without vehicles which the State of Maine desires as put forth in the *Strategic Passenger Transportation Plan*. Therefore, bus service does not meet the study's Purpose and Need and was dismissed from further consideration.

2.3.2 TSM and TDM Alternatives

While TSM measures, such as traffic signal timing or phasing adjustments, access management improvements, and improved signage or pavement markings, and TDM measures, such as ridesharing/carpooling programs, trip-reduction incentives, and congestion pricing, could be used to help reduce congestion and delays on highways such as the Maine Turnpike and I-295, they would not address the other elements of the study's Purpose and Need. They would not provide alternative access and mobility options; they would not assist tourists to reach destinations; and they would not provide the missing link in the state's rail system that would allow for future rail service to other regions of the state. For these reasons, TSM and TDM actions were dismissed as stand-alone alternatives.

τ

8 TSM and TDM alternatives generally consist of low cost measures that increase system efficiency without adding lanes to an existing road or providing a new road. TSM measures typically include system improvements such as traffic signal timing or phasing adjustments, access management improvements, and improved signage or pavement markings. TDM measures are demand management strategies intended to reduce single occupant automobile travel and increase transit use. TDM measures can include ridesharing/carpooling programs, trip-reduction incentives, and congestion pricing.

2.4 Corridor Alternative Analysis

This section discusses the analysis that led to the selection of a Preferred Corridor among the three corridors that were studied on which to operate passenger rail service between Portland and Brunswick.

■

2.4.1 Overview of Corridor Alternatives Analysis

A key factor in assessing a corridor's ability to accommodate passenger rail service is the interface between the expected passenger service and existing freight operations along the corridor. The extent and timing of freight operations can greatly affect the operating windows available for passenger service. If the schedule for passenger service becomes too constrained, and does not offer desirable arrival and departure times, ridership would likely decrease. A reduced service would not meet the Project's Purpose and Need of improving passenger rail access and mobility options for travelers and reducing reliance upon and use of personal automobiles. In addition to the freight interface analysis, the corridor analysis looked at other factors that also influence corridor feasibility, including track curvature, condition of the existing track, and grade crossings.

Track geometry is an important consideration because it affects operating speeds, and the need to improve inadequate geometry could require that additional right-of-way be obtained. If track geometry is such that it causes reduced operating speeds, total travel time increases. Increases in travel time make the service less desirable compared to other modes (*e.g.*, automobile) and can therefore result in reduced ridership. The condition of existing track affects the amount and cost of the rehabilitation required to safely operate passenger service. The number and location of grade crossings is a consideration because grade crossings affect operating speeds, and therefore travel times, and can be a safety concern as well.

■

2.4.2 Corridor Alternatives

In addition to the Non-Build Alternatives discussed in Section 2.3 page 2-2, three Build Corridors on which to operate passenger rail service were analyzed: the Guilford Rail System Freight Main Line Corridor, the Union Branch Corridor, and the Relocated Union Branch Corridor. Each is shown on Figure 2-1 page 2-5.

2.4.2.1 GRS Freight Main Line Corridor

The GRS Freight Main Line Corridor is an approximately 30.5-mile long route from Portland to Brunswick. This corridor would have 36 at-grade crossings, the most among the three corridors studied.

Trains destined for Brunswick would depart the Portland Transportation Center traveling south on the GRS Mountain Division Line. After passing beneath I-295, they would swing northeast on a proposed new 1,800-foot long connection (i.e., the proposed Portland Wye) to access the GRS Freight Main Line.

Trains would then continue north on the GRS Freight Main Line for approximately 13 miles through Portland, Falmouth, and Cumberland, connecting with the GRS Brunswick Branch at Royal Junction in Yarmouth. From Royal Junction, trains would follow the GRS Brunswick Branch northeast for approximately 13 miles to Church Road in Brunswick, and then approximately 0.5 mile on the state-owned Lower Road to downtown Brunswick to a proposed new platform.

Use of the GRS Freight Main Line Corridor was dismissed for several reasons: it offered much less flexibility for scheduling than the Union Branch / SLR Corridors; it could not serve potential commuter stops at I-295 or in the Bayside area of Portland; it had a greater number of grader crossings, many of which are in Portland's residential neighborhoods; it was believed to have substantially greater noise and vibration impacts; and it generally passes through more environmentally sensitive areas than does the Union Branch Corridor. Each of these reasons is discussed more fully below.

Scheduling Flexibility. Travel constraints caused along the GRS Freight Main Line corridor would make service much less practicable than along the Union Branch Corridor / SLR Corridors. Schedule constraints caused by existing freight traffic combined with those related to the coordination of service with the existing Downeaster service would greatly limit the available operating times that the corridor could offer.. Without a reasonable operating schedule, the passenger rail service would be unable to attract ridership and would not meet the Project's Purpose and Need.

Grade Crossings. The GRS Freight Main Line would have 21 grade crossings between the existing Union Branch and Yarmouth Junction (compared to 11 for the Relocated Union Branch). Many of the crossings would be within the residential Deering and Woodfords neighborhoods west of Back Cove. It would also cross Forest Avenue (Route 302) at Woodfords Corner and Allen Avenue (Route 100) at Morrills Corner. These are extremely important commuter routes and two of the busiest intersections anywhere in the state. The City of Portland is currently reviewing plans for a large new mixed use shopping center at Morrills Corner. The traffic impacts and safety concerns related with the greater number and busier grade crossings on the GRS Freight Main Line make it much less desirable.

Noise and Vibration. MaineDOT has not calculated potential noise and vibration impacts along the GRS Freight Main Line. A preliminary review of the corridor, however, suggests that impacts would be substantially greater than along the Union Branch Corridor as trains would be very near a large number of homes in Portland.

It is worth noting that in December of this year, a Federal Railroad Administration (FRA) final rule (49 CFR Parts 222 and 229) will take effect requiring trains to sound their horns at all public highway-rail crossings unless the local governing authority successfully petitions for the establishment of a quiet zone (no horn blowing). Currently, the use of a locomotive horn at a public highway-rail crossing is governed by state law and railroad operating rules. The specific requirements of the new rule are that the railroad must sound the horn 15 to 20 seconds prior to arrival at the crossing but not more that ¼ mile in advance of the crossing. The minimum sound level for the horn is set at 96 db(A) and the maximum at 110 db(A). It is not known whether the City of Portland would be successful in establishing a quiet zone.

Figure 2-1
Alternative Corridors

back of Figure 2-1

Ability to serve commuters. The GRS Freight Main Line Corridor is a much less attractive corridor on which to establish commuter service into Portland because it would not be able to serve potential stations at either Exit 15 of I-295, which has been identified as a possible Park and Ride location, or in the Bayside neighborhood of Portland, where the City has expressed interest in possibly siting a station.[9] The GRS Freight Main Line Corridor also could not support a downtown "village station" in Yarmouth as could the SLR Corridor, should the Town of Yarmouth wish to establish one.

Environmental Setting. The GRS Freight Main Line Corridor is generally located in a more environmentally sensitive area than the Union Branch Corridor. It crosses the Presumpscot and Piscataqua Rivers and runs parallel, very near the East Branch of the Piscataqua River for approximately six miles through the relatively undeveloped areas of Falmouth and Cumberland. By comparison, the Union Branch Corridor runs roughly parallel and next to I-295 through Falmouth and Cumberland. Information provided by the Maine Department of Inland Fisheries & Wildlife provided for the project also indicates the presence of a number or rare species in the general vicinity of the GRS Freight Main Line.

The combination of these factors makes the GRS Freight Main Line substantially less desirable than either the Existing Union Branch Corridor or the Relocated Union Branch Corridor.

2.4.2.2 Existing Union Branch Corridor

This corridor is approximately 29.5 miles long and would require 34 at-grade crossings between Portland and Brunswick (11 of which would occur within Portland's Bayside neighborhood).

Trains destined for Brunswick would depart the Portland Transportation Center traveling south on the GRS Mountain Division Line. After passing beneath I-295, they would swing northeast on a proposed new 1,800-foot long wye connection (i.e., the proposed Portland Wye) to access the GRS Freight Main Line.

Trains would then continue north on the GRS Freight Main Line for approximately 300 feet, and then switch onto the existing Union Branch, following it through Portland's Bayside neighborhood, and passing beneath the I-295 / Washington Avenue exit and entrance ramps, to reach the south shore of Back Cove. Trains would be carried over Back Cove on a proposed bridge approximately 1,700 feet long to connect with the existing SLR on the north shore of Back Cove.

North of Back Cove, trains would follow the SLR north for approximately 10.8 miles to Yarmouth Junction. At Yarmouth Junction, trains would switch (via a reconstructed Yarmouth Wye track) to the GRS Brunswick Branch. From Yarmouth Junction, the corridor is the same as the GRS Freight Main Line Corridor described in the previous section.

The Existing Union Branch Corridor was dismissed because of its potential noise and vibration impacts to residential area of Bayside, pedestrian safety concerns due to the greater number of at-grade crossings compared to the Relocated Union Branch (8 additional crossings), expected travel time delays caused by the requirement for slower speeds through the Bayside area, number of at-grade crossings, and right-of-way

[9] The Bayside neighborhood can generally be described as the area bounded by I-295 (west), Franklin Street Arterial (north), Congress Street (east), and Preble Street (south).

limitations also in the Bayside neighborhood. This corridor was also strongly opposed by the City of Portland because they were concerned its 11 at-grade crossings in the Bayside neighborhood would be very disruptive.

2.4.2.3 Relocated Union Branch Corridor (Preferred Corridor)

The Relocated Union Branch Corridor has been identified as the Preferred Corridor. The corridor is approximately 29.5 miles long and would require 4 at-grade crossings within the Bayside neighborhood and a total of 24 at-grade crossings between Portland and Brunswick.

Following this corridor, trains destined for Brunswick would depart the Portland Transportation Center traveling south on the GRS Mountain Division Line. After passing beneath I-295, they would swing northeast on a proposed new 1,800-foot long wye connection (i.e., the proposed Portland Wye) to access the GRS Freight Main Line.

Trains would then continue north on the GRS Freight Main Line for approximately 300 feet, and then switch onto the existing Union Branch, following it northeast for approximately 0.8 miles to the Forest Avenue Interchange. Just before reaching the Forest Avenue crossing, trains would diverge from the existing Union Branch and follow a proposed new track to be built immediately east of I-295, between the highway and Marginal Way, mostly within the I-295 right-of-way. Trains would travel on this new track approximately 1.25 miles, passing beneath the I-295 Washington Avenue exit and entrance ramps, to reach the south shore of Back Cove. From this point north, this corridor is the same as the Existing Union Branch Corridor described in the previous section.

The Relocated Union Branch Corridor has been identified as that which best meets the study's Purpose and Need. Based upon a freight interface analysis, the Relocated Union Branch Corridor has been found to offer the most favorable operating windows to accommodate a desirable passenger service schedule.[10] The Relocated Union Branch Corridor would require the fewest number of highway grade crossings among the three build corridors studied, and cause the least amount of disruption to the existing transportation network and adjacent land uses. All of the corridors would remain within MaineDOT right-of-way in the area of the Cumberland County Pre-Release Building, avoiding interference with the facility's future expansion.

2.4.2.4 Identification of the Preferred Corridor

The GRS Freight Main Line Corridor and the Existing Union Branch Corridor were dismissed from further consideration for the reasons described above. The Relocated Union Branch has been identified as the Preferred Alternative.[11] Therefore, the EA focuses its analysis on the Relocated Union Branch and compares its impacts to the No-Action Alternative.

τ

[10] More detailed information regarding the corridor analysis can be found in a memorandum from VHB, Inc. to MaineDOT, dated May 6, 2002, Portland North Passenger Rail Extension Study: Operational Alternatives Analysis, contained in Appendix A of the *Environmental Technical Analysis,* May 2003, Maine Department of Transportation.

2.5 Elements of the Preferred Alternative

Once the Relocated Union Branch had been identified as the Preferred Corridor on which to operate passenger rail service, further study was done to select the specific types and locations for rail facilities along that corridor. This section describes the alternatives that were studied for the various required rail facilities, including track alignments, bridges, and locations for a layover facility and platform sites.

■

2.5.1 Proposed Portland Wye

The proposed Portland Wye is required to link the GRS Mountain Division Line with the GRS Freight Main Line headed northbound. Figure 2-2 page 2-10, shows the proposed Portland Wye. Without the proposed Portland Wye, trains would be required to make approximately a 1.0-mile long, undesirable reverse move down the GRS Mountain Division Line to its existing intersection with the GRS Freight Main Line farther to the south. Guilford strongly opposes such a move based on operational and safety considerations related to making such a long reverse move on an active freight rail corridor. The new Portland Wye would be constructed on state-owned industrially-zoned land and bounded by the GRS Mountain Division Line to the south, I-295 to the west, Congress Street to the north, and the Cumberland County Correctional Facility to the east. Potential track alignments are constrained in this area by curvature requirements, the Cumberland County Correctional Facility buildings, access routes, as well as environmental constraints.

MaineDOT coordinated with Cumberland County officials regarding the alignments for the proposed Portland Wye. Three preliminary alignments were reviewed by County officials, two of which were rejected because they were located on County owned land, and they would have required the demolition of the Correctional Facility's Pre-Release Building. The third alignment for the proposed Portland Wye was refined to move it away from the Pre-Release Building. All of the alignments considered are shown on Figure 2-2, page 2-10.

■

2.5.2 Park Avenue Bridge

The Park Avenue Bridge (Maine Bridge # 0327), which is eligible for listing in the National Register of Historic Places, carries the Union Branch over St. John Street and Park Avenue in Portland. Its location is shown on Figure 2-3, page 2-12. The bridge's superstructure is in poor to serious condition because of vehicle accidents. A rating analysis of the bridge has determined that the bridge is not capable of carrying the required loads necessary for passenger rail service. It has also been determined that rehabilitation of the bridge is not prudent. MaineDOT has coordinated review of the alternatives analysis that led to this conclusion with the Maine Historic Preservation Commission (MHPC) and MHPC is in agreement. Chapter 5 Section 4(f) Evaluation, discusses the analysis.

Figure 2-2
Proposed Portland Wye

■

2.5.3 Relocated Union Branch Alignment

As seen on Figure 2-4, page 2-13, new track is proposed immediately adjacent to the east side of I-295, mostly within the highway right-of-way, west of Marginal Way. It would begin just south of Forest Avenue and extend to the proposed Back Cove Bridge. This relocated segment would replace a discontinued segment of the Union Branch within the Bayside neighborhood east of Marginal Way. At the north end of this segment, however, where the relocated track would pass beneath the I-295/Washington Avenue ramps, the new track would be located within the Marginal Way right-of-way.

A number of different alignments through the Bayside neighborhood were considered, including those that generally followed the discontinued Union Branch, and variations of a new alignment that follow closely to I-295.[11] Constructing the proposed Relocated Union Branch within the I-295 right-of-way avoids direct impacts to the Bayside Neighborhood and the city's redevelopment plans, increases pedestrian safety, and improves roadway safety by reducing the number of at-grade crossings in the Bayside neighborhood from 11 with the discontinued Union Branch to just three with the Relocated Union Branch.

■

2.5.4 Back Cove Bridge

A new bridge is proposed over Back Cove in Portland to link the proposed Relocated Union Branch with the SLR, which begins just north of Back Cove east of the Burnham and Morrill (B&M) Baked Bean Plant. The location for the proposed Back Cove Bridge was largely dictated by the location of available touch down points. On the south shore, the bridge must connect with the Relocated Union Branch alignment that is mainly fixed by the need to pass beneath the I-295/Washington Avenue ramps. On the north shore, the proposed bridge must connect with the existing SLR without interfering with the B&M Baked Bean Plant's facilities.

The proposed Back Cove Bridge would be a single track fixed structure approximately 1,690 feet long with preliminary channel navigation clearances of 50 feet horizontally and 16 to 18 feet vertically above mean high water. The proposed abutments would be built on shore to avoid placing fill in the tidal and subtidal zones. The number of piers proposed (25) was also minimized to the greatest extent practicable to further minimize environmental impacts to Back Cove. Figure 2-5, page 2-15 depicts the proposed Back Cove Bridge alignment.

τ

11 *Union Branch Alternatives, Portland, Maine, Summary Report*, Prepared by Thomas K. Dyer, Inc., Lexington, MA, March 23, 2001.

Figure 2-3
Park Avenue Bridge

Figure 2-4
Proposed Relocated Union Branch

■

2.5.5 Royal River Bridge

The Royal River Bridge, which is eligible for listing in the National Register of Historic Places, carries the SLR over the Royal River in Yarmouth and is shown on Figure 2-6, page 2-16. The superstructure of the bridge is heavily rusted, and its south abutment has settled and moved downward to the north. Because of the bridge's extensive deterioration, it has been determined that rehabilitation of the bridge is not prudent. MaineDOT has coordinated review of the alternatives analysis that led to this conclusion with the Maine Historic Preservation Commission (MHPC) and MHPC is in agreement. Chapter 5 Section 4(f) Evaluation, discusses the analysis.

■

2.5.6 Yarmouth Wye

The Yarmouth Wye is located at Yarmouth Junction where the GRS Brunswick Branch intersects the SLR in Yarmouth. MaineDOT proposes to re-establish the existing inactive track on the east side of Yarmouth Junction in order to reconnect the SLR northbound to the GRS Brunswick Branch northbound. Figure 2-7, page 2-17 shows the alignment for the Yarmouth Wye. The design for the wye was based upon curvature requirements, surrounding land use constraints, and environmental impact considerations. The proposed alignment closely follows the alignment of the former wye track with only a slight modification to improve the rail curvature. The re-established wye will be entirely within the existing railroad right-of-way.

■

2.5.7 Freeport Platform

Two alternative sites were considered for a proposed new 300-foot long, high-level train platform in downtown Freeport (see Figure 2-8, page 2-18). The first was at the site of the former rail station at the corner of Bow and Depot Streets. The former rail station building has been razed and replaced with the Village Square retail / office building. This site is very near the center of Freeport shopping district. The second site considered is behind the former Eastland Shoe Plant (see Figure 2-9, page 2-19). Potential environmental impacts at both sites were negligible and MaineDOT felt the selection of a preferred site was a local decision that would be best made by the town. On July 15, 2003, the Freeport Town Council recommended the Eastland Shoe Plant site to MaineDOT because of the slightly better parking and traffic circulation offered by the site.

Figure 2-5
Proposed Back Cove Bridge Alignment

Figure 2-6
Royal River Bridge

Figure 2-7
Re-Established Yarmouth Wye

Figure 2-8
Freeport Platform Alternatives

Figure 2-9
Eastland Shoe Site

Back of Figure 2-9

■

2.5.8 Brunswick Layover Facility

MaineDOT considered four sites for a northern terminus layover facility, as shown on Figure 2-10, page 2-22. The layover facility is where trains would be kept overnight, serviced, and warmed up in the morning before being put into service. Typically, layover facilities include short segments of track on which trains can be parked to keep them off the main line, as well as storage of maintenance and communications equipment. For purposes of concept development and site selection, MaineDOT assumed that the northern terminus layover facility would be similar to the existing layover facility at the Portland Transportation Center.

