



Aroostook County

Transportation Study

Aroostook County, Maine



Federal Highway Administration



Maine Department of Transportation

January 2013

Volume 1 of 2

**AROOSTOOK COUNTY TRANSPORTATION STUDY
PRESQUE ISLE BYPASS
PRESQUE ISLE, AROOSTOOK COUNTY, MAINE**

Final Environmental Impact Statement

Submitted Pursuant to 42 U.S.C. § 4332 (2)(c)

by the

U.S. Department of Transportation, Federal Highway Administration

and the

Maine Department of Transportation

Cooperating/Coordinating Agencies

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

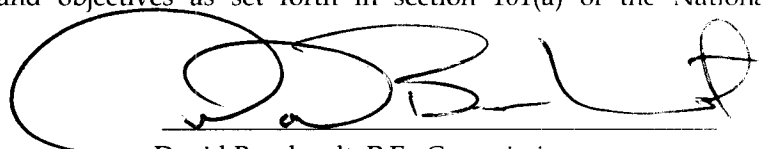
Maine Department of Environmental Protection

Abstract: This statement concerns the potential environmental impacts associated with the Proposed Action identified for the Tier 2 Presque Isle Bypass proposed primarily in Presque Isle, Maine. This is the second Tier 2 FEIS completed for the Tier I Aroostook County Transportation Study, the first one being the Route 1-161 Connector in Caribou. The purpose of the overall Tier I ACTS was to evaluate transportation alternatives that would improve the region's economy by improving transportation mobility. The purpose for the Presque Isle Bypass is to enhance regional transportation by improving traffic mobility in Presque Isle. This FEIS evaluates eleven alignment options and a Route 1 Upgrade/Transportation Systems Management Alternative for impacts to cultural and natural resources, socioeconomic concerns, visual and scenic resources, hazardous materials, existing land use, and local/regional transportation needs. The Preferred Alternative, Alignment Option 7, is a refinement of SDEIS Alignment Option 2 and the Tier 1 FEIS Alignment Option 7. The Preferred Alternative would be a new 2-lane controlled access highway extending northeast from Route 1 immediately north of Cambridge Road in Westfield, continuing north for 7.3 miles, crossing the Aroostook River, and reconnecting to Route 1 immediately south of Brewer Road. The total length of the proposed Presque Isle Bypass is 9.8 miles, of which 0.6 miles is in Westfield. Implementation of the proposed project would provide transportation improvements to improve travel times and mobility and decrease the volume of through trucks in downtown Presque Isle, while at the same time minimizing environmental and community impacts. Sufficient right-of-way would be acquired to allow the Presque Isle Bypass to be widened to four lanes in the future. The Preferred Alternative will result in the loss of approximately 22.0 acres of wetlands which will be mitigated through an appropriate mitigation package consisting of a combination of wetland and upland preservation and wetland restoration. The Preferred Alternative will not involve the use of lands subject to Section 4(f) of the DOT Act.

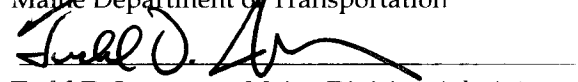
After careful and thorough consideration of the facts contained herein and following consideration of the views of those Federal agencies having jurisdiction by law or special expertise with respect to the environmental impacts described, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in section 101(a) of the National Environmental Policy Act of 1969.

1/15/13
Date of Approval

1/22/2013
Date of Approval



David Bernhardt, P.E., Commissioner
Maine Department of Transportation



Todd D. Jorgensen, Maine Division Administrator
Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

Mark Hasselmann,
Federal Highway Administration
Room 614, Federal Building
40 Western Avenue
Augusta ME 04330
207-512-4913

Russell Charette, P.E.
Maine Department of Transportation
State House Station 16
Augusta ME 04333-0016
207-624-3300