The Brunswick Yard Alternative (see Figure 2-11, page 2-23) was identified as the Layover Facility Preferred Alternative and is the only site discussed in further detail in this EA. The Brunswick Yard Alternative is on the site of a former rail yard and is well suited for rehabilitation. The site has adequate right-of-way, level topography, no physical obstacles, no wetland / floodplain / rare species impacts, minimal potential for noise / air impacts to surrounding development, and no zoning or ownership issues.

The other three sites were dismissed from further consideration. The Lewiston Lower Wye Alternative was dismissed because of potential conflicts with underground fuel lines, a decommissioned wye connector (which would conflict with a new facility if it were to be reconstructed), and the Spring Street overpass. The Topsham Fairground Alternative was dismissed because of poor topography that would have required substantial regrading, the need to acquire additional right-of-way to accommodate the facility, and potential conflicts with power lines at the site. The Harding Plant Alternative was dismissed because of the need for regrading, potential conflicts with the Harding Road overpass, its proximity to residences, potential impacts to an intermittent stream and wetland on the eastern side of the site, and greater distance (1.5 miles) from the proposed Brunswick Platform site. Refer to Appendix A of the *Environmental Technical Analysis* for a more detailed description of the alternatives analysis for the Brunswick Layover Facility.

■

2.5.9 Brunswick Platform

Only one site was considered for the Brunswick Platform. The Proposed Brunswick Platform site is an unused town-owned lot bounded by the Hannaford's Plaza and Elm Street to the north, the Mid-Coast Federal Credit Union and Maine Street to the East, Bowdoin College offices and residences along Noble Street to the south, and Union Street to the west. Figure 2-12, page 2-25 shows the proposed platform site. The proposed platform would be a 350-feet long, high-level platform, built between the existing Rockland Branch to the north and a proposed new siding track to the south. This will allow passengers to switch directly from the train from Portland to continue on to Rockland. The Rockland Branch has been rehabilitated and is available for tourist excursion runs. The Brunswick lot is sandy, sparsely vegetated, and contains an abandoned building foundation. Access to the site would be provided from Maine and Union Streets. The approximately 3.2-acre site is more than large enough to accommodate the 30 parking spaces that are estimated to be needed for the platform. The Environmental Technical Analysis provides more detail regarding traffic and circulation at the site.

■ Figure 2-10
Northern Terminus

Figure 2-11
Brunswick Yard Alternative

Back of Figure 2-11

Figure 2-12
Proposed Brunswick Platform

Back of Figure 2-12

■

2.5.10 Track Rehabilitation

In addition to the new facilities, the Preferred Alternative would also rehabilitate existing track along the route. Although the specific improvements needed cannot be determined until final design, work will likely include tie and rail renewal, and new ballast, to accommodate an operating speed of 59 miles per hour.

2.6 Potential Future Associated Actions

At the completion of the NEPA process for this project, MaineDOT will turn over ownership of the portion of the Existing Union Branch right-of-way in the Bayside neighborhood of Portland that would be bypassed by the Preferred Alternative. This would allow the City of Portland to redevelop the Bayside right-of-way.

MaineDOT has also made a preliminary review of the potential to incorporate the development of a rail platform in Yarmouth along the SLR in conjunction with potential highway improvements to Exit 15 of I-295. MaineDOT has considered conceptual options to reconfigure Exit 15 and construct a Park and Ride lot for commuters traveling to Portland. If MaineDOT proceeds with the planning and design of highway improvements at Exit 15, the proposal will be subject to NEPA and have its own NEPA documentation and permitting.

At this time, MaineDOT has no plans to develop any other platforms along the Preferred Alternative for the Portland to Brunswick service. However, it is reasonable to assume that intermediate stations could be developed in the future. The municipalities would likely be responsible for developing any additional platforms.

2.7 Summary of Predicted Effects

This section summarizes the effects (both beneficial and adverse) that are expected to result from construction and operation of the Preferred Alternative.

Tables 2-1 and Table 2-2 page 2-28 summarize the environmental impacts and social/economic impacts, respectively, that are expected to result from construction and operation of the Preferred Alternative.

Table 2-1
Environmental Impacts Matrix

Type of Impact	Description of Impact	Impact Amount
Water Body or Waterway	Crossings	19 existing crossings (1 new) = 20 total
Coastal Fisheries Habitat	Piers in Back Cove cause loss of mudflat	528 square feet (New Back Cove Bridge)
Wetland	Fill in area of Portland Wye, fill in the landscaped drainage swales between I-295 and Marginal Way	29,000 square feet (9,000 square feet at Portland Wye) (20,000 along I-295 (DEP jurisdiction only)
Air Quality	Reduction in CO, moderate increase in VOC and NOx	No new violations of National Ambient Air Quality Standards, compliance with State Implementation Plan
Noise	Increase in noise levels	100 moderate impacts 25 severe impacts

Table 2-2
Social Impacts Matrix

Type of Impact	Description of Impact
Land Use	Minor changes in land use at locations of new facilities such as Portland Wye, Freeport and Brunswick Platforms.
Cultural Resources	Demolition of two National Register Historic eligible bridges.
Vibration	Net reduction of five residential sensitive receptors where exceedances of the FTA criterion of 80 VdB would occur.

2.8 Description of the Preferred Alternative

Section 2.4 page 2-3, of this chapter summarizes the analysis that was performed that led to the identification of the Relocated Union Branch Corridor as the Preferred Corridor. Section 2.5 page 2-9, discussed the alternatives that were studied for rail facilities along the Preferred Corridor, including track alignments, bridges, and layover facility and platform site locations. The Preferred Alternative is the construction and operation of passenger rail service along the Preferred Corridor, and includes the proposed Portland Wye, replacement of the Park Avenue Bridge, the proposed relocation of the Union Branch Railroad adjacent to I-295, construction of a new Back Cove Bridge, replacement of the SLR Bridge over the Royal River in Yarmouth, the re-establishment of the Yarmouth Wye, the proposed Freeport Platform, the proposed Brunswick Layover Facility, and the proposed Brunswick Platform.

■

2.8.1 Proposed Operation

This EA bases its analysis of environmental impacts on the following proposed schedule for passenger service:

- A morning-commute southbound run, departing at about 7:00AM from Brunswick, arriving in Portland at about 8:00 AM (which would become the 682 Downeaster run).
- An early afternoon southbound run, departing at about 12:30PM from Brunswick, arriving in Portland at about 1:30 PM (which would become the 684 Downeaster run).
- An evening-commute northbound run, departing at about 5:00PM from Portland, arriving in Brunswick at about 6:00 PM (which would continue the 683 Downeaster run).
- A late evening northbound run, departing at about 9:15 PM from Portland, arriving in Brunswick at about 10:15 PM (which would continue the 685 Downeaster run).

This schedule would require overnight layover of two train sets at the proposed layover facility in Brunswick, and one train set at the existing layover facility in Portland.

The service schedule outlined above represents a balance of several factors and constraints. The first is the objective of maximizing ridership. The service has been developed with the goal of attracting both visitors/shoppers and those making local, commuter trips. The trips in the proposed service schedule have been arranged to minimize the layover time in Portland for through travelers, as well as to accommodate people commuting from Brunswick to Portland.

The second factor influencing the service schedules is the timetable for the existing Downeaster service. Due to heavy rail traffic on the southern end of the Downeaster route and the limited availability of schedule slots at Boston's North Station, the proposed operation schedule has been developed assuming no change in the Downeaster service schedule.

The third factor affecting the schedule for the Preferred Alternative is the number of train sets used to provide the service. The existing Downeaster service operates with two train sets. Developing a schedule for the Preferred Alternative using the two train sets and working with the existing Downeaster schedule produces an unfavorable schedule that would not attract many riders from Portland to Brunswick. As a result, it has been assumed that three train sets would be used to provide service.

2.9 Proposed Business Plan

Implementation of the Preferred Alternative will require the financial resources of the state and federal government primarily for capital infrastructure improvements and operational support. MaineDOT has developed a Business Plan that identifies the estimated costs for each of the capital improvement items, the

projected operating costs, projected revenues, the cost schedules, and preliminary funding plans that identify the financial resources necessary to implement the service. [12]

τ

[12] Portland North Passenger Rail Service Extension and Downeaster Service Business Plan, prepared for the Northern New England Passenger Rail Authority and the Maine Department of Transportation by Vanasse Hangen Brustlin, Inc. and KKO & Associates, LLC, January 2004.

Draft November, 2004

3

Affected Environment

This chapter describes the existing conditions along the Preferred Alternative, including transportation facilities and socioeconomic and environmental resources that would be affected by or may affect the Preferred Alternative.

In conformance with FHWA and FTA guidance, this EA focuses only on those resources that have a reasonable likelihood to be affected by, or to affect, the proposed action. Table 3-1, below, lists those resources that have been found to be inconsequential to the analysis of the Preferred Alternative because they are not likely to affect, or be affected by, the Preferred Alternative. Therefore, they are not discussed in this EA. For more information regarding these resources, refer to the *Environmental Technical Analysis.*

Table 3-1
Resources Unlikely to be Affected by the Preferred Alternative

Resource	Comments	Controlling Law/Regulation/Guidance
Geography, geology, and soils	Topography and soils along the Preferred Alternative will not be adversely affected, nor will they adversely affect ability to construct project.	National Pollutant Discharge Elimination System (NPDES) Permit - General Permit for Stormwater Discharges from Construction Sites from the Maine Department of Environmental Protection. Stormwater Permit Under Storm Water Management Law.
Surface Water Drinking Supplies	Closest Surface Water Drinking Supply is Sebago Lake, 14 miles from the Preferred Alternative	Not Applicable
Groundwater Drinking Water Supplies	No EPA designated Sole Source Aquifers. Existing rail line crosses two sand and gravel aquifers in Brunswick, but does not cross any wellhead protection areas.	Not Applicable
Floodplain	Preferred Alternative crosses 13 areas of 100-year floodplain. Project is not expected to result in any increase in floodplain or floodway encroachment. Project complies with Executive Order 11988.	Executive Order 11988, Floodplain Management
Vegetation	Project does not impact any Exemplary Natural Communities or rare plant species. Minor amounts of clearing necessary for proposed Portland and Yarmouth Wyes.	Not Applicable

Table 3-1 (continued)
Resources Unlikely to be Affected by the Preferred Alternative

Resource	Comments	Controlling Law/Regulation/Guidance
Wildlife	Project will not affect any Significant Wildlife Habitat. Possible minor impacts to bird habitat at Back Cove.	Maine Natural Resource Protection Act (38 M.R.S.A. Sec. 480.) (NRPA)
Freshwater Fisheries	No direct, long-term impacts expected.	NRPA
Endangered, Threatened, and other Protected Species	None present in the vicinity of the Preferred Alternative.	Endangered Species Act, as regulated at 50 CFR 17, NRPA
Vehicular Traffic	Does not lower the Level of Service (LOS) on any roadways or at intersections near platforms. No Substantial adverse affect to pedestrians or cyclists.	Not Applicable
Uncontrolled Petroleum and Hazardous Wastes	Potential areas of contamination within 0.25 miles of the Preferred Alternative Project Area have been identified. None occur within the Preferred Alternative's Project area. No excavation expected in any areas of contamination. Phase II subsurface explorations will be done during final design as needed.	Maine Department of Environmental Protection (MDEP), Bureau of Remediation and Waste Management Rules
Archaeological Resources	None expected along the Preferred Alternative. Maine Historic Preservation Commission has issued a Finding of No Effect.	Section 106 of the National Historic Preservation Act of 1966 (NHPA).
Section 6(f) Resources	No Section 6(f) resources identified along the Preferred Alternative.	Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LAWCON), 16 U.S.C. 460.
Utilities	There are no major utility installations that would be unusually costly to relocate.	Uniform Relocation Assistance and Real Property Act of 1970, 42 U.S.C. 61

3.1 Physical and Biological Environment

■

3.1.1 Surface Water Quality

Section 303(d) of the federal Clean Water Act requires the State of Maine to identify surface water that does not attain water quality standards. MDEP manages the statewide water-quality monitoring program. The majority of the surface water along the Preferred Alternative meets national and state water quality goals. The Presumpscot River in Falmouth has not attained water quality goals because it contains high levels of total suspended solids (TSS) and biochemical oxygen demand (BOD). Frost Gully Brook in Freeport is in non-attainment because it contains low levels of dissolved oxygen and has limited aquatic life. Waterbodies crossed by the Preferred Alternative are shown on Figures 3 through 6, beginning on page 11 within the *Environmental Technical Analysis*.

■

3.1.2 Water Bodies and Waterways

MDEP is responsible for enforcing the water quality standards established in 38 M.R.S.A., Sections 464(2), 464(2-A), and 464(3). Waterways that occur along the Preferred Corridor have water quality classifications of A, B, C, SB, and SC in accordance with this statute. Class A waterways allow impoundments and very restricted discharges, resulting in reduced risk of degradation and higher water quality. Class A waterways provide more stable ecosystems, which are more likely to support healthy fish populations. Class B and SB waterways have fewer restrictions on activities that may cause stress to the system, but still maintain a higher water quality standard. The water quality of Class C and SC waterways is the lowest of the categories presented and, therefore, at greater risk of rapid ecosystem degradation in the event of human or natural induced stress. Fish populations in Class C and SC waterways are likely to be less viable than populations occurring in waterways that maintain higher water quality standards.

The Preferred Alternative has one new crossing over a salt water body, the mouth of Back Cove in Portland. Back Cove is a large inlet surrounded by commercial and residential development. I-295 is immediately adjacent to the east side of Back Cove and the inlet to the cove is spanned by I-295 (Tukey's Bridge). The Preferred Alternative would cross over the inlet to Back Cove east of I-295 via the proposed Back Cove Bridge.

The Preferred Alternative makes 27 crossings of waterways (see Table 3-2). The waterways are shown on Figures 3 through 6, beginning on page 11 within the *Environmental Technical Analysis*.

Table 3-2
Study Area Waterways and Water Bodies

Water Body or Waterway	Town	Maine Water Quality Classification
Un-named intermittent stream in Wetland C6	Portland	C
Back Cove	Portland	SC
Un-named tributary to Presumpscot River	Falmouth	SC
Presumpscot River	Falmouth	SC
Un-named tributary to Presumpscot River	Falmouth	SC
Un-named tributary to Presumpscot River	Falmouth	SC
Mill Creek	Falmouth	B
Chenery Brook	Falmouth	B
Chenery Brook	Cumberland	B
Chenery Brook	Cumberland	B
Un-named stream	Cumberland	SA
Un-named stream	Cumberland	SA

Table 3-2 (continued)
Study Area Waterways and Water Bodies

Water Body or Waterway	Town	Maine Water Quality Classification
Royal River	Yarmouth	B
Pratts Brook	Yarmouth	B
Pratts Brook	Yarmouth	B
Un-named tributary to Cousins River	Yarmouth	B
Harvey Brook	Freeport	B
Merrill Brook	Freeport	B
Un-named stream	Freeport	B
Frost Gully Brook	Freeport	A
Un-named tributary to Frost Gully Brook	Freeport	A
Allen Range Brook	Freeport	B
Un-named tributary to Mill Stream	Brunswick	B
Mill Stream	Brunswick	B
Un-named intermittent tributary to Banganuc Brook	Brunswick	B
Un-named intermittent tributary to Androscoggin River	Brunswick	B
Un-named tributary to Androscoggin River (mapped perennial)	Brunswick	B

There are no lakes or ponds adjacent to the Preferred Alternative.

■

3.1.3 Wetlands

Wetlands are regulated and protected under state and federal regulatory programs because of the important functions they provide. MDEP's NRPA Regulations are designed to protect Maine's natural resources, including rivers, streams, great ponds, freshwater and coastal wetlands. Section 404 of the Federal Clean Water Act regulates discharges of fill to wetlands. Executive Order 11990 and U.S. DOT Order 5660.1A also protect wetlands by directing federal agencies to avoid new construction in wetlands where there is a practicable alternative.

Wetlands along the Preferred Alternative were identified and classified using National Wetlands Inventory (NWI) maps, United States Geological Survey (USGS) maps, state wetlands mapping, aerial photography, and some limited field investigations. (Wetland boundaries were not delineated in the field, (*i.e.*, "flagged") or surveyed). NWI polygon data, USGS data, and aerial photography images were obtained from the Maine Office of Geographic Information Systems (OGIS).

Field investigations were conducted at the sites of proposed new facilities: along the proposed Portland Wye, along I-295 in the Bayside neighborhood, and at Back Cove in Portland; the Yarmouth Wye; the proposed Freeport Platform; and the proposed Brunswick Layover Facility and Platform sites.

Several small wetlands occur in the alignment of the proposed Portland Wye. The proposed Portland Wye alignment would cross Wetlands C2, C3, and C6 (shown on Figure 2-2 page 2-10). Wetland C6 occurs at the point where the proposed wye would diverge from the GRS Mountain Division Line. It is a 34,444 square foot emergent / scrub shrub wetland dominated by cattail (*Typha* sp.) and bulrushes (*Scirpus* sp.). Because it has a 20,000 square feet of open water and emergent wetland, MDEP considers it to be a Wetland of Special Significance. Wetland C2 is approximately 230 feet northeast of Wetland C6. Wetland C2 is a 10,280 square foot emergent scrub / shrub wetland dominated by sensitive fern *(Onoclea sensibilis)*, blackberry *(Rubus* sp.*)*, and a fringe overstory of Morrows honeysuckle *(Lonicera* sp.*)* and alders *(Alnus incana)*. Wetland C3 occurs approximately 125 feet northeast of Wetland C2. Wetland C3 is a 2,560 square foot emergent scrub / shrub wetland dominated by sensitive fern and blackberry with a fringe overstory of Morrows honeysuckle. These wetlands collect runoff from the nearby developed areas. Wetland C6 contains a small stream that flows south through a culvert beneath the GRS Mountain Division Line. This wetland functions both as wildlife and aquatic habitat, and provides sediment retention. Other nearby wetlands are formed in small, isolated depressions in the relatively flat landscape that the proposed wye would pass through. These wetlands provide little value other than very minor amounts of flood storage and sediment retention.

Along I-295 at Bayside, some portions of the median between the highway and the parking lots on the west side of Marginal Way support wetland vegetation and have reduced soils. These areas are isolated from any other wetland systems by the highways, and are fed only by stormwater runoff from the highway and adjacent development. Because they are not part of a surface tributary system or adjacent to any Water of the United States as defined by the U.S. Army Corps of Engineers (USACE), these wetlands are not regulated by the USACE.[13] Some wetlands do, however, fall within MDEP jurisdiction.

The proposed Back Cove Bridge would be constructed across an estuarine system consisting primarily of an intertidal, unconsolidated bottom, unvegetated mudflat.

Along the proposed alignment for the reconstruction of the Yarmouth Wye, there occurs a scrub-shrub and emergent wetland.

No wetlands occur at the proposed facilities in Freeport or Brunswick.

Both coastal (estuarine) and freshwater wetlands occur along the Preferred Alternative in areas where only track rehabilitation would occur. Most of the wetlands are associated with river and stream crossings. Palustrine and estuarine wetlands are the two most prevalent wetland types along the Preferred Alternative.

■

3.1.4 Coastal Fisheries

Back Cove supports fisheries habitat for such species as herring, alewife, flounder, and baitfish including mummichogs and killifish. The intertidal mudflat at Back Cove provides habitat for benthic organisms such as marine worms, and blue mussels, green crabs, and lobsters (Lobsters are commonly fished for in the cove). Soft-shell clam beds occur on the northwest side of Back Cove; however, due to high contaminant levels shellfish harvesting at Back Cove is prohibited. The relative sparseness of benthic organisms observed at

τ

[13] See September 4, 2003 letter to Richard Bostwick, MaineDOT from Christine Godfrey, Chief Regulatory Division, USACE in Appendix C of the Environmental Technical Analysis

Back Cove has been attributed to some of the highest sediment contamination levels recorded in the Casco Bay Estuary.

3.2 Rail Transportation

The existing rail lines that compose the Preferred Alternative include: 1) the GRS Mountain Division Line, 2) the GRS Freight Main Line, 3) the Union Branch, 4) the St. Lawrence & Atlantic (SLR) Freight Main Line, 5) the GRS Brunswick Branch) and 6) the State-owned Lower Road (see Figure 3-1 page 3-7). The services operating on this system include Amtrak's Downeaster service (on the GRS Freight Main Line south of the Portland Transportation Center) and freight operations by GRS and SLR.

■

3.2.1 Passenger Rail

Amtrak's Downeaster service operates four daily round-trips between Boston's North Station and the Portland Transportation Center, with intermediate stops in Haverhill, Massachusetts; Exeter, Durham, and Dover, New Hampshire; Wells, Saco, and Old Orchard Beach, Maine.[14] In Boston, the service terminates at North Station, which offers connections to the northern half of the Massachusetts Bay Transportation Authority's (MBTA) commuter rail system, two MBTA rapid transit lines, and MBTA buses. North of Boston, the Downeaster service shares portions of track with the MBTA's Lowell and Haverhill commuter rail lines.

The Downeaster service began operation on December 15, 2001 with an initial ridership goal of 325,000 passengers during its first year. The service came within one percent of meeting that goal, but more importantly, it exceeded its $3.3 million revenue projections by approximately 44 percent ($1,452,000) because more people than expected rode the corridor for its entire length. As a result, Amtrak and NNEPRA are working to provide more equipment to accommodate the growing ridership. The proposed passenger rail service described in this EA would serve as an extension of the already-successful Downeaster service.

■

3.2.2 Freight Rail

Freight trains currently operate on the GRS Freight Main Line and the SLR. There is currently no regularly scheduled freight traffic on the Union Branch or the GRS Brunswick Branch. The GRS Mountain Division Line has infrequently scheduled freight service each week.

On the GRS Freight Main Line, GRS regularly runs through-trains and performs switching activity to serve customers in the Portland area. GRS operates three daily through trains in each direction on the GRS Freight Main Line segment between the Rigby Yard in South Portland, south of the Study Area, and Royal Junction, located 1.8 miles south of Yarmouth Junction in Yarmouth. GRS operates a local freight, as needed, from Rigby Yard to Brunswick servicing BIW's Hardings Plant and provides interchange service for the State's rail operator in Brunswick.

τ

14 The Durham station is only served on Fridays, Saturdays, and Sundays. The Old Orchard Beach Station is only open June through September.

Figure 3-1
Preferred Alternative

The SLR operates two trains, three days a week on the SLR Freight Main Line between Yarmouth Junction and the Burnham & Morrill Baked Bean Plant in Portland (See Figure 2-5 on page 2-15). These trains typically operate in the morning, but schedules vary.

GRS operates local freight, as needed, from Rigby Yard to Brunswick servicing Bath Iron Work's Harding Plant, located approximately 2.5 east of the Proposed Brunswick Platform, and provides interchange service for the State's rail operator in Brunswick.

Other freight services operating in the region that could affect service on the Preferred Alternative include local service on the Rockland Branch east of Brunswick, SLR through service north of Yarmouth Junction, and other freight services south of Portland, in New Hampshire, and in northeastern Massachusetts.

3.3 Social Environment

This section discusses impacts to land use and property, communities and neighborhood, disadvantaged and minority populations.

■

3.3.1 Land Use, Zoning, and Property

This section describes the land uses, zoning and property ownership in and around proposed construction areas.

3.3.1.1 Portland Wye

The proposed Portland Wye would be in an area that is zoned for Low Impact Industrial use.[15] This zone is intended to provide areas in which low impact industrial uses will be compatible with adjacent residential uses. The proposed Portland Wye would be built on property owned by the State of Maine. The proposed wye would intersect the Union Branch in the vicinity of the Cumberland County Correctional Facility and Congress Street.

The closest residential properties are on Frederick Street, approximately 400 feet north of the proposed Portland Wye. Most of these residences are buffered from the location of proposed wye by commercial properties at the dead end of Frederick Street and those along Westfield Street.

τ

15 City of Portland Zoning Map, updated January 17, 2002.

3.3.1.2 Relocated Union Branch and Back Cove Bridge

Relocated Union Branch

From Forest Avenue (Exit 6) to the I-295/Franklin Arterial Interchange (Exit 7), the Relocated Union Branch would be south of I-295, within the highway right-of-way. From there, north to the I-295/Washington Avenue ramps, the Relocated Union Branch will be constructed on city-owned land within the Marginal Way right-of-way, and will cross the Eastern Promenade Trail to connect with the proposed Back Cove Bridge.

At its southern end, the Relocated Union Branch abuts the north side of Deering Oaks Park, a large City-owned park used for active and passive recreation and protected under Section 4(f) of the USDOT Act of 1966 [Section 4(f)]. The park is zoned Recreation Open Space, which is intended to protect and preserve open spaces such as cemeteries, parks, golf courses, etc. From Forest Avenue to the I-295/Washington Avenue ramps, the proposed new track would be between I-295 and Marginal Way in an area zoned Urban Commercial Business. This zone provides a mix of uses including industrial, commercial, and residential. Marginal Way is developed with commercial businesses along its east side. There are only a few commercial buildings on the west side of Marginal Way, all between Forest Avenue and Preble Street Extension. North of Preble Street, a city-owned skateboard park (also a Section 4(f) property) and a city-owned park and ride lot are between the proposed track and Marginal Way. Zoning in the area of the Relocated Union Branch from the I-295 Washington Avenue exit ramp north to the proposed Back Cove Bridge is Recreation Open Space. The land is city-owned. After crossing under the I-295/Washington Avenue ramps, the proposed new track would intersect at-grade the entrance drive to the Portland Wastewater Treatment Plant and the Eastern Promenade Trail, before connecting to the proposed Back Cove Bridge.

The Eastern Promenade Trail follows along Portland's waterfront from I-295 (Tukey's Bridge) east to Commercial Street (see Figure 3-1 page 3-7). It connects to the Back Cove Trail under Tukey's Bridge. Both trails receive heavy use by walkers, joggers, rollerbladers and bicyclists. Bicycle commuters also use the trail, and the trail provides an important link in the city's transportation network.

FHWA has determined that the Eastern Promenade Trail, at the point where it would be crossed by the proposed rail line, is not protected under Section 4(f). Under FHWA's September 24, 1987 *Section 4(f) Policy Paper* (revised June 7, 1989), bikeways that are primarily for transportation and which are an integral part of the local transportation system are not considered Section 4(f) resources. Because the Eastern Promenade Trail is within the I-295 right-of-way and is used as a major transportation route, it is not considered to be a Section 4(f) resource.

On the north shore of Back Cove, the proposed Back Cove Bridge will connect with the SLR tracks east of the parking lot of the Burnham and Morrill Baked Bean Plant, in an area zoned Industrial – Moderate Impact, which is intended to provide areas in which light and moderate impact industries and transportation related uses can coexist.

Back Cove Bridge

Casco Bay is east of the proposed Back Cove Bridge landing and the property is owned by the SLR. Due to the shallow channel and limited clearances of I-295 Tukey's Bridge (100 feet horizontal, 30 feet vertical) and

the abandoned state-owned rail bridge (88 feet horizontal, unlimited vertical because the swing bridge is set in open position) east of Tukey's Bridge, boat navigation in the area of the proposed Back Cove Bridge is generally limited to small vessels, mainly recreational boats and occasional lobster boats.

3.3.1.3 Freeport Platform

The proposed Freeport Platform would be built at the site of the Eastland Shoe off of School Street. This site is zoned for commercial uses (Village Commercial I).[16] The intent of this District, according to the Freeport Zoning Ordinance is to concentrate commercial activity within the Freeport Village Center. The Eastland Shoe Plant site is dominated by the former shoe factory and surrounded by a mix of stores and houses.

3.3.1.4 Brunswick Layover Facility

The proposed Brunswick Layover Facility site is owned by the Springfield Terminal Railroad. It is zoned as MU2 – *Intown Railroad Corridor*. The area is undeveloped with the exception of two sets of railroad tracks. Surrounding land use is commercial along Route 1 (Pleasant Street) to the north. There are several homes on Paul Street, located approximately 300 feet, from the south end of the proposed site. These homes face north away from the site. The area between the site and Paul Street is wooded.

3.3.1.5 Brunswick Platform

The proposed Brunswick Platform site is an undeveloped town-owned lot with a zoning designation of Town Center, which permits most commercial and residential uses. The sandy and sparsely vegetated lot contains only the concrete foundation of an abandoned building.

Union Street is west of the proposed Brunswick Platform. Union Street is generally commercial. Residences that front on Noble Street and Bowdoin College's McClellan building on the corner of Union and Noble Street abut the proposed site on the south (see Figure 2-12 page 2-25). The State-owned Lower Road rail line is along the north side of the site. Beyond it, the site is bounded on the north by Hannaford's Supermarket and its associated parking lot. To the east of the site there is a credit union that fronts on Maine Street.

■

3.3.2 Communities and Neighborhoods

This section describes the communities and neighborhoods that could be affected by changes caused by new construction. Communities and neighborhoods along the remainder of the Preferred Alternative are not considered in this EA because work along the existing corridor will be limited only to track rehabilitation. The proposed Freeport Platform, Brunswick Layover Facility, and Brunswick Platform are the only new construction near neighborhoods.

τ

16 Town of Freeport, Maine, Zoning Map, revised October, 1998

3.3.2.1 Freeport Platform

The proposed Freeport Platform would be one block south of the center of a very dense retail-shopping district along U.S. Route 1 and the adjacent streets. This district includes many retail stores, hotels and inns, restaurants and other tourist attractions. The Freeport shopping district is a year-round destination for tourists from throughout New England and beyond. The area to the south of the proposed Freeport Platform is residential, with many older well kept homes.

3.3.2.2 Brunswick Layover Facility

The proposed Brunswick layover facility would be in a former rail yard that is in the existing State-owned right-of-way. Because the existing rail line has been long established, the residences on Paul and Turner Streets to the north face north, away from the railroad tracks. Similarly, the homes on Bouchard Street to the south face south away from the tracks. The two neighborhoods are separated by the tracks. See Figure 2-11 (page 2-23).

3.3.2.3 Brunswick Platform

The proposed Brunswick Platform would be situated in a commercial area abutting a classic New England town green to the east. Hannaford's supermarket and parking lot dominate the area immediately north of the proposed platform site, but there are also other small businesses including two banks and a gas station immediately north of the proposed platform site. Maine Street, in the vicinity of the platform site is lined with a mix of stores, offices, and restaurants on its west side and the town green on its east. Bowdoin College's McClellan office building and parking dominate the area to the south; although, there are also several residences along Noble Street whose back yards would be toward the platform site. To the west, large commercial buildings line Union Street.

■

3.3.3 Minorities and Disadvantaged Populations

In accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Population and Low Income Populations*, and subsequent procedures developed by the US Department of Transportation, activities that have potential to generate an effect on human health or the environment must include explicit consideration of whether their effects on minority populations and low-income populations are disproportionately high.

Table 3-3, page 3-12, summarizes minority and low-income population data for the Project Area communities based on the 2000 U.S. Census. The proportion of minorities at 6.3 percent (7,500 persons) and families below the poverty level at 7.3 percent (8,691 persons) is greater in the Project Area than in Cumberland County as a whole, which has 4.3 percent minorities (11,421 persons) and 5.2 percent of families below the poverty level (13,812 persons). The percentage of minorities within the Project Area communities is 6.3 percent (7,500 persons), which is twice as high as there are in the state at 3.1 percent (39,523 persons). The proportion of minorities is greatest in Portland at 8.7 percent (5,590 persons) and smallest in Cumberland at 1.2 percent (86 persons). The proportion of families below the poverty level is nearly the same in the Project Area

communities at 7.3 percent (8,691 persons) as it is in the state at 7.8 percent (99,444 persons). Among the communities along the Preferred Alternative, Portland has the lowest median annual household income, $35,000 and the highest proportion of families below the poverty level at 9.7 percent (6,232 persons). Cumberland has the highest median annual household income- $67,566 and Falmouth has the lowest proportion of families below the poverty level at 1.8 percent (182 persons).

Table 3-3
2000 Population and Households in the Project Area

	Population			Households			Families Below the Poverty Level (percent)
	Total	Percent White	Percent Minority(1)	Total	Average Size (persons)	Median Annual Income	
Portland	64,249	91.3	8.7	29,714	2.02	$35,650	9.7
Falmouth	10,130	97.7	2.3	3,948	2.56	$66,858	1.8
Cumberland	7,159	98.8	1.2	2,548	2.80	$67,556	2.4
Yarmouth	8,360	98.5	1.5	3,432	2.41	$58,030	4.0
Freeport	7,800	97.2	2.8	3,065	2.49	$52,023	4.0
Brunswick	21,172	94.5	5.5	8,150	2.34	$40,402	5.0
Project Area (2)	119,050	93.7	6.3	48,309	2.22	$42,131	7.3
Cumberland County	265,612	95.7	4.3	107,989	2.38	$44,048	5.2
State of Maine	1,274,923	96.9	3.1	518,200	2.39	$37,240	7.8

1 Minority includes Black or African American, Asian, Native Hawaiian and Other Pacific Islander, some other race and more than one race.
2 Average household size, median annual income and families below the poverty level for the Project Area are weighted averages of the Project Area communities.
Source: 2000 U.S. Census.

■

3.3.4 Cultural Resources

In compliance with Section 106 of the National Historic Preservation Act (NHPA), MaineDOT consulted with the Maine Historic Preservation Commission (MHPC) regarding the proposed project. At MHPC's direction, MaineDOT undertook a survey to locate and identify all resources within the Project's Area of Potential Effect (APE) that are at least 50 years old and that are potentially eligible for listing in the National Register of Historic Places. MaineDOT undertook a field survey and the results were submitted to MHPC on February 11, 2003.[17] MHPC responded to the survey on February 25, 2003.

Based upon the survey, six bridges and culverts were judged as having sufficient integrity and architectural merit to warrant consideration for listing in the National Register of Historic Places. MHPC has concurred with this recommendation and has additionally recommended a seventh culvert identified in the survey as also being potentially eligible for the National Register (see MHPC correspondence dated February 25, 2003 in Appendix A of the *Environmental Technical Analysis*).

τ

17 Portland North Passenger Rail Service Extension, Cultural Resources Field Survey. Prepared by Vanasse Hangen Brustlin, Inc. January 2003.

MHPC has also determined that construction of the proposed Back Cove Bridge would have no adverse effect on the National Register-eligible Burnham & Morrill Baked Bean Plant in Portland (see MHPC correspondence dated April 19, 2001 in Appendix A of the *Environmental Technical Analysis*).

The Park Avenue railroad truss bridge in Portland (also known as the Saint John Street Underpass) was not included in the January 2003 cultural resources survey, but has since been determined to be eligible for the National Register of Historic Places. The Park Avenue Bridge carries the Union Branch over Park Avenue and St. John Street in Portland. The circa 1900 iron structure has three lines of Baltimore (Pratt) type trusses resting on irregularly coursed granite block abutments. The open deck has timber railroad ties spanning the stringers on the eastern half of the structure. The ties were removed from the western half at an unknown date.

An October 2002 inspection of the Park Avenue Bridge's superstructure found it to be in poor to serious condition.[18] Many of the lower chord members, stringers, and lower lateral bracing members have been damaged by vehicular impacts, and are bowing and cracking at various points. The substructure and abutments are in satisfactory condition.

In addition, a rating analysis of the Park Avenue Bridge has found that the bridge is incapable of carrying the loads that would be necessary for passenger rail service.

The Royal River Bridge, a railroad truss bridge in Yarmouth was also built circa 1900 and has been determined eligible for the National Register of Historic Places by MHPC. Inspections of the Royal River Bridge have identified several structural deficiencies. The superstructure is heavily rusted and deteriorated. The Royal River Bridge's south abutment has settled substantially and vertical cracks have developed through the granite blocks of the abutment.[19]

In addition, a rating analysis of the Royal River Bridge has found that the bridge is incapable of carrying the additional loads that would be necessary for passenger rail service.

■

3.3.5 Park and Recreational Lands

This section discusses the public parks, wildlife refuges, and recreation land resources along the Preferred Alternative that are subject to protection under Section 4(f) of the Department of Transportation Act of 1966. Historic properties, which are also regulated under Section 4(f), were discussed in Section 3.3.4 above. There are no significant archaeological or Section 6(f) properties along the Preferred Alternative.

Section 4(f) requires the Secretary of Transportation to not approve the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state or local significance, as determined by the officials having jurisdiction over those properties, unless there is no feasible and prudent alternative to the use of that land and unless all possible

τ

18 October 31, 2002, Description of Bridge/Summary and Field Inspection Summary Park Avenue Bridge, Portland, Maine, HNTB Corporation.
19 October 29, 2002, Description of Bridge/Summary and Field Inspection Summary Royal River Bridge, Yarmouth Maine, HNTB Corporation.

planning measures have been taken to minimize the adverse impacts. The following sections discuss issues related to Section 4(f) protected parcels as well as other recreational parcels along the Preferred Alternative.

3.3.5.1 Deering Oaks Park

The existing Union Branch is immediately adjacent to the northern edge of Deering Oaks Park, between the park and I-295. The rail line follows the edge of Deering Oaks Park for approximately 2,450 feet between Park Avenue and Forest Avenue (see Figure 3-2, page 3-15). A chain link fence separates the Union Branch right-of-way from the park's northern boundary. Deering Oaks Park offers mixed active and passive recreation, including ball fields, tennis courts, walking trails, and ice skating.

3.3.5.2 SK-8 Skateboard Park

There is a small City owned skate board park, the "SK-8 Skateboard Park," on the west side of Marginal Way between Preble Street Extension and Franklin Street Arterial. This paved area provides ramps and jumps for skateboarding and rollerblading. The Relocated Union Branch would pass immediately "behind" the park within the I-295 right-of-way.

3.3.5.3 Royal River Park

The SLR abuts the west side of the municipal Royal River Park, located in Yarmouth, south of East Elm Street (see Figure 3-2, page 3-15). The Park provides picnic facilities, fishing areas walking and bike trails. Under the Preferred Alternative, passenger trains would travel along the existing SLR right-of-way adjacent to the Royal River Park.

3.3.5.4 Freeport Town Park

The GRS Brunswick Branch abuts the west side of the Freeport Town Park, on the corner of Depot and Park Street. This approximately 1-acre park provides green space and contains a Civil War memorial. Trains would travel over the GRS Brunswick Branch past the Freeport Park.

Figure 3-2
Public Parks and Recreation Areas

3.4 Atmospheric Environment

■

3.4.1 Air Quality

The 1990 Clean Air Act Amendments (CAAA) resulted in states being divided into attainment and nonattainment areas, with classifications based upon the severity of their air quality problem. EPA has designated the Portland area, which includes three counties (York, Cumberland, and Sagadahoc), as attainment for carbon monoxide (CO) and as nonatttainment for ozone with a classification of "Moderate." The Project Area is entirely within Cumberland County and therefore is in a nonattainment area for ozone.

■

3.4.2 Noise

The noise analysis identified approximately 240 noise sensitive receptor locations within 300 feet of the Preferred Alternative. The receptor locations were selected based on land use considerations, and represent the most sensitive locations in the Project Area that are likely to experience changes in sound levels because of the proposed project. The majority of the noise sensitive buildings within proximity to the rail corridor are residences (FTA Land Use Category 2). No Land Use Category 1 areas (land where quiet is an essential element in their intended purpose, such as outdoor amphitheaters and concert pavilions) were identified along the Preferred Alternative.

■

3.4.3 Vibration

Existing vibration levels along the Preferred Alternative are caused by the occasional passby of freight trains. Along the SLR, current freight rail operations result in vibration levels that exceed the FTA criterion because they fall within the vibration impact distance at 14 residential receptors in Portland, 12 residential receptors in Falmouth, and nine residential receptors in Yarmouth. Along the GRS Brunswick Branch, current freight rail operations result in vibration levels that exceed the FTA criterion at four residential receptors in Freeport and three residential receptors in Brunswick.

Draft November, 2004

4

Environmental Consequences and Mitigation

This chapter analyzes potential impacts to the natural resources, transportation network, and social environment from the Preferred Alternative and the No-Action Alternative.

Evaluations of potential impacts are divided, where appropriate, into discussions of specific new facility locations, including the proposed Portland Wye, the relocated Union Branch, the proposed Back Cove Bridge, the rehabilitated Yarmouth Wye, the proposed Freeport Platform, and the proposed Brunswick layover facility, and platform in Brunswick. Because rehabilitation of existing track along the Preferred Alternative, consisting of rail and tie replacement and placement of new ballast, would not result in any change in the footprint of the railbed, it is expected to have little or no impact on the natural environment. Therefore, track rehabilitation is discussed only briefly. As discussed in the introduction to Chapter 3, on page 3-1, a number of impact categories would not be affected by the Preferred Alternative and therefore are not discussed in this chapter.

4.1 Physical and Biological Environment

This section discusses the potential impacts to water quality, water bodies and waterways, wetlands, and coastal fisheries.

■

4.1.1 Surface Water Quality

Except for the Presumpscot River and Frost Gully Brook, all waterways and water bodies along the Preferred Alternative are in attainment with national water quality goals. No construction is expected to occur at the Frost Gully Brook crossing. Some rehabilitation of the superstructure of the Presumpscot River Bridge is planned, but no work is planned for the abutments and therefore it is unlikely the work will have any effect on water quality.

Construction activities that result in earth disturbance have the potential to cause erosion, and if unmitigated could lead to sedimentation of surface waters and have an adverse impact on water quality. The types of soils, the proximity of construction to the water body, and topography all are factors that influence the potential for erosion and sedimentation.

The Royal River Bridge in Yarmouth will be replaced because its south abutment has settled substantially and vertical cracks have developed through the granite blocks of the abutment. Construction at this river crossing

will not cause substantial sedimentation of the river if sedimentation control is properly carried out. MaineDOT will coordinate with the appropriate state and federal resource agencies to ensure that the construction is carried out in accordance with all applicable regulations to protect water quality and aquatic habitat.

Best Management Practices (BMPs) will be employed during all phases of construction and operation of the proposed project to prevent sedimentation of waterways and to protect water quality. BMPs will include the installation of sediment control barriers between construction areas and surface waterbodies and wetlands. All work will be done according to the standards of the NRPA and Maine's Stormwater Management Law.

Any pollutants that are deposited on the railbed from train operations would be deposited in low concentrations and attenuated in the railbed ballast. Therefore, operation of passenger train service is not expected to harm surface water quality.

The proposed Freeport Platform, Brunswick Layover Facility, and Brunswick Platform are not located near any surface water features. Therefore, it is not expected that runoff from any of these facilities would adversely affect surface water quality. MaineDOT will develop a stormwater pollution prevention plan (SWPPP) for the Freeport Platform, Brunswick Layover, and Brunswick Platform facilities.

The No-Action Alternative would not affect water quality.

■

4.1.2 Water Bodies and Waterways

Construction of the Preferred Alternative would result in just two new waterbody crossings. The proposed Portland Wye would cross the small stream within Wetland C6 and a new bridge would be built over Back Cove. (See Figure 2-2 page 2-10 and Figure 2-5 page 2-15.)

The small stream in Wetland C6 would be culverted. (See Figure 2-2, page 2-10.) The culvert would be installed in compliance with a MDEP NRPA Permit.

The proposed Back Cove Bridge would be a 16-foot wide, 1,687-foot long, single track, fixed structure (*i.e.*, not moveable), having channel navigation clearances of 50 feet horizontally and 16 to 18 feet vertically above mean high water (MHW).

The proposed Back Cove Bridge is not expected to have an adverse effect on the ecology of Back Cove. No direct filling in the intertidal zone will be required for the proposed Back Cove Bridge, as the proposed Back Cove Bridge would be built on piers. The pilings for the piers will be driven either from shore or from barges operating in the Back Cove channel. A total of 25 piers, each with eight 22-inch diameter pilings will result in the loss of 528 square feet of habitat within the cove. No mitigation for this loss of habitat is proposed. Construction of the proposed Back Cove Bridge will be done in full compliance with permits issued by MDEP, the USACE, and the USCG, and will employ BMPs to minimize construction impacts to the Back Cove estuary.

Some culverts may be replaced as part of the rehabilitation of the existing railbed. The number and location of culverts will be determined during final design. However, MaineDOT expects it to be very few, if any. All

culverts would be replaced in full compliance with the standards for culvert replacement under the NRPA, BMPs, and MaineDOT's Fish Passage Policy

The No-Action Alternative would not impact any surface waters.

■

4.1.3 Wetlands

The Preferred Alternative is expected to alter wetlands at three locations: at the proposed Portland Wye, within the I-295 right-of-way in Portland, and at Back Cove.

Potential impacts to wetlands can be classified as direct and indirect. Direct impacts are quantified as the amount of wetland filled as well as the loss of the principal functions and values provided by those wetlands. Indirect impacts occur when wetland hydrology or water quality is altered.

The proposed Portland Wye will result in the direct filling of a total of approximately 9,000 square feet of scrub-shrub and emergent wetland associated with Wetlands C2, C3, and C6. (See Figure 2-2, page 2-10.) These impacts, if required, would be mitigated for in accordance with the requirements of the MDEP's NRPA and the USACE Programmatic General Permit Program. The design for the mitigation will be developed during final design for the project. MaineDOT will coordinate with MDEP and the USACE during the permit process.

Along I-295, there are several small linear wetlands at the toe of slope of the highway between the highway and the paved lots on the west side of Marginal Way. These wetlands are isolated from any other wetland systems by I-295 and the development along Marginal Way. The wetlands occur on fill soil, placed there to accommodate the construction of I-295. They are fed only by stormwater runoff and some contain drainage structures (*i.e.,* manholes). The only functions provided by these wetlands are insignificant amounts of sediment/toxicant retention and flood storage of roadway runoff. These wetlands are isolated and are therefore not regulated by the USACE. They do, however, fall within MDEP jurisdiction. Construction of the proposed railbed within the I-295 right-of-way would affect up to 20,000 square feet of these wetlands. No mitigation for this impact is proposed as no significant wetland functions would be lost.

The proposed Back Cove Bridge will impact intertidal mudflat because of pier placement. In order to minimize impacts to the greatest extent practicable, the number of piers and pilings has been reduced to the minimum number necessary to maintain structural integrity.

As discussed under Section 4.2.1 on page 4-5, the Royal River Bridge will be replaced. MaineDOT will coordinate with the appropriate state and federal agencies to ensure that the bridge reconstruction results in the least amount of both temporary and permanent wetland encroachment practicable.

No permanent direct impacts to wetlands are expected along the remainder of the Preferred Corridor because work is expected to be confined within existing rail bed. It is possible that there may be some temporary disturbance to wetlands if it is determined that culverts need to be replaced. At this time, MaineDOT expects that few, if any, culverts will need to be replaced.

The No-Action Alternative would not affect wetlands.

■

4.1.4 Coastal Fisheries

Coastal fisheries impacts are expected to be minor and would occur only at Back Cove where a new bridge is proposed. The Preferred Alternative may directly and indirectly affect fisheries around Back Cove.

Direct impacts would result from the piers to support the proposed railway bridge. This impacts has been minimized to the greatest extent practicable through refinement of the design and placement of the proposed bridge piers. Construction of the proposed Back Cove Bridge will involve a total of 25 piers with eight 22-inch diameter supports per pier, resulting in the loss of 528 square feet of habitat within the cove. Impacts to habitat in the southwestern section of the cove will involve a sandy/silt area containing marine worms and other marine invertebrates. The northeastern section of Back Cove contains a mussel bed in soft mud and sand.

Indirect impacts include temporary increased turbidity and sedimentation loading during construction of the proposed Back Cove Bridge. Shading from the proposed Back Cove Bridge and alteration of water temperatures may also affect marine invertebrates. Impacts resulting in the decrease of habitat quality for fish and marine invertebrates will be limited to the areas directly surrounding the proposed Back Cove Bridge. A construction plan will be developed during final design and reviewed by the resource agencies during the permitting process. The plan will include measures to minimize the amount of all types of materials entering the water to minimize impacts to the marine environment and to protect coastal fishery resources. The time of year that construction will be done will also be in accordance with USACE policies to protect fisheries during breeding and spawning periods.

The No-Action Alternative would not affect any coastal fisheries.

4.2 Rail Transportation

This section discusses the impacts and benefits of the Preferred Alternative relative to existing rail transportation. The Preferred Alternative is expected to have several important benefits relative to the existing rail transportation system: 1) the Preferred Alternative would create a new passenger rail transportation link, providing an additional transportation option for travelers between Portland and Brunswick, as well as nearby destinations; 2) the Preferred Alternative would improve the access and connectivity of Brunswick and other areas north of Portland to existing passenger rail transportation lines. The Preferred Alternative would offer travelers a one-seat ride between Brunswick and Boston, and would provide access to other popular destinations with a transfer in Boston; 3) the Preferred Alternative would serve as a component of an expanding statewide multi-modal transportation system. These three benefits are consistent with the goals of the 1999 Maine *Strategic Passenger Transportation Plan*.

The following sections describe the planned passenger service schedules, the anticipated ridership for the service extensions, and the interface between the planned service extension and freight rail service. A summary of the potential benefits and impacts is provided for each topic.

■

4.2.1 Passenger Rail

The passenger service schedules for the Preferred Alternative would involve trains operating two round-trips per day between the Portland Transportation Center and the proposed Brunswick Platform as outlined in Section 2.8.1 on page 2-30. The trips would operate as extensions of Amtrak's existing Downeaster service between Boston and Portland. Each train set would, at a minimum, be composed of a locomotive, two standard Amtrak coaches, a cafe car, and on the opposite end from the locomotive, a "Cabbage" car – a locomotive that has been retrofitted to serve as a control and baggage car.

The travel time between Portland and Brunswick for the Preferred Alternative is estimated to be about 60 minutes, including a stop in Freeport. This travel time assumes that tracks would be upgraded to permit a maximum operating speed of up to 59 mph to the extent possible. The existing track geometry through the Yarmouth Junction and other constrained areas would be maintained, which would limit speeds to either 10 or 25 miles per hour in these areas.

4.2.1.1 Ridership Projections

Ridership projections for the Preferred Alternative were prepared as updates of those originally included in the Draft Strategic Passenger Transportation Plan prepared in 1997 by Wilbur Smith Associates (WSA) for MaineDOT. The projections included in the 1997 report were modified to reflect currently proposed operating plans, travel times and fare structure. The projected ridership on the Portland North Passenger Rail Extension Service for the first year of service (2007) is about 39,000 annual boardings. Of this total, it is expected that about 35, 500 boardings would be attributable to tourist-based trips connecting Portland and Freeport and about 3,500 would be due to commuter trips connecting Portland and Brunswick. The number of trips expected between Brunswick and Freeport would be negligible.

Ridership on Portland to Brunswick service is expected to grow substantially as additional services are added to the regional passenger rail network beyond the Portland Brunswick area. Specific ridership projections for the Portland to Brunswick service will depend on the implementation schedule of the other proposed rail projects.

The first connecting service beyond Brunswick likely to be implemented is the proposed seasonal Rockland service. MaineDOT has rehabilitated the Rockland Branch, which extends east of downtown Brunswick to Rockland. A seasonal independent passenger rail service is envisioned to begin on the line in 2008. It is anticipated that ridership will gradually increase over time while marketing efforts and knowledge of the service grow. Therefore, Rockland Branch ridership is expected to grow from about 43,500 trips in 2008 to 96,750 trips by 2013. It has been assumed that 75 percent of the riders on the proposed seasonal Rockland Branch service would continue south to Portland, and 25 percent would travel locally. Therefore, the Rockland Branch ridership could effectively double the number of riders on the Portland-Brunswick extension from 39,000 in 2007 to about 72,400 in 2008, increasing to about 116,500 by 2013.

The No-Action Alternative would provide no rail ridership between Brunswick and Portland. It would also prevent the creation of a link between Portland and connecting rail corridors to the north and east, thus

limiting the potential growth in rail ridership in the region. The No-Action Alternative would not help to achieve any of the goals outlined in the 1997 *Maine Strategic Passenger Transportation Plan*.

■

4.2.2 Freight Rail

The Preferred Alternative is not expected to adversely affect freight rail service or operations. The Preferred Corridor can be divided into four segments for the purpose of describing the freight rail interface:

- the segment from the Portland Transportation Center to the Union Branch;
- the Union Branch segment;
- the SLR Freight Main Line segment to Yarmouth Junction; and
- the GRS Brunswick Branch from Yarmouth Junction to Church Road in Brunswick.

The following paragraphs describe the interface between the Preferred Alternative and existing freight rail service along each of these segments.

4.2.2.1 Portland Transportation Center to the Union Branch

This segment includes the GRS Mountain Division Line, on which the Portland Transportation Center is located, and the GRS Freight Main Line, which runs north-south between the GRS Mountain Division Line and the Union Branch. The GRS Freight Main Line is currently the most active of the four segments comprised by the Preferred Alternative in terms of freight rail operations. GRS currently operates three through-trains in each direction every day of the week along this segment. In addition GRS conducts switching activity, in which freight rail cars are gathered and transported south to Rigby Yard, or transported from Rigby Yard back to businesses in Portland, two days per week along this segment. This switching activity generally involves a number of short trips and the coupling and uncoupling of freight rail cars, and usually occurs during daylight hours.

The Preferred Alternative is expected to have a minimal impact on freight rail operations in this segment of the corridor. The Downeaster passenger trains already operate along the GRS Mountain Division Line when they access the Portland Transportation Center, so extending two of the Downeaster round-trips will not introduce any new constraints on freight rail service on that line. The Preferred Alternative will have little impact on the GRS Freight Main Line because passenger trains will use the Portland Wye to travel from the GRS Mountain Division Line to the Union Branch. The passenger trains in the Preferred Alternative will only travel along the GRS Freight Main Line for approximately 300 feet, which would take less than one minute each of the four times a day.

The No-Action Alternative would have no impact on freight train schedules on this segment.

4.2.2.2 Union Branch

There is currently no rail service of any kind on the Union Branch. Therefore, the Preferred Alternative will have no impact on freight rail service along this segment of the corridor.

The No-Action Alternative would have no impact on freight train schedules on this segment.

4.2.2.3 SLR Freight Main Line to Yarmouth Junction

The SLR currently operates two trains three days a week on this segment of the Preferred Corridor. The limited frequency of freight rail service allows ample opportunity to schedule passenger trains along this segment. For this reason, the Preferred Alternative is expected to have no adverse impact on existing freight rail operations in this area.

The No-Action Alternative would have no impact on freight train schedules on this segment.

4.2.2.4 GRS Brunswick Branch from Yarmouth Junction to Church Road, Brunswick

Because freight service is scheduled only on an irregular basis on the Brunswick Branch, the Preferred Alternative is not expected to interrupt service and should have little to no impact along this segment of the corridor.

The No-Action Alternative would have no impact on freight train schedules on this segment.

4.3 Social Environment

■

4.3.1 Land Use, Zoning, and Property

This section discusses potential impacts to land use in the vicinity of the proposed new facilities.

4.3.1.1 Portland Wye

The proposed Portland Wye would be constructed on undeveloped state-owned land. Residences to the north of the Portland Wye on Frederick Street are buffered from it by a distance of approximately 400 feet of scrubby vegetation and by the commercial properties on Westfield Street. MaineDOT has coordinated review of the proposed wye with Cumberland County Correctional Facility officials and there is agreement that the proposed wye can be constructed without adversely affecting operations at the Correctional Facility. The Portland Wye is consistent with the Low Impact Industrial zone in which it is sited and it is not expected to have any land use or property adverse impacts.

The No-Action Alternative maintains the conditions described above. The state-owned land would remain undeveloped.

4.3.1.2 Relocated Union Branch and Back Cove Bridge

Relocated Union Branch

The relocated Union Branch would be on the east side of the I-295 right-of-way between Forest Avenue and Franklin Street Arterial. North of Franklin Street Arterial, it would be on land owned by the City of Portland within the right-of-way of Marginal Way. The Preferred Alternative is consistent with the Urban Commercial Business zone from Forest Avenue to the I-295/Washington Avenue ramps. The relocation of the Union Branch will require the taking of approximately 9,000 square feet of land owned by the City of Portland at the entrance to the Portland Wastewater Treatment Plant. An at-grade crossing will allow for continued access to the Portland Wastewater Treatment Plant. The relocation of the Union Branch will not, however, adversely affect land use or cause any change in property usage.

After crossing under the I-295/Washington Avenue ramps, the Relocated Union Branch would intersect the Eastern Promenade Trail at grade and immediately connect with the proposed Back Cove Bridge. The crossing of the Eastern Promenade Trail would be gated and signalized for safety.

Back Cove Bridge

The proposed Back Cove Bridge is not expected to interfere with boating activity within Back Cove. The proposed Back Cove Bridge will have navigational clearances of 50 feet horizontally and 16 to 18 feet vertically at MHW. The existing navigational channel is used by small recreational boats and fishermen. The proposed Back Cove Bridge will provide adequate clearance for these types of vessels.

The No-Action Alternative would have no effect on existing land use in the area of the Relocated Union Branch or Back Cove.

4.3.1.3 Freeport Platform

The site for the Freeport Platform is within a commercial zone, and immediately adjacent to the existing rail lines. They will not present any conflict with existing uses in the area and will not require any property takings since the platform is planned within the right-of-way.

The No-Action Alternative would have no affect on existing land use in the vicinity of the proposed Freeport Platform.

4.3.1.4 Brunswick Layover Facility

The proposed Brunswick Layover Facility is in the former Brunswick Yard, within the right-of-way of the state owned Lower Road rail line. It would be consistent with the existing *Intown Railroad Corridor zone.* The Brunswick Layover Facility will not require any property takings, nor is it expected to have any impact to nearby commercial and residential properties. Residences on Paul and Turner Streets to the north and on Bouchard Street to the south, beyond the existing rail line, are also in the *Intown Railroad Corridor zone.* These residences are more than 200 feet from the proposed Layover Facility.

The No-Action Alternative would have no affect on existing land use in the vicinity of the proposed Brunswick Layover Facility.

4.3.1.5 Brunswick Platform

The proposed Brunswick Platform is on a site expressly purchased by the town for the station. The site is zoned *Intown Railroad Corridor zone* and its use as a railroad station would be consistent with the surrounding commercial land uses.

The No-Action Alternative would have no affect on existing land use in the vicinity of the proposed Brunswick Platform.

■

4.3.2 Communities and Neighborhoods

No adverse impacts to communities and neighborhoods are expected to occur as a result of the Preferred Alternative. The proposed Freeport and Brunswick Platforms are both expected to enhance their surrounding neighborhoods. The sites for both are well suited for the type of pedestrian-oriented neighborhoods, known as "transit-oriented development," that are typically planned around new transit stations. By reducing vehicular traffic and increasing transit and foot traffic, the proposed facilities would be assets to their neighborhoods.

The No-Action Alternative would not provide any benefits to the communities and neighborhoods along the Preferred Alternative. It would not help reduce vehicular traffic nor encourage pedestrian and transit travel.

■

4.3.3 Minorities and Disadvantaged Populations

In accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Population and Low Income Populations*, and subsequent procedures developed by the US Department of Transportation, activities that have the potential to generate an effect on human health or the environment must include explicit consideration of whether their effects on minority and low-income populations ("environmental justice" effects or impacts) are disproportionately high.

The proposed project is not expected to result in any substantial changes in land use. Air quality will be improved by the proposed project. The vibration analysis indicates that with the installation of continuously welded rail and ballast mats, there will be an overall decrease in the number of residences that experience vibration impacts. Increases in the locations of vibration impacts will occur in Falmouth and Yarmouth, two towns that have extremely low percentages of minorities and families living below the poverty level. Similarly, the majority of noise impacts occur in Falmouth and Yarmouth, towns with very low minority and below poverty populations. Portland is the poorest community through which trains would travel along the Preferred Alternative, however, trains would not be near any residential areas, with the exception of a small neighborhood located between the existing SLR and I-295, just north of Back Cove.

Overall, the proposed project is not expected to have substantial impacts of the type that would affect human health. Furthermore, there is no evidence that the proposed project would have a disproportionately high impact on minority or low income populations for any of the impact categories considered.

The No-Action Alternative would not impact minorities or disadvantaged populations.

■

4.3.4 Cultural Resources

The proposed project will have an adverse effect on two bridges eligible for listing on the National Register: the Park Avenue Bridge in Portland and the Royal River Bridge in Yarmouth. Both bridges must be replaced to accommodate the proposed project because both bridges are in serious disrepair and both (even were they not in disrepair) would be incapable of supporting the additional loads necessary to accommodate the trains that would be used for the proposed passenger service.

Chapter 5 comprises the Section 4(f) Evaluation analysis (done to satisfy Section 106 requirements and Section 4(f)) which has led to the decision that the bridges must be replaced. Chapter 5 also outlines the coordination that has occurred with the MHPC, and describes the mitigation measures that will be taken to minimize the impact of replacing the bridges.

The No-Action Alternative would have no adverse effect on cultural resources.

■

4.3.5 Public Parks and Recreation Lands

Several public parks and recreation areas are either close to or crossed by, the Preferred Alternative. These include Deering Oaks Park in Portland, the SK-8 Skateboard Park on Marginal Way in Portland, the Eastern Promenade and Back Cove Trails in Portland, the Royal River Park in Yarmouth, and the Freeport Town Park on Depot Street in Freeport.

The Preferred Alternative abuts Deering Oaks Park, the SK-8 Skateboard Park, the Royal River Park, and the Freeport Town Park, but will not require any takings of these properties. Deering Oaks and the SK-8 Skateboard Park are located adjacent to I-295 and the proposed rail will not represent a substantial change in the nature of the abutting uses. Freight rail currently operates on the SLR right-of-way adjacent to the Royal River Park. The addition of just four passenger rail trips along the rail line, will represent only a small incremental impact to Royal River Park. Although, there is currently no regularly scheduled freight rail traffic on the GRS Brunswick Branch adjacent to the Freeport Town Park, there is occasional freight traffic, and the introduction of four short passenger rail passbys is not expected to diminish use or enjoyment of this small green space. Therefore, there is no Section 4(f) impact.

The No-Action Alternative would have no impact on public parks and recreation lands.

4.4 Atmospheric Environment

■

4.4.1 Air Quality

A microscale analysis was conducted for the 2002 Existing, the 2005 No-Action and Preferred Alternatives, and the 2020 No-Action and Preferred Alternatives. The microscale analysis demonstrated that the proposed passenger rail service will meet the State Implementation Plan (SIP) criteria for CO because the 2002 Existing, the 2005 No-Action and Preferred Alternatives, and the 2020 No-Action and Preferred Alternatives CO concentrations (both 1-hour and 8-hour values) are below the NAAQS of 35 and 9 ppm, respectively.
The regional air quality impacts of the proposed service have been included in the Portland Metropolitan Planning Organization's current Transportation Plan. The Transportation Plan has been developed to ensure that air quality impacts comply with the CAAA and SIP. The proposed passenger rail service is expected to provide service to motorists who would ordinarily travel between Portland and Brunswick and Portland and Freeport by motor vehicle. This shift in travel mode is expected to reduce overall vehicle emissions, although increased train service is expected to increase train emissions. A mesoscale analysis was conducted for the 2002 Existing, 2005 No-Action and Build Alternatives, and 2020 No-Action and Build Alternatives to evaluate the proposed rail service's impact on regional emissions.

Table 4-1, below, presents the findings of the mesoscale analysis.

Table 4-1
Mesoscale Analysis Results (kg/day)

	2002	2005			2020		
Pollutant	Existing	No-Build[1]	Build[2]	Change in Emissions	No-Build	Build	Change in Emissions
VOC (kg/day)	4.60	5.36	6.19	1.63	5.01	5.74	0.73
CO (kg/day)	34.24	32.77	-1.32	-34.09	37.61	-6.17	-43.78
NOx (kg/day)	54.85	54.86	139.73	84.87	56.03	138.57	82.54
PM10 (kg/day)	1.64	1.61	2.54	0.93	1.67	2.48	0.81

1. No-Build includes existing freight and commuter vehicle emissions along the rail corridor.
2. Build includes existing freight and train emissions minus commuter vehicle emissions along the rail corridor.

The Build 2005 and 2020 emission estimates represent the emissions related to those vehicles that would travel between Portland and Brunswick and Portland and Freeport and that will divert to transit or commuter rail once service becomes available. The proposed Portland North Passenger Rail Service Extension will have both positive and negative effects on regional air quality.

Future-year train emission estimates are conservative in that they are based on emissions from locomotives that will represent the majority of the current MaineDOT fleet, without any reductions to account for engine rebuilds to comply with new EPA emission regulations. The emissions from locomotive engines were calculated using emission rates recommended by EPA. It is expected that over time newer locomotives with lower emission rates and greater fuel efficiencies will be developed and implemented. Therefore, the reported increase in NOx and PM10 emissions may be overestimated.

The mesoscale analysis demonstrates a reduction in CO emissions, a small increase in VOC and PM10 emissions, and a moderate increase in NOx emissions by replacing motor vehicle trips between Portland and Brunswick with transit trips. The change in regional air quality impacts of the proposed project will be included in the Portland Metropolitan Planning Organization's Transportation Plan. The change in regional emissions from the proposed project will not substantially impact ozone levels.

Air quality in the Project Area is not expected to be substantially affected by construction along the right-of-way due to the transitory nature of rail bed and track construction and the confinement of the right-of-way. Construction may result in emissions of nitrogen oxides (NOx), sulfur oxides (SOx), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter. Emissions produced during the construction phase are short-term and are generally not considered substantial. Fugitive dust emissions are proportional to the amount of earth being moved and the length and speed of travel on unpaved roads. Any substantial impact from fugitive dust particles would be of short duration and localized because these particles are quite large in size and fall out close to the sources of generation.

Potential mitigation measures to minimize fugitive dust emissions include:

- Wetting and chemical stabilization on construction site to suppress dust generation;
- Watering and covering of trucks with earth loads;
- Cleaning paved roadways;
- Traffic management to reduce traffic interruptions, lane closings, route detours, and to minimize use of unpaved roadways; and
- Construction scheduling to reduce time that the ground is left unpaved and to account for peak and off-peak traffic volumes and directions.

These mitigation measures will be evaluated during final design to determine the mitigation measures that will be included in construction contract documents.

■

4.4.2 Noise

This section discusses the noise impact analysis methodology, results, and mitigation.

4.4.2.1 Noise Assessment Criteria

The FTA's *Transit Noise and Vibration Impact Assessment* guidelines were used to predict if noise impacts would occur. These guidelines specify transit noise impact criteria and define procedures to predict transit noise exposure.

The FTA guidelines require that noise sensitive locations within impact distances to the rail corridor be categorized into three types of noise sensitive land uses. The three land use categories correlate land use with sensitivity to noise intrusions and reflect the various noise sensitive land uses, which could be present along the proposed rail corridor. The land use categories are presented in Table 4-2 on page 4-13.

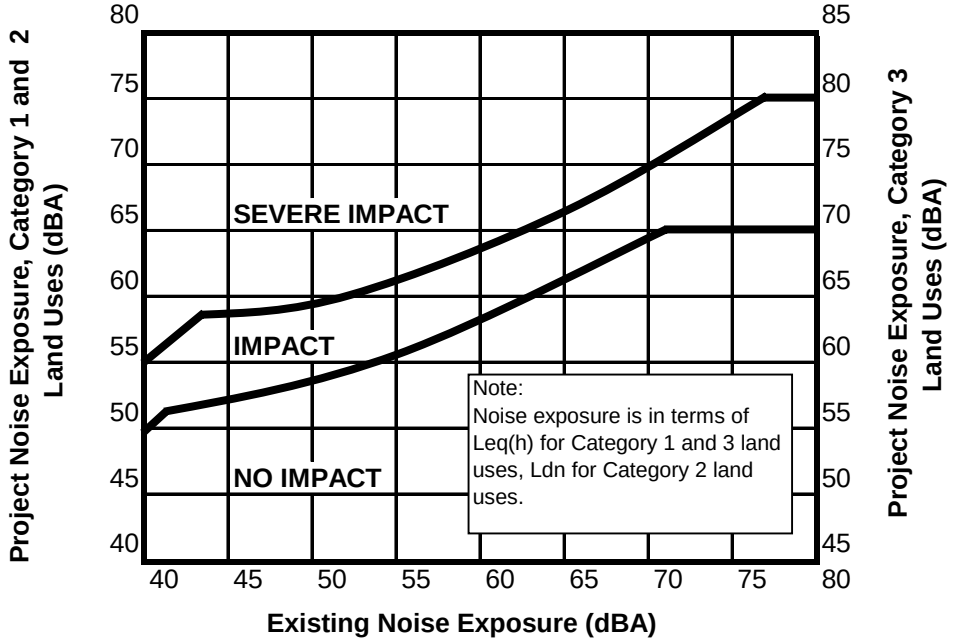
Table 4-2
Land Use Categories and Metrics for Transit Noise Impact Criteria

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor Leq(h)*	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with substantial outdoor use.
2	Outdoor Ldn	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor Leq(h)*	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios and concert halls fall into this category. Places for meditation or study associated with cemeteries, monuments, museums. Certain historical sites, parks and recreational facilities are also included.

The FTA noise impact criteria were developed specifically for transit noise sources operating on fixed guideways (railways) or at fixed facilities (stations). They are related to the existing sound levels, future change in sound levels, and land use categories. These criteria are based on a curve relating the percentage of people highly annoyed to the noise exposure in their residential environment. The criteria for assessing residential impacts are based on the day-night average sound levels (Ldn). The criteria for assessing impacts to non-residential areas are based on the daytime, peak-hour equivalent sound level (Leq) for the noisiest hour of transit related activity during which human use occurs at the sensitive location. The daytime Leq is used for determining noise impacts at locations where nighttime noise sensitivity is not a factor. The noise impact criteria are presented in Figure 4-1, page 4-14.

The impact criteria are based on the relationship between existing noise exposure and future noise exposure. The criteria are divided into three categories (no impact, impact (moderate impact), and severe impact) based on the predicted noise exposure level. Impact determinations are made by comparing the predicted noise exposure with the existing sound level determined for each particular noise sensitive location. For example, if the existing sound levels, from noise monitoring data, were 60 dBA Ldn. Then any residential areas (Category 2) with project generated sound levels of 58 to 63 dBA Ldn would be an impact (moderate impact). Any residential areas (Category 2) with project generated sound levels of 64 dBA Ldn or higher would be a severe impact.

Figure 4-1
Noise Impact Criteria for Transit Projects



Source: FTA's Transit Noise and Vibration Impact Assessment, April 1995

4.4.2.2 Noise Impacts

Noise impacts from existing freight rail activity and the potential noise impacts from the Preferred Alternative (passenger rail operations) were evaluated. The existing neighborhood Ldn sound levels were based upon noise monitoring data. Currently, the majority of the project area experiences freight rail activity on an irregular basis. According to the FTA's *Transit Noise and Vibration Impact Assessment* guidelines, including the intermittent nature of train operations in hourly sound level measurements may underestimate noise impacts of proposed projects. The FTA guidelines recommend that hourly sound levels be based on nearby roadways or population density. For that reason, the noise monitoring data that established the existing neighborhood sound levels did not include freight rail activity. The sound levels for the existing freight rail operations were calculated using the FTA's rail model, assuming one train pass-by per hour, which is the maximum that occurs at the receptor locations during a one-hour period. Existing freight rail sound levels were compared to the existing neighborhood sound levels to determine existing moderate and severe impacts to receptor locations.

The sound levels for the Preferred Alternative (passenger rail operations) were also calculated using the FTA's rail model, based upon one train pass-by per hour, which is the maximum that will occur at the receptor locations during a one-hour period. The sensitive receptor locations along the Preferred Alternative were evaluated and moderate and severe noise impacts were identified based upon their neighborhood and Preferred Alternative sound levels. The noise impacts typically result from the close proximity to locomotive

and rail car noise and from locomotive warning horns at roadway crossings. They occur when the passenger rail service is predicted to increase noise exposures at sensitive land uses adjacent to the track.

In order to understand the impact of the Preferred Alternative, the noise analysis provides a comparison of existing freight rail impacts and Preferred Alternative impacts. The noise analysis identified 76 moderate noise impacts for receptor locations under the existing freight rail conditions. Under the Preferred Alternative, the noise analysis identified 100 moderate and 25 severe noise impacts. The Preferred Alternative will result in an additional 24 moderate and 25 severe noise impacts as compared to the existing freight rail. Tables 4-3 and 4-4 (on pages 4-15 through 4-18) present the receptor locations, sound levels, and number of moderate and severe impacts for the existing freight rail operations and Preferred Alternative, respectively. Figures 4-2 through 4-6 (pages 4-19 through 4-23) show the receptor locations and the number of moderate and severe impacts for the Preferred Alternative. Table 4-5 (page 4-24) presents the receptor locations, build sound levels, and the difference from existing to build sound levels.

Table 4-3
Noise Exposures at Noise Sensitive Locations (Existing Freight Rail)*

Location	Number of Receptors at this Location	Land Use Category	Existing Noise Exposure (Ldn)	Existing Freight Rail Sound Levels (Ldn)**	Number of Moderate Impacts	Number of Severe Impacts
Portland						
Route 1 South (Street John Street)	4	2	63	48	0	0
Washburn Avenue	6	2	63	57	0	0
Veranda Street	2	2	58	54	0	0
Kensington Street/Richmond Street	5	2	58	55	0	0
Dalton Street	6	2	51	58	3	0
Hodgins Street	15	2	51	60	9	0
Arcadia Street	6	2	51	58	3	0
Totals	44				15	0
Falmouth						
Route 9 (Ledgewood Drive to Pine Road)	13	2	51	52	0	0
Pine Road	2	2	47	51	0	0
Route 9 (Pine Road to Presumpscot River)	8	2	51	59	1	0
Route 9 (Presumpscot River to Cole Street)	7	2	51	58	7	0
Route 9 (Cole Street to Lunt Road)	10	2	51	55	3	0
Lunt Road	3	2	51	50	0	0
Bucknam Road	2	2	51	55	1	0
Johnson Road	2	2	51	56	1	0
Totals	47				13	0
Yarmouth						
Portland Road (Abby Lane to Route 1)	3	2	51	54	0	0
Cleaves Street	3	2	47	59	2	0
Mill Street	3	2	51	60	3	0
E. Elm Street	3	2	51	59	3	0
Depot Road	5	2	47	54	5	0
Leighton Road	7	2	47	52	1	0
North Road	1	2	47	48	0	0
Granite Road	2	2	47	51	0	0
Totals	27				14	0

Table 4-3 (continued)
Noise Exposures at Noise Sensitive Locations (Existing Freight Rail)*

Location	Number of Receptors at this Location	Land Use Category	Existing Noise Exposure (Ldn)	Existing Freight Rail Sound Levels (Ldn)**	Number of Moderate Impacts	Number of Severe Impacts
Freeport						
Webster Road	3	2	47	52	2	0
Desert Road	1	2	47	49	0	0
Route 1	2	2	51	54	1	0
West Street	2	2	47	56	2	0
Oak Street	1	2	47	55	1	0
School Street	2	2	47	56	2	0
Park Street	10	2	47	50	0	0
East Street	4	2	47	56	4	0
Upper Mast Landing Road	3	2	47	55	3	0
Rte 1 (Upper Mast Landing Road to Prout Road)	8	2	47	55	5	0
Fernald Road	4	2	47	53	2	0
Prout Road	3	2	47	52	0	0
Cheyenne Drive	5	2	47	49	0	0
Totals	48				22	0
Brunswick						
Rich Road	1	2	47	47	0	0
Highland Road	3	2	47	53	1	0
Route 1 (Highland Road to Grant Road)	7	2	47	53	1	0
Route 1 (Grant Road to Hillside Road)	3	2	47	54	1	0
Route 1 (Hillside Road to Robinson Avenue)	4	2	51	54	1	0
Owen Street	2	2	51	52	0	0
Church Road	2	2	51	52	0	0
Paul Street	8	2	51	48	0	0
Bouchard Dr.	6	2	51	50	0	0
Lombard Street	1	2	51	44	0	0
Summer Street	1	2	51	46	0	0
Stanwood Street	1	2	51	50	0	0
Hennessey Ave.	13	2	51	55	8	0
Spring Street	2	2	51	46	0	0
Cedar Street	4	2	51	46	0	0
Union Street	3	2	51	49	0	0
Noble Street	11	2	51	46	0	0
Totals	72				12	0
Totals	238				76	0

* Noise Exposures are presented in Ldn except where noted.

** Noise Exposure represents noise level experienced at nearest receptor for each location and was based on a freight train speed of 25 MPH.

Table 4-4
Noise Exposures at Noise Sensitive Locations (Preferred Alternative)*

Location	Number of Receptors at this Location	Land Use Category	Existing Noise Exposure (Ldn)	Preferred Alternative Sound Levels** (Ldn)	Number of Moderate Impacts	Number of Severe Impacts
Portland						
Route 1 South (Street John Street)	4	2	63	50	0	0
Washburn Avenue	6	2	63	59	0	0
Veranda Street	2	2	58	56	0	0
Kensington Street/Richmond Street	5	2	58	57	0	0
Dalton Street	6	2	51	60	2	1
Hodgins Street	15	2	51	61	7	2
Arcadia Street	6	2	51	60	4	0
Totals	44				13	3
Falmouth						
Route 9 (Ledgewood Drive to Pine Road)	13	2	51	58	3	0
Pine Road	2	2	47	58	2	0
Route 9 (Pine Road to Presumpscot River)	8	2	51	66	4	1
Route 9 (Presumpscot River to Cole Street)	7	2	51	65	0	7
Route 9 (Cole Street to Lunt Road)	10	2	51	62	7	3
Lunt Road	3	2	51	57	3	0
Bucknam Road	2	2	51	62	1	1
Johnson Road	2	2	51	62	1	1
Totals	47				21	13
Yarmouth						
Portland Road (Abby Lane to Route 1)	3	2	51	60	2	1
Cleaves Street	3	2	47	62	2	1
Mill Street	3	2	51	62	0	3
E. Elm Street	3	2	51	62	1	2
Depot Road	5	2	47	56	5	0
Leighton Road	7	2	47	54	1	0
North Road	1	2	47	50	0	0
Granite Road	2	2	47	57	2	0
Totals	27				13	7

Table 4-4 (continued)
Noise Exposures at Noise Sensitive Locations (Preferred Alternative)*

Location	Number of Receptors at this Location	Land Use Category	Existing Noise Exposure (Ldn)	Preferred Alternative Sound Levels** (Ldn)	Number of Moderate Impacts	Number of Severe Impacts
Freeport						
Webster Road	3	2	47	59	3	0
Desert Road	1	2	47	56	1	0
Route 1	2	2	51	57	1	0
West Street	2	2	47	58	2	0
Oak Street	1	2	47	57	1	0
School Street	2	2	47	58	2	0
Park Street	10	2	47	52	0	0
East Street	4	2	47	58	4	0
Upper Mast Landing Road	3	2	47	57	3	0
Rte 1 (Upper Mast Landing Road to Prout Road)	8	2	47	60	6	1
Fernald Road	4	2	47	57	4	0
Prout Road	3	2	47	56	3	0
Cheyenne Drive	5	2	47	54	0	0
Totals	48				30	1
Brunswick						
Rich Road	1	2	47	51	0	0
Highland Road	3	2	47	57	3	0
Route 1 (Highland Road to Grant Road)	7	2	47	57	7	0
Route 1 (Grant Road to Hillside Road)	3	2	47	60	2	1
Route 1 (Hillside Road to Robinson Avenue)	4	2	51	57	1	0
Owen Street	2	2	51	55	1	0
Church Road	2	2	51	55	1	0
Paul Street	8	2	51	51	0	0
Bouchard Dr.	6	2	51	52	0	0
Lombard Street	1	2	51	46	0	0
Summer Street	1	2	51	48	0	0
Stanwood Street	1	2	51	52	0	0
Hennessey Ave.	13	2	51	57	8	0
Spring Street	2	2	51	48	0	0
Cedar Street	4	2	51	48	0	0
Union Street	3	2	51	51	0	0
Noble Street	11	2	51	48	0	0
Totals	72				23	1
Totals	238				100	25

* Noise Exposures are presented in Ldn except where noted.

** Noise Exposure represents noise level experienced at nearest receptor for each location.

Figure 4-2

Figure 4-3

Figure 4-4

Figure 4-5

Figure 4-6

Table 4-5
Build Noise Exposures at Noise Sensitive Locations (Preferred Alternative + Existing)

Location	Number of Receptors at this Location	Existing Noise Exposure (Ldn)	Build Noise Exposure at Moderate Impacted Locations* (Ldn)	Build Noise Exposure at Severe Impacted Locations** (Ldn)	Difference between Existing and Build (Moderate)	Difference between Existing and Build (Severe)
Portland						
Route 1 South (Street John Street)	4	63	n/a	n/a	n/a	n/a
Washburn Avenue	6	63	n/a	n/a	n/a	n/a
Veranda Street	2	58	n/a	n/a	n/a	n/a
Kensington Street/Richmond Street	5	58	n/a	n/a	n/a	n/a
Dalton Street	6	51	57	61	+6	+10
Hodgins Street	15	51	60	61	+9	+10
Arcadia Street	6	51	61	n/a	+10	n/a
Totals	44					
Falmouth						
Route 9 (Ledgewood Drive to Pine Road)	13	51	59	n/a	+8	n/a
Pine Road	2	47	58	n/a	+11	n/a
Route 9 (Pine Road to Presumpscot River)	8	51	60	66	+9	+15
Route 9 (Presumpscot River to Cole Street)	7	51	n/a	65	n/a	+14
Route 9 (Cole Street to Lunt Road)	10	51	61	62	+10	+11
Lunt Road	3	51	58	n/a	+7	n/a
Bucknam Road	2	51	58	62	+7	+11
Johnson Road	2	51	61	62	+10	+11
Totals	47					
Yarmouth						
Portland Road (Abby Lane to Route 1)	3	51	61	61	+10	+10
Cleaves Street	3	47	57	62	+10	+15
Mill Street	3	51	n/a	62	n/a	+11
E. Elm Street	3	51	60	61	+9	+10
Depot Road	5	47	57	n/a	+10	n/a
Leighton Road	7	47	55	n/a	+8	n/a
North Road	1	47	n/a	n/a	n/a	n/a
Granite Road	2	47	57	n/a	+10	n/a
Totals	27					

Table 4-5 (continued)
Build Noise Exposures at Noise Sensitive Locations (Preferred Alternative + Existing)

Location	Number of Receptors at this Location	Existing Noise Exposure (Ldn)	Build Noise Exposure at Moderate Impacted Locations* (Ldn)	Build Noise Exposure at Severe Impacted Locations** (Ldn)	Difference between Existing and Build (Moderate)	Difference between Existing and Build (Severe)
Freeport						
Webster Road	3	47	59	n/a	+12	n/a
Desert Road	1	47	57	n/a	+10	n/a
Route 1	2	51	58	n/a	+7	n/a
West Street	2	47	58	n/a	+11	n/a
Oak Street	1	47	57	n/a	+10	n/a
School Street	2	47	58	n/a	+11	n/a
Park Street	10	47	n/a	n/a	n/a	n/a
East Street	4	47	58	n/a	+11	n/a
Upper Mast Landing Road	3	47	57	n/a	+10	n/a
Rte 1 (Upper Mast Landing Road to Prout Road)	8	47	59	60	+12	+13
Fernald Road	4	47	57	n/a	+10	n/a
Prout Road	3	47	57	n/a	+10	n/a
Cheyenne Drive	5	47	n/a	n/a	n/a	n/a
Totals	48					
Brunswick						
Rich Road	1	47	n/a	n/a	n/a	n/a
Highland Road	3	47	57	n/a	+10	n/a
Route 1 (Highland Road to Grant Road)	7	47	57	n/a	+10	n/a
Route 1 (Grant Road to Hillside Road)	3	47	59	60	+12	+13
Route 1 (Hillside Road to Robinson Avenue)	4	51	58	n/a	+7	n/a
Owen Street	2	51	56	n/a	+5	n/a
Church Road	2	51	56	n/a	+5	n/a
Paul Street	8	51	n/a	n/a	n/a	n/a
Bouchard Dr.	6	51	n/a	n/a	n/a	n/a
Lombard Street	1	51	n/a	n/a	n/a	n/a
Summer Street	1	51	n/a	n/a	n/a	n/a
Stanwood Street	1	51	n/a	n/a	n/a	n/a
Hennessey Ave.	13	51	58	n/a	+7	n/a
Spring Street	2	51	n/a	n/a	n/a	n/a
Cedar Street	4	51	n/a	n/a	n/a	n/a
Union Street	3	51	n/a	n/a	n/a	n/a
Noble Street	11	51	n/a	n/a	n/a	n/a
Totals	72					
Totals	238					

Note: n/a indicates there are no severe or moderate impacts at this location.

* Noise Exposure represents noise level experienced at nearest moderately impacted receptor for each location.

** Noise Exposure represents noise level experienced at nearest severely impacted receptor for each location.

Impact distances from the rail line were calculated for various existing noise levels to facilitate identifying affected sensitive noise receptors. These distances were calculated by determining the sound increase over

existing levels that would indicate moderate and severe noise impacts. The calculated sound level required to trigger an impact was then converted to a distance from the track, in feet. In general, as the distance increases from the track, the sound level decreases. These noise impact distances are calculated based on FTA guidelines for evaluating transit noise impacts. Table 4-6, below, illustrates the general relationship between the area along the rail corridor and the type of impact.

Table 4-6
Noise Impact Distances by Area

City	Area	Distance to Impact Level (Feet)		
		Severe Closer than (ft.)	Moderate Between (ft.)	No Impact Farther than (ft.)
Portland	Route 1 South to Route 26	25	25-60	60
Portland	Veranda St. and Kensington St./Richmond St.	40	40-85	85
Portland	Dalton St. to Arcadia St.	55	55-135	135
Falmouth	Route 9 (Ledgewood Dr. to Pine Rd.)	110	110-275	275
Falmouth	Pine Rd.	130	130-320	320
Falmouth/ Yarmouth	Presumpscot River to Portland Rd.	110	110-275	275
Yarmouth	Cleaves St.	70	70-205	205
Yarmouth	Mill St. to E. Elm St.	65	65-175	175
Yarmouth	Royal River to North Rd.	55	55-145	145
Yarmouth/ Freeport	Granite Rd. to Hunter Rd.	130	130-320	320
Freeport	Route 1	65	65-175	175
Freeport	West St. to Upper Mast Landing Rd.	55	55-145	145
Freeport	Route 1 to Prout Rd.	90	90-260	260
Freeport	Cheyenne Dr.	70	70-205	205
Brunswick	Rich Rd. to Grant Rd.	90	90-260	260
Brunswick	Route 1 (Grant Rd. to Hillside St.)	130	130-320	320
Brunswick	Hillside St. to Paul St.	65	65-175	175
Brunswick	Bouchard Dr. to Noble St.	45	45-125	125

4.4.2.3 Passenger Rail Station and Platforms

Future project noise exposures were predicted for the Portland Transportation Center, the Freeport Platform area, the Brunswick Layover Facility, and the Brunswick Platform. The train station activity and traffic associated with these stations are not expected to create adverse impacts at the nearest sensitive receptor locations. The majority of the station's traffic is expected to occur during peak commuting hours, when area traffic is also greatest. Peak hour station traffic will not increase the overall traffic volume enough to create a noticeable change in sound levels. Table 4-7 (page 4-27) presents the existing and Preferred Alternative noise exposures at the nearest sensitive receptor locations for each station or platform area.

Table 4-7
Noise Exposures at Passenger Rail Stations and Platforms*

Station/Platform	Nearest Receptor Location	Existing Noise Exposure (Ldn)	Preferred Alternative Sound Levels** (Ldn)	Number of Moderate Impacts	Number of Severe Impacts
Portland Transportation Center	Frederick Street	63	43	0	0
Freeport Platform	School Street	47	58	2	0
Brunswick Layover Facility	Paul Street	51	51	0	0
Brunswick Platform	Noble Street	51	48	0	0

* Noise Exposures are presented in Ldn except where noted.

** Noise Exposure represents noise level experienced at nearest receptor for each location.

4.4.2.4 Construction Noise Impacts

Track improvements may create noise impacts as a result of track and bridge construction and reconstruction activities. Construction activities will increase sound levels in adjacent areas; however, these increases will be temporary and short lived. Since rail replacement activities, which include grading, ballast, and rail laying, will continuously move along the corridor, noise from these activities will be temporary, typically occurring for short periods of time at any one location. Bridge and grade crossing reconstruction activities will occur for a slightly longer duration, since these activities require more time. Track improvement construction activity is not expected to result in adverse noise impacts.

Every reasonable attempt will be made to minimize construction noise impacts. Construction noise control is accomplished by the use of quiet equipment and procedures. Noise guidelines will be incorporated into the construction documents and shall be in conformance with local, state, and federal statutes. Specific noise control measures will be reviewed during the construction permitting process. Noise specifications will be enforced through a program of field inspection and compliance review.

Most of the track and bridge reconstruction (as well as platform construction) will occur during the normal workday. Under special circumstances, where road or rail traffic interruptions have to be minimized, night work may occur.

4.4.2.5 Noise Mitigation

The noise analysis identified a total of 100 moderate and 25 severe noise impacts under the Preferred Alternative. Of this total, 76 moderate noise impacts will occur under the existing freight rail conditions. The Preferred Alternative will result in an additional 24 moderate and 25 severe noise impacts as compared to the existing freight rail. The noise impacts occur primarily at receptor locations that are very close to the rail tracks. While moderate noise impacts do not require noise mitigation, all of the severe noise impact locations must be evaluated for noise mitigation. Two types of noise mitigation measures were considered for rail noise abatement, continuously welded rail (CWR) and noise barriers.

The Preferred Alternative will include reconstruction with continuously welded rail. This is rail that is installed without joints. It substantially reduces the noise of the train wheels banging on the rail joints for

both the proposed passenger trains and the existing freight trains. CWR typically results in a reduction of 5 dBA in Ldn sound levels.

Noise barriers were also considered as a potential means of mitigating noise impacts. Noise barriers are typically constructed along the edge of a rail corridor right-of-way and are designed to reduce rail noise by as much as 10 dBA. Noise barriers are usually cost effective only when designed to shield a large number of residences spaced close together. A noise barrier must be constructed high enough to break the line of sight from the receiver to noise sources on the trains, the major one being the diesel exhaust on top of the locomotive, approximately 15 feet above the top-of-rail. A noise barrier must also be continuous and long enough, typically 1,000 feet or longer, to properly screen out a moving train.

MaineDOT has established $20,000 per receptor location protected as a reasonable cost for determining the reasonableness of constructing a noise barrier. That is to say, the total cost of the noise barrier at one location must not be more than the number of locations protected multiplied by $20,000. The noise analysis calculated the cost of constructing a typical noise barrier and used MaineDOT's cost criteria to determine the minimum number of receptor locations that would be needed at one location for the construction of a noise barrier to be reasonable. An evaluation of the receptor location density where there are rail noise impacts, demonstrates that there are not enough receptor locations in one area to justify construction of a noise barrier. Therefore, no noise barriers are proposed as part of the Preferred Alternative.

Under circumstances when a noise barrier is either not feasible because of engineering or economic issues, building noise insulation will be considered. MaineDOT's existing Noise Policy will be applied to receptors that are severely impacted by the increased train use associated with the project. Severely impacted noise receptors are identified in this environmental assessment in Table 4-4 (page 4-17), of the noise analysis. Pursuant to FTA requirements, MaineDOT will provide for interior noise insulation through the installation of double paned windows, solid core doors and other methods, if required. MaineDOT will allow for noise mitigation costs of up to but not exceeding $20,000 per individual structure that is adversely impacted above the Severe Noise Impact Level.

The owners of properties that are affected by noise above the identified Severe Noise Level, which are identified in Table 4-4 (page 4-17) of the noise analysis, and who are eligible for interior noise mitigation, will be consulted during the design phase of the project. MaineDOT will permit these homeowners to identify preferred noise mitigation measures for their property from a list of potential mitigation measures that will achieve a minimum noise reduction of 5 dBA. The list will include measures, such as window replacement or sound insulation in the house and will be compliant with FTA noise mitigation requirements. Mitigation costs will be based on actual expenditure of materials and labor from a licensed contractor and will not include an in-lieu of mitigation payment.

Building noise insulation will be required to provide noise reductions between 5 to 20 dBA. The level of mitigation achieved will vary from residence to residence depending upon the existing condition of the building and the homeowners preferred noise mitigation methods selected from the list. If the preferred methods do not achieve the minimum 5 dBA reduction, MaineDOT and FTA have the authority to implement alternative noise mitigation, if it is available.

■

4.4.3 Vibration

Continuously welded rail (CWR) is proposed along the entire Preferred Alternative. CWR track produces less vibration relative to other track configurations, such as jointed rail. Impact distances for residences are expected to range from about 25 feet for areas where passenger rail trains will be traveling at 10 mph to about 100 feet for areas where passenger trains will be traveling at the maximum allowable speed of 59 mph. As a result, exceedances of the FTA criterion of 80 VdB for infrequent events under the proposed service would only occur at areas with residences directly adjacent to the Preferred Alternative. Existing and future impact conditions are summarized by town in Table 4-8 on page 4-30.

The existing freight train activity results in vibration impacts at 42 residential receptor locations. The Preferred Alternative will eliminate existing vibration impacts at 14 residential receptor locations and result in seven new residential receptor locations experiencing vibration impacts, for a net reduction of five impacted residential locations. Therefore, the total number of residential receptor location vibration impacts in the corridor will be reduced from 42 to 35. This change in vibration impacts is due to the new train service, the installation of CWR tracks, and the changes in train speeds.

Table 4-8
Vibration Impacts

Municipality/Segment	Existing Impacts		Future Impacts		Change in Impacts	
	Number of Sensitive (Residential) Receptors at this Location	Number of Commercial Receptors at this Location	Number of Sensitive (Residential) Receptors at this Location	Number of Commercial Receptors at this Location	Change in Sensitive (Residential) Receptors at this Location	Change in Commercial Receptors at this Location
Portland						
Sherwood Street to I-295	0	1	0	1	0	0
Veranda Street	2	0	0	0	-2	0
Kensington/Richmond Streets	5	0	4	0	-1	0
Dalton Street	0	3	0	0	0	-3
Hodgins Street	6	0	2	0	-4	0
Arcadia Street	1	0	0	0	-1	0
Portland total	14	4	6	1	-8	-3
Falmouth						
Route 9 (Presumpscot River to Cole Street)	4	0	7	0	+3	0
Route 9 (Cole Street to Lunt Road)	7	0	7	0	0	0
Bucknam Road	0	0	1	0	+1	0
Johnson Road	1	0	1	0	0	0
Falmouth total	12	0	16	0	+4	0
Yarmouth						
Route 1	0	2	0	3	0	+1
Portland Road (Abby Lane to Route 1)	0	0	3	0	+3	0
Cleaves Street	3	0	3	0	0	0
Railroad Square	0	1	0	1	0	0
Mill St	3	0	3	0	0	0
East Elm Street	3	0	3	0	0	0
Yarmouth total	9	3	12	4	+3	+1
Freeport						
West Street	2	1	1	1	-1	0
Bow Street	2	0	0	0	-2	0
Park Street	0	0	0	1	0	+1
Freeport total	4	1	1	2	-3	+1
Brunswick						
Stanwood Street	0	0	0	1	0	+1
Hennessey Street	3	0	0	0	-3	0
Brunswick total	3	0	0	1	-3	+1
Total	42	8	35	8	-7	0

There are no known vibration-sensitive Category 1 receptors, such as facilities using vibration-sensitive photographic or manufacturing processes, located along the Preferred Alternative that would be adversely affected.

MaineDOT has evaluated mitigation measures for locations along the Preferred Alternative where vibration impacts are projected. To minimize vibration impacts along the Preferred Alternative, the following mitigation measures were evaluated to reduce vibration impacts:

- Ballast mats (rubber mats placed under the ballast) could be provided where vibration mitigation is justified, and soil conditions are appropriate, as determined by on-site inspection of each potential mitigation location.
- Trains and track will be maintained in such a manner as to minimize vibration generated by the trains, including regular wheel re-truing to eliminate wheel flats.

MaineDOT is committed to implementing CWR track to help reduce vibration. In addition, locations along the Preferred Alternative where vibration impacts have been identified were evaluated to determine if ballast mats could be installed. In some cases, ballast mats were not costs effective, or could not be installed due to intersection geometry. The use of ballast mats is limited in that it should not be installed within 50 feet of grade crossings; exact distances from each grade crossing will be determined at the time of final design. Table 4-9, below, presents a list of locations that should be considered for ballast mats during final design. This table also includes the estimated length of ballast mat needed and the number of receptor locations that would be benefited.

Table 4-9
Vibration-Mat Mitigation Locations

Municipality	Location	Length of Ballast Mat (feet)	Number of Receptors Benefited
Portland	St. John Street	700	6
	Kensington Street	300	4
	Hodgins Street	300	2
Falmouth	Route 9 (Presumpscot River to Cole Street)	1,300	7
	Route 9, south of Lunt Street	1,400	7
Yarmouth	Mill Street	200	2

4.5 Temporary Construction Impacts

Potential temporary impacts during construction could include increased air and noise impacts and traffic disruptions.

Impacts to air quality from construction equipment emissions (NOx, sulfur oxides, and CO) and increases in particulate matter (*i.e.*, dust) would be temporary, localized, and minimal.

Noise impacts from construction activities are closely related to construction phasing and the type and placement of construction equipment. Construction activities may result in a substantial but temporary noise impact to receptors at various locations adjacent to proposed construction. Noise levels may vary depending on the type and number of pieces of equipment active at any one time. In general, construction noise may be restricted to daylight hours.

Traffic impacts shall be minimized during construction. MaineDOT will strive to keep roads open and access to businesses maintained. Police details will be used to direct traffic during any short-term lane restrictions.

The No-Action Alternative would have no construction related impacts.

4.6 Secondary and Cumulative Impacts

Secondary Impacts are defined by the Council on Environmental Quality (CEQ)[20] as reasonably foreseeable indirect consequences to the environment caused by a proposed action, that would occur either in the future (later in time) or in the vicinity of (not the same location as) the direct impacts of that action.

Cumulative impacts are the additive or interactive impacts of multiple actions within a region. Seemingly minor impacts of past, present, and reasonably foreseeable future actions of several agencies or persons, when added together, may result in combined or cumulative impacts with serious environmental consequences (40 CFR, Part 1508.7).

This section provides a brief discussion of secondary and cumulative impacts associated with the proposed extension of passenger rail service between Portland and Brunswick.

■

4.6.1 Secondary Impacts

Likely secondary impacts from the proposed extension of passenger rail service include the potential for development of additional platforms (such as the one being considered for Yarmouth as part of the potential reconstruction of Exit 15 on I-295), as well as other transit oriented development occurring near the proposed stops. For example, the Town of Brunswick may lease portions of the proposed Brunswick Platform site to allow for commercial development. The Town of Freeport has considered proposals that would incorporate a rail platform northwest of the proposed Freeport Platform site. These developments would have little impact on the natural environment because they are located in areas that are already developed. These types of secondary development will benefit the transportation network in the State. They would benefit the State by encouraging pedestrian activity and reducing reliance on personal automobiles. Because they would likely result in greater levels of rail travel instead of automobile, they would help to reduce traffic on area highways. Local review boards would be responsible for review of such issues as impact on water, sewer, traffic from such small transit oriented development.

τ

20 Considering Cumulative Effects Under the National Environmental Policy Act, Council on Environmental Quality, 1997.

As discussed in Chapter 1, while establishing passenger rail service between Portland and Brunswick is an independent project having its own utility and logical termini, it will also allow MaineDOT to move forward with plans for other potential passenger rail development, notably the establishment of passenger rail from Portland to the Lewiston / Auburn area along existing rail lines, including the Relocated Union Branch and SLR. This too will help to further reduce automobile travel and reduce traffic congestion.

The No-Action Alternative would not encourage any of these beneficial secondary results.

■

4.6.2 Cumulative Impacts

Southern Maine has, over the past decade, experienced considerable economic growth and development. There are a number of substantial projects occurring in the vicinity of the Preferred Alternative, notably the completion of the widening of the Maine Turnpike and the construction of the I-295 Connector Road between Veterans Circle and I-295, and the proposal to relocate Mercy Hospital to the area south of the proposed Portland Wye. Mercy Hospital will redevelop an area formerly in industrial / commercial use. In the immediate vicinity of the project, new office and retail development is planned for a 3-acre parcel on Marginal Way in Portland. All of these projects are occurring or will occur regardless of the proposed rail service to Brunswick. The proposed extension of passenger rail service is expected to provide an overall benefit to air quality, and is in compliance with the SIP. The rail service is expected to provide service to motorists who would otherwise travel between Portland and Brunswick by motor vehicle. This shift in travel mode is expected to reduce overall vehicle emissions, although increased train service is expected to increase train emissions.

The direct environmental impacts to water resources and air quality of the of the proposed passenger rail extension to Brunswick are very minor. Thus, the rail service would likely represent a negligible amount of cumulative environmental impacts to Cumberland County from ongoing regional growth.

The No-Action Alternative would not provide any benefits to regional air quality because it would continue the State's dependence on personal automobiles on highways for travel between Portland and Brunswick; it would not encourage multimodal tourism travel in Southern Maine; and would not provide the missing link in the State's rail network that will allow for potential future expansion of rail service to areas along the coast and to the west of Portland.

4.7 Summary of Study Commitments

MaineDOT is committed to constructing the Preferred Alternative in an environmentally responsible manner and complying with all applicable regulations. In addition to many best management practices that will be employed to avoid and minimize potential environmental impacts, MaineDOT is making a major commitment to continue coordination with MHPC regarding the replacement or rehabilitation of the National Register eligible Park Avenue Bridge in Portland and the Royal River Bridge in Yarmouth in compliance with Section 106 of the National Historic Preservation Act and Section 4(f) of the DOT Act.

Draft November, 2004

5

Draft Section 4(f) Evaluation Replacement of the Park Avenue and Royal River Bridges

This Section 4(f) Evaluation has been prepared pursuant to Section 4(f) of the Department of Transportation Act of 1966, 49 USC 303 and 23 USC 138. A Final Section 4(f) Evaluation will be issued following the comment period at the time the decision making document on the EA is issued by MaineDOT.

5.1 Proposed Action

The Maine Department of Transportation (MaineDOT), in conjunction with the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), is proposing to establish daily passenger rail service between Portland, Maine and Brunswick, Maine as an extension of the current Boston, Massachusetts to Portland, Maine Amtrak service. The service is proposed to operate over several railroads, including the Union Branch in Portland and the St. Lawrence and Atlantic Railroad (SLR) in Yarmouth. As part of this project, MaineDOT is proposing to use federal funds to remove and replace the Park Avenue Bridge (Maine Bridge # 0327, also known as the St. John Street Underpass) which carries the Union Branch Railroad over Park Avenue and St. John Street in Portland and the Royal River Bridge (Maine Bridge # **####**) which carries the SLR over the Royal River in Yarmouth. Both bridges have been determined to be eligible for listing on the National Register of Historic Places (National Register) by the Maine Historic Preservation Commission (MHPC).

Because of the structural deficiencies of the two bridges and their inability to carry the loads necessary for safe passenger rail service, MaineDOT is proposing to replace them with modern bridge structures.

5.2 Purpose and Need for the Proposed Action

The purpose of the project is to establish passenger rail service between Portland and Brunswick as an extension of the existing Boston to Portland Downeaster Amtrak service, and as the first step in providing future interconnected service to Rockland and the Lewiston / Auburn area.

The establishment of rail service between Portland and Brunswick will help to address several of the needs and deficiencies in the State's transportation system as identified in the *Maine Strategic Passenger Transportation Plan* and MaineDOT's *Twenty Year Transportation Plan*, including the following:

- the lack of access and mobility alternatives other than automobile for people traveling to and from the Brunswick area;
- the lack of integrated alternative modes of transportation for tourists to reach local attractions; and
- the increasing levels of traffic on Maine highways such as the Maine Turnpike, I-95, U.S. Route 1, and I-295.

5.3 Section 4(f) Resources

■

5.3.1 Park Avenue Bridge

The Park Avenue Bridge carries the Union Branch Railroad over St. John Street and Park Avenue in Portland. Its location is shown on Figure 5-1, page 5-3. Figure 5-2, on page 5-4, shows a recent photo of the bridge. The bridge is owned by the State of Maine. The Park Avenue Bridge is composed of a center truss and two lighter exterior trusses intended to carry two separated tracks. The bridge was built in 1890 and is constructed of wrought iron.

The bridge was surveyed in 1999 by MaineDOT as part of the historic bridge inventory program and determined to be eligible for listing on the National Register.[21] The rivet-connected Baltimore thru truss bridge is significant as an early, complete example of its type and design that was built by the Boston Bridge Works, a major regional manufacturer in the late 19th century, noteworthy for its railroad-related work. The bridge represents a significant period in the development of the truss bridge technology when builders were shifting from pin connections to rivet connections to better meet the railroads' demands for bridges of greater capacity.

An October 2002 bridge inspection found that the Park Avenue Bridge substructure is in satisfactory condition but that the superstructure is in poor to serious condition with several bottom chord truss members, stringers, and lateral bracing components damaged from numerous vehicle accidents. The damage to these members is to such an extent that repair is not possible.

A rating analysis of the bridge has also been performed to determine the bridge's carrying capacity. This analysis found that the member sizes of the bridge are incapable of carrying the required present-day Cooper E80 Train loads necessary to accommodate passenger service.[22] The bridge's inadequate carrying capacity combined with the poor condition of its bottom chord truss members has led MaineDOT to determine that the bridge must be extensively rehabilitated or replaced.

τ

[21] See State of Maine Department of Transportation Historic Bridge Inventory Form in Appendix A.
[22] Refer to *Revised Supplemental Report for Bridge Rehabilitation/Replacement of the Royal River and Park Avenue Bridges*, dated December 11, 2003, prepared by HNTB. The report is contained in Appendix A.

Figure 5-1

Figure 5-2

■

5.3.2 Royal River Bridge

The Royal River Bridge carries the St. Lawrence & Atlantic Railroad over the Royal River in Yarmouth. Its location is shown on Figure 5-3, page 5-6. The bridge is owned by the State of Maine. Figure 5-2 shows a photo of the bridge. The Royal River Bridge is a Pratt-type truss supported by a granite block abutment at its south end and a reinforced concrete abutment at its north end. The bridge has an open deck with timber ties spanning over the stringers only in the east half of the structure. The ties and track have been removed from the west half of the bridge. The bridge is believed to have been built circa 1900.

The Royal River Bridge was surveyed in early 2003 by MaineDOT as part of a cultural resource survey of the culverts and bridges along the Saint Lawrence and Atlantic right-of-way. In its survey report that MaineDOT submitted to MHPC, MaineDOT recommended that the Royal River bridge be considered potentially eligible for the National Register under Criterion C as a representative example of the Pratt truss bridge form, one of the most common railroad bridge types constructed in the late 19th and early 20th centuries. The bridge retains integrity of location, setting, feeling and association. The structure has lost a small degree of integrity of design, materials, and workmanship through the replacement of the north abutment and wing walls, but the alteration does not affect the engineering or architectural significance of the overall structure. In a February 25, 2003 memorandum sent to MaineDOT, MHPC concurred with MaineDOT's recommendation.[23]

An October 2002 bridge inspection found that the bridge superstructure was in fair condition overall with section losses measured along the top surfaces of the bottom flanges of the floorbeams, deterioration of the bottom of the stringer webs, and pitting of the truss tension eyebars. The substructure was found to be in poor condition. The south abutment has settled and has shifted significantly downward and to the north, causing movement of the bearings and the east truss to come in contact with the backwall. Some of the granite blocks that compose the abutment have full height vertical cracks, and the mortar between the blocks has heavily deteriorated. The granite blocks at the base of the abutment are undermined by up to 17 inches deep for a length of approximately 13 feet. The north abutment is in satisfactory condition.[24]

A rating analysis of the Royal River Bridge has also been performed to determine the bridge's carrying capacity. This analysis found that, assuming the bridge was built circa 1900, the bridge would be incapable of carrying the required present-day Cooper E80 Train loads necessary to accommodate passenger service. There is, however, some evidence to suggest that the bridge may not have been built until 1926 (this date is inlayed into the north concrete abutment). In which case, the yield strength of the steel would be greater and the rating factors for all of the bridge's structural components and truss members would be at a level capable of carrying the E80 loading. The uncertainty with regard to the bridge's carrying capacity combined with the poor condition of its substructure has led MaineDOT to determine that the bridge must be extensively rehabilitated or replaced.

τ

[23] See State of Maine Memorandum to David Gardner, ENV Maine Department of Transportation, from Earle G. Shettleworth, Jr. State Historic Preservation Officer, dated February 25, 2003.

[24] For more detailed information on the condition of the Royal River Bridge, see the Bridge Rating, Yarmouth, Portland Branch over Royal River, prepared for Maine Department of Transportation & Saint Lawrence and Atlantic Railroad. HNTB Corporation December 2002 in Appendix A.

Figure 5-3

5.4 Alternatives to Avoid Section 4(f) Resources

MaineDOT considered several alternatives to avoid the use the Park Avenue and Royal River Bridges. They were the No-Action Alternative; a Bus Alternative, a TDM/TSM Alternative, and the use of the Guilford Freight Main Line Corridor between Portland and Yarmouth.

■

5.4.1 No Action Alternative

The No-Action Alternative was considered, but was dropped because it would not meet the Purpose and Need for the project.

■

5.4.2 Bus Alternative

The use of buses was considered as an alternative to provide better transportation options between Portland and Brunswick. Concord Trailways and Greyhound Lines currently provide bus service between Portland and Brunswick each making two to three trips per day. While MaineDOT recognizes that there would be lower capital, operating, and maintenance cost associated with improved bus service compared to trains, a bus alternative would not help to create the interconnected passenger rail service to locations such as Rockland and Auburn that is needed to provide opportunity for tourist excursions to destinations north of Portland without vehicles, which the State of Maine desires as put forth in the *Strategic Passenger Transportation Plan*. Therefore, bus service does not meet the study's Purpose and Need and was dismissed from further consideration.

■

5.4.3 TDM/TSM Alternative

While TSM measures, such as traffic signal timing or phasing adjustments, access management improvements, and improved signage or pavement markings, and TDM measures, such as ridesharing/carpooling programs, trip-reduction incentives, and congestion pricing, could be used to help reduce congestion and delays on highways such as the Maine Turnpike and I-295, they would not address the other elements of the proposed project's Purpose and Need. They would not provide alternative access and mobility options; they would not assist tourists to reach destinations; and they would not provide the missing link in the state's rail system that would allow for future rail service to other regions of the state. For these reasons, TSM and TDM actions were dismissed as stand-alone alternatives.

■

5.4.4 Guilford Freight Main Line Corridor Alternative

MaineDOT examined the possible use of the GRS Freight Main Line Corridor for the proposed passenger rail service between Portland and Brunswick as an alternative that would have avoided both the Park Avenue

Bridge and the Royal River Bridge. The GRS Freight Main Line Corridor was dismissed from further consideration, however, for a number of reasons. The dismissal of the GRS Freight Main Line Corridor is discussed in detail in Chapter 2 and summarized briefly below.

The primary reason for dismissal of the GRS Freight Main Line was that it afforded much less flexibility in scheduling service than the Union Branch / SLR Corridors. Schedule constraints caused by existing freight traffic operating on the GRS Freight Main Line combined with those related to the need to coordinate service with the existing Downeaster service would greatly limit the available operating times that the GRS Freight Main Line Corridor could offer. Without a reasonable operating schedule, the passenger rail service would be unable to attract ridership and would therefore not meet the Project's Purpose and Need.

Additional reasons for the dismissal of the GRS Freight Main Line include the following:

- it could not serve potential future commuter stops at I-295 or in the Bayside area of Portland;
- it had a greater number of grade crossings, many of which are in Portland's residential neighborhoods;
- it was believed to have substantially greater noise and vibration impacts; and
- it generally passes through more environmentally sensitive areas than does the Union Branch Corridor.

For these reasons, the GRS Freight Main Line was dismissed from further consideration and the Union Branch / SLR Corridor was identified as the Preferred Corridor. Use of the Union Branch / SLR corridor necessitates either the rehabilitation or replacement of Park Avenue and Royal River Bridges. The alternatives considered for rehabilitation or replacement of each of the bridge is discussed in the following section.

5.5 Alternatives to Minimize Impacts

Once the Union Branch / SLR Corridor had been identified as the Preferred Corridor on which to operate the proposed passenger rail service between Portland and Brunswick, it became necessary for the Park Avenue and Royal River Bridges to be upgraded so that they could carry the required modern-day Cooper E80 loads necessary to accommodate passenger trains. Therefore, MaineDOT performed life-cycle cost analyses to determine to what extent the Park Avenue and Royal River Bridges should be rehabilitated or replaced to meet this requirement while minimizing impacts to the historic bridges.

■

5.5.1 Park Avenue Bridge

Rehabilitation and two replacement alternatives were considered for the Park Avenue Bridge. The replacement alternatives included:

- Alternative 1 – Replacement In-kind (New Open Deck Through-Truss)
- Alternative 2 – Replacement (New Ballasted Deck Through-Girder)

Rehabilitation of the Park Avenue Bridge was found to be impracticable because in order to meet modern day loading requirements would have required increasing many of the bridge's structural components to as much

as twice their original size. Such significant and pervasive strengthening would be uncommon and imprudent given that to replace the bridge would be more practicable and less costly. This led MaineDOT to consider the two replacement alternatives.

Alternative 1, Replacement In-kind, was considered as a means of minimizing impacts to the historic nature of the bridge because an in-kind replacement would most closely resemble the original structure, having three trusses. The initial in-kind replacement cost was estimated to be $1,937,000, and the 75-year life cycle cost was estimated to be $2,293,861. Comparatively, Alternative 2, Replacement with a Ballasted Deck Through-Girder design would have an estimated initial construction cost of $1,361,000 and a 75-year life cycle cost of $1,610,900.[25] Therefore, the long term cost of Alternative 1 (Replacement In-kind) is approximately 42 percent higher than that of Alternative 2. Therefore, MaineDOT has determined that Replacement In-kind would not be a prudent expenditure of public funds and is proposing to replace the existing Park Avenue Bridge with a New Ballasted Deck Through-Girder design.

■

5.5.2 Royal River Bridge

Four alternatives were considered in the life cycle cost analyses for the Royal River Bridge:

- Alternative 1 – Minor Rehabilitation
- Alternative 2 – Bridge Replacement with a Painted Bridge
- Alternative 3 – Major Bridge Rehabilitation
- Alternative 4 – Weathering Steel Bridge Replacement

Alternative 1 would rehabilitate the bridge by replacing existing bridge stringers and associated diagonal bracing with new steel, thus enabling the bridge to carry present day Cooper E-80 train loads. The rehabilitation would also include repair of the south abutment. The total initial rehabilitation cost for Alternative 1 was estimated to be $1,435,000, and the 75-year life-cycle cost was estimated to be $1,756,203.

Alternative 2 would replace the existing bridge with a new open deck through-girder bridge and also include repair of the south abutment. The initial cost for this alternative was estimated to be $1,585,000, and the 75-year life cycle was estimated to be $1,821,582.

Alternative 3, Major Bridge Rehabilitation, was developed to avoid costly future repair costs caused by the deterioration that is expected to occur with an aging truss bridge. This Alternative would replace portions of the bridge that are most susceptible to deterioration as part of the initial rehabilitation work, even though such work is not structurally necessary at this time. Experience has shown that the floor system (*i.e.*, stringers, floorbeams, diagonal bracing and connections) is the most susceptible to significant deterioration. Therefore, this Alternative includes replacement of the entire floor system. The initial cost for this Alternative is estimated at $1,832,000 and the 75-year life cycle cost is $2,053,374.

Alternative 4, Replacement with a Weathering Steel Bridge, was developed as an alternative to determine whether the use of weathering steel, which does not require ongoing maintenance painting, would have a

τ

[25] The life cycle cost analysis for the Park Avenue Bridge is presented in the *Revised Supplemental Report for Bridge Rehabilitation/Replacement of the Royal River and Park Avenue Bridges*, dated December 11, 2003, prepared by HNTB. The report is contained in Appendix A.

lower life cycle cost than Alternative 2 which would require maintenance painting over the course of its life. The analysis found that Alternative 4 would have an initial construction cost of $1,193,000 and a 75-year life cycle cost of $1,394,408.

Based upon the life cycle cost analyses for the four Alternatives, MaineDOT has determined that Alternative 4, Replacement with a Weathering Steel Bridge, is the most cost-effective, and that it would not be prudent to select any of the other three Alternatives. Alternative 4 has a 75-year life cycle cost approximately $362,000 less than the next least costly alternative, which is Alternative 3 (Major Rehabilitation). Alternative 4 has a 75-year life cycle cost approximately $427,000 less than a bridge replacement with a painted bridge (i.e., Alternative 2).[26]

5.6 Measures to Minimize Harm

MaineDOT has found that the most prudent and feasible alternative for both the Park Avenue Bridge and the Royal River Bridge is to replace them with new, modern design bridge structures. Both replacements would result in an Adverse Effect under Section 106 of the National Historic Preservation Act (NHPA). MaineDOT proposes to mitigate the impacts of the bridge replacements by performing Maine Level, Historic American Engineering Level Recordation of the bridges. MaineDOT has requested concurrence from MHPC regarding the Finding of an Adverse Effect and the proposed mitigation.

5.7 Coordination

MaineDOT has coordinated extensively with the MHPC throughout the analysis of alternatives for the Park Avenue and Royal River Bridges. The following presents a brief chronology of the coordination efforts that have occurred.

May 27, 2003 - representatives from MaineDOT, the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA) held a teleconference with MHPC to discuss the project, impacts to the two bridges, and alternatives for their rehabilitation or replacement. It was determined that a Section 4(f) analysis would be required for inclusion in the Environmental Assessment.

August 15, 2003 - MaineDOT submitted draft bridge rehabilitation / replacement recommendations for the Park Avenue and Royal River Bridges to MHPC.

November 21, 2003 – Representatives from MaineDOT, FHWA, and FTA met with MHPC to discuss the alternatives analyses that had been done for the Park Avenue and Royal River Bridges. It was determined that there were no prudent and feasible alternatives to replacement of the bridges and no viable avoidance alternatives.

January 14, 2004 – MaineDOT submitted two reports: *Revised Supplemental Report for Bridge Rehabilitation/Replacement of the Royal River and Park Avenue Bridges*, dated December 11, 2003, prepared by

τ

[26] The life cycle cost analysis for the Royal River Bridge is presented in the *Supplemental Study for Major Bridge Rehabilitation/Replacement LCCA for the Royal River*, dated December 12, 2003, prepared by HNTB, and *Major Bridge Rehabilitation/Weathering Steel Replacement Life-Cycle Cost Analysis for the Royal River Bridge*, dated April 20, 2004, prepared by HNTB. Both reports are contained in Appendix A.

HNTB; and *Supplemental Study for Major Bridge Rehabilitation/Replacement LCCA for the Royal River*, dated December 12, 2003, prepared by HNTB to MHPC for their review.

February 12, 2004 – Representatives from MaineDOT met with MHPC to discuss the above reports and discussed whether alternatives would result in adverse effect findings.

September 22, 2004 - Representatives from MaineDOT met with MHPC to discuss the findings in the *Major Bridge Rehabilitation/Weathering Steel Replacement Life-Cycle Cost Analysis for the Royal River Bridge*, dated April 20, 2004, prepared by HNTB. It was determined that Alternative 4, the Preferred Alternative for the Royal River Bridge would require an Adverse Effect in accordance with Section 106 of the NHPA.

October 4, 2004, MaineDOT requested concurrence from MHPC on a Finding of Adverse Effect and proposed Maine Level, Historic American Engineering Level Recordation as mitigation for the replacement of the Royal River Bridge.

Draft November, 2004

6

Coordination and Consultation

6.1 Federal, State, and Local Agency Coordination

NEPA regulations require the solicitation of views of other state and federal agencies during the preparation of an Environmental Assessment. The agency proposing the action is also required to provide continuing opportunities for the public to be involved in the identification of social, economic, and environmental impacts. This chapter summarizes the coordination with regulatory and other governmental agencies.

■

6.1.1 Scoping

The FHWA and MaineDOT have solicited the input of other state and federal agencies through interagency meetings and correspondence.

■

6.1.2 Interagency Coordination

The Study Team coordinated with federal, state, and local agencies to obtain information on environmental conditions, review potential impacts, and obtain agency input. These agencies included the Maine Department of Inland Fisheries and Wildlife (MDIF&W), the Maine Department of Conservation (MDOC), the Maine Department of Marine Resources (MDMR), U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Maine Historic Preservation Commission (MHPC),and the Maine State Planning Office (MSPO), and the Portland Public Housing Authority. Copies of responses received from these agencies are presented in Appendix A of the *Environmental Technical Analysis.*

MaineDOT also presented information about the study at its Interagency Coordination Meetings held March 11, and May 14, 2002. At these meetings, MaineDOT reviewed the Purpose and Need for the project and discussed alternatives for the Preferred Corridor. Issued discussed included the regulatory status of wetlands along the Preferred Corridor and the need for a cultural resource survey of the culverts and bridges.

On February 12, 2004, Representatives from MaineDOT met with MHPC to discuss the life cycle cost analyses for the Park Avenue Bridge in Portland and the Royal River Bridge in Yarmouth and whether alternatives for rehabilitation / replacement of the bridges would result in adverse effect findings.

6.2 Public Involvement

■

6.2.1 Public Information Meetings

Public information meetings were held at 7:00 P.M. on April 23, 2002 at the King Middle School in Portland and at 7:00 P.M. on April 25, 2002 at the Old High School in Brunswick. These meetings provided the public an opportunity to comment on a preliminary draft Purpose and Need Statement developed for the study and to provide input about the scope of the Environmental Assessment.

At these meetings a number of issues were identified, in particular the Union Branch alignment and its potential impact to the Bayside Community in Portland. The relocation of the Union Branch along the I-295 corridor is proposed as part of the Preferred Alternative. The Relocated Union Branch alignment would provide service to the Bayside Community while avoiding direct impacts to the neighborhood. The minutes from these meetings are included in Appendix B of the *Environmental Technical Analysis.*

Once this EA is published, a public hearing will be held.

■

6.2.2 Coordination with Communities and Organizations

MaineDOT has coordinated with the local communities and local organizations throughout the study to obtain information on existing conditions as well as transportation needs. In addition, each of the six cities and towns within the Preferred Corridor were contacted during the preparation of this document to request information about zoning and land use in the vicinity of the Preferred Alternative.

Draft November, 2004

7

Preparers

Federal Highway Administration

Mark Hasselmann

Mr. Hasselmann is the Right-of-Way and Environment Program Manager for the Maine Division of FHWA and has over 15 years professional experience. Mr. Hasselmann provided the study team procedural guidance and technical advice to assure compliance of the environmental analysis with federal requirements. He has a B.S. in Environmental Science.

Federal Transit Administration

Peter Butler reviewed the EA for the FTA to ensure the document's compliance with FTA regulations.

Maine Department of Transportation

Raymond Faucher, P.E.

Mr. Faucher is the Manager of the Biennial Transportation Improvement Program (BTIP) and Major Projects Unit in the MaineDOT's Planning Division and has extensive experience in managing NEPA studies throughout the State of Maine for the MaineDOT. Mr. Faucher served as a NEPA advisor and reviewer for the Portland North Passenger Rail Service Extension Project. He received an A.A.S. in Civil Engineering from the University of Maine and is a registered Professional Engineer in the State of Maine.

Judith Lindsey-Foster

Ms. Lindsey-Foster is an Environmental Planner and Community Impact Assessment specialist within the MaineDOT's Planning Division, BTIP and Major Projects Unit. Ms. Lindsey-Foster is the Environmental Assessment Project Manager and was responsible for managing and coordinating the consultant and project activities for the Portland North Passenger Rail Service Extension Project. Ms. Lindsey-Foster has been with MaineDOT for 24 years. She received a B.S. in Environmental Planning from Unity College.

Andrew MacDonald, P.E.

Mr. MacDonald is a Project Manager in the Multimodal Program in the Bureau of Project Development and has provided management oversight of the preliminary design in support of the EA. Mr. MacDonald has been with the MaineDOT for 19 years. Mr. MacDonald has a B.S. in Civil Engineering and is a registered Professional Engineer in the State of Maine.

William Pulver, P.E.

Mr. Pulver is the Assistant Program Manager of the Bridge Program in the Bureau of Project Development. Mr. Pulver participated in the early alternative discussions and impact analysis with the City of Portland and has provided project management assistance. Mr. Pulver has been with the MaineDOT for 18 years and is a registered Professional Engineer in the State of Maine.

Russell Spinney, P.E.

Mr. Spinney is the Program Manager of the Multimodal Program in the Bureau of Project Development. Mr. Spinney has provided management oversight and liaison with the City of Portland. Mr. Spinney has been with the MaineDOT for 38 years and is a registered Professional Engineer in the State of Maine. He has a B.S. in Civil and Sanitary Engineering.

Richard Bostwick

Mr. Bostwick is Supervisor of Field Studies for MDOT. He has 19 years of experience in the review of transportation-related environmental and NEPA documents. Mr. Bostwick has a B.S. in Biology from Mount Allison University. Mr. Bostwick reviewed the Natural Resources sections of this Environmental Assessment.

Anna Price

Ms. Price is a Transportation Planning Analyst in the Bureau of Planning. Ms. Price's area of expertise is air quality and noise analysis. Ms. Price is an environmental professional with a background in land use planning, air quality and noise analysis. She has experience with project management and the coordination of a variety of CEQA and NEPA documents, including Environmental Impact Reports, Environmental Impact Statements, Initial Studies, and Environmental Assessments. She has a B.S in Environmental Policy Analysis and Planning from the University of California, Davis.

Tracy C. Perez

Tracy C. Perez is a Policy Specialist for the MaineDOT's Office of Passenger Transportation where she is project manager for numerous rail, marine, and intermodal projects. Prior to joining OPT in 1996, Ms. Perez was the public transportation planner for the Bureau of Planning. Previous work experience includes serving as the Executive Director fro the Maine Transit Association, transit planner for the Great Portland Council of Governments and Land Use Planner with the Office of Comprehensive Planning, Department of Economic and Community Development.

Ronald Roy

Mr. Ronald Roy is the director of the MaineDOT's Office of Passenger Transportation. Mr. Roy is responsible for reviewing the rail operation aspects of the proposed project.

Vanasse, Hangen, Brustlin, Inc.

David Hewett

Mr. Hewett is a Project Manager in VHB's Environmental Division. Mr. Hewett was responsible for overall coordination of the document. Mr. Hewett has over 16 years of experience in environmental regulation and permitting. Mr. Hewett received a Bachelor of Arts degree in Biology from Middlebury College in Vermont.

Delia Kaye

Ms. Kaye is a Senior Environmental Scientist with over 14 years of experience with wetlands and wildlife technical evaluations, and over 6 years of experience with environmental regulations and permitting projects for public infrastructure projects. She was responsible for the natural environment and environmental consequences and mitigation sections of this document. Ms. Kaye received a B.S. degree in wildlife biology from the University of Vermont.

Susan Nichols

Ms. Nichols is an Environmental Scientist with over four years of experience working with environmental regulations and permitting projects for both large-scale private projects and public infrastructure projects. She assisted in the overall preparation of the EA. Ms. Nichols received a B.A. degree in Biology from Connecticut College.

Robert Swierk, AICP

Mr. Swierk, a Transportation Planner in VHB's Transit and Rail Services Practice, has 3 years of experience in transit planning, transit operations, and intermodal planning, with an emphasis on intercity rail and commuter rail projects. Mr. Swierk received a Bachelor of Science degree in Geological & Environmental Sciences from Stanford University, and Masters Degrees in City Planning and Transportation Engineering from the University of California at Berkeley.

Joseph Wanat, P.E.

Mr. Wanat is a Transportation Engineer with a range of experience in traffic impact studies and corridor studies. He was responsible for the transportation analysis for this document. Mr. Wanat received a Bachelor of Science in Civil and Environmental Engineering from the University of Massachusetts-Amherst and a Master of Science in Civil and Environmental Engineering from the University of California-Berkeley.

Thomas Wholley

Mr. Wholley is a Senior Air and Noise Quality Engineer. He was responsible for the preparation of air quality and noise analysis for this document. Mr. Wholley received a Bachelor of Science degree in Civil Engineering from the University of Massachusetts Lowell.

David Wilcock, P.E.

Mr. Wilcock, Manager of Planning and Operations for VHB's Transit and Rail Services practice, has 19 years of experience in the project development, planning, operational analysis, design, and implementation of transit and rail projects. He has played critical roles in the development of NEPA documentation for a variety of major transportation projects developed under FTA and FHWA leads. Mr. Wilcock received a Bachelor of Science in Civil Engineering degree from Northeastern University in Boston.

K.M. Chng Environmental, Inc.

Richard M. Letty

Mr. Letty is a Senior Consultant specializing in noise and vibrations analysis. Mr. Letty has participated in noise and vibration monitoring and analyses programs in support of EAs, EISs, and the PE process for numerous transportation projects throughout the country. Mr. Letty was responsible for the Vibrations section of this document. Mr. Letty received a Bachelor of Science degree in Engineering Physics from Merrimack College, a Master of Science degree in Aeronautics from Massachusetts Institute of Technology, and a Master of Business Administration degree from Northeastern University.

Draft November, 2004

8

Recipients

8.1 Federal Agencies

U.S. Department of Agriculture
U.S. Department of the Army Corps of Engineers – Maine Project Office
U.S. Fish and Wildlife Service
Natural Resource Conservation Service
U.S. Environmental Protection Agency
National Marine Fisheries Service
U.S. Coast Guard

8.2 State Agencies

Maine Department of Conservation
Maine Department of Community and Economic Development
Maine Department of Environmental Protection
Maine Department of Inland Fisheries and Wildlife
Maine Historic Preservation Commission
Maine Natural Areas Program
Maine State Planning Office

8.3 Elected Officials

U.S. Senator Olympia Snowe
U.S. Senator Susan Collins
U.S. Representative Thomas H. Allen
U.S. Representative Michael Michaud
City of Portland Councilman Mr. Nathan Smith
Town of Brunswick Selectwoman Ms. Nancy Randolph

8.4 Regional Agencies

Portland Trails, David Littell, President
TrainRiders / Northeast, Mr. Bruce Sleeper, Esq.
Northern New England Passenger Rail Association, John Englert, Executive Director
Portland Area Comprehensive Transportation Committee, John Duncan
Greater Portland Council of Government, David Willauer

8.5 Local Communities

City of Portland, Mr. Joseph Gray, City Manager
Town of Falmouth, Mr. John Harris, Town Manager
Town of Cumberland, William Shane, Town Manager
Town of Yarmouth, Nathaniel J. Tupper, Town Manager
Town of Freeport, Dale C. Olmstead, Jr., Town Manager
Town of Brunswick, Donald H. Gerrish, Town Manager
Cumberland County Jail, Mr. Jeffrey Newton, Administrator
Portland Department of Public Works, Director
Portland Department of Transportation, Mr. Lou Ensel

8.6 Other Interested Parties

Bayside Redevelopment Committee
Bayside Neighborhood Association, Sandy Elder, President
Brunswick League of Women Voters
Guilford Rail System, Mr. David Fink, Executive Vice President
St. Lawrence & Atlantic Railroad
Mr. Richard Nemro, Citizen of Brunswick

Draft November, 2004