Aroostook County

Transportation Study

Aroostook County, Maine



Federal Highway Administration



Maine Department of Transportation

January 2013

Volume 1 of 2

Contents

TERMS

ACRONYMS AND ABBREVIATIONS

SUMMARY

1.0	INTRODUCTION.....	1-1
1.1	INTRODUCTION.....	1-1
	1.1.1 ACTS DEIS	1-2
	1.1.2 ACTS SDEIS.....	1-2
	1.1.3 ACTS SDEIS Re-evaluation.....	1-3
	1.1.4 ACTS FEIS.....	1-3
1.2	PURPOSE AND NEED	1-4
1.3	SCOPE OF THE FEIS	1-4
	1.3.1 Comments on the SDEIS/Tier I FEIS.....	1-5
	1.3.2 Relevant Issues for the FEIS.....	1-6
1.4	FEDERAL AND STATE DECISIONS AND ACTIONS.....	1-6
1.5	REGULATORY COORDINATION.....	1-7
1.6	APPLICABLE REGULATIONS AND PERMITS	1-8
	1.6.1 Applicable Regulations.....	1-8
	1.6.2 Required Permits.....	1-9
	1.6.3 Conceptual Cost Estimate.....	1-10
1.7	OVERVIEW OF FEIS	1-10
2.0	TIER 2 PROPOSED ACTION	2-1
2.1	INTRODUCTION.....	2-1
	2.1.1 Purpose and Need	2-1
	2.1.2 U.S. Army Corps of Engineers Basic Project Purpose.....	2-2
	2.1.3 Segment 7 Reference Area and Study Area	2-2
	2.1.4 Presque Isle Roadway and Highway Characteristics.....	2-3
2.2	ALTERNATIVES EVALUATED	2-4
	2.2.1 Alternatives Not Carried Forward.....	2-5
	2.2.2 FEIS Alternatives	2-16
2.3	IDENTIFICATION OF THE PREFERRED ALTERNATIVE.....	2-20
	2.3.1 Transportation Benefit Analysis.....	2-20
	2.3.2 Environmental Impact Summary	2-21
	2.3.3 Preferred Alternative	2-23

3.0	AFFECTED ENVIRONMENT	3-1
3.1	INTRODUCTION.....	3-1
3.2	TRANSPORTATION ENVIRONMENT	3-4
	3.2.1 The Transportation System.....	3-4
	3.2.2 Existing Traffic Conditions.....	3-5
	3.2.3 Geometric and Safety Deficiencies.....	3-5
	3.2.4 System Continuity and Mobility.....	3-6
	3.2.5 Existing Bus Service.....	3-7
3.3	LAND USE, ECONOMIC, SOCIAL, AND CULTURAL ENVIRONMENT.....	3-7
	3.3.1 Land Use.....	3-8
	3.3.2 Farmed Land and Farmland Soils.....	3-9
	3.3.3 Social and Economic Environment.....	3-13
	3.3.4 Minority and Low Income Populations.....	3-22
	3.3.5 Uncontrolled Petroleum and Hazardous Materials.....	3-26
	3.3.6 Cultural Resources.....	3-29
	3.3.7 Public Parks, Recreation Areas, Wildlife Refuges, Trails, and Publicly-Used Facilities.....	3-35
3.4	PHYSICAL AND BIOLOGICAL ENVIRONMENT.....	3-37
	3.4.1 Forests.....	3-38
	3.4.2 Aquatic Resources and Wetlands.....	3-38
	3.4.3 Wildlife Habitat, Significant Wildlife Habitat, and Essential Fish Habitat.....	3-45
	3.4.4 Endangered, Threatened, and Species of Special Concern.....	3-54
3.5	ATMOSPHERIC ENVIRONMENT.....	3-56
	3.5.1 Air Quality.....	3-56
	3.5.2 Noise Environment.....	3-61
4.0	ENVIRONMENTAL CONSEQUENCES AND MITIGATION	4-1
4.1	INTRODUCTION.....	4-1
4.2	TRANSPORTATION ENVIRONMENT	4-2
	4.2.1 Evaluation Criteria.....	4-2
	4.2.2 Projected Transportation Impacts.....	4-4
4.3	LAND USE, ECONOMIC, SOCIAL, AND CULTURAL ENVIRONMENT.....	4-9
	4.3.1 Land Use.....	4-10
	4.3.2 Farmed land and Farmland Soils.....	4-14
	4.3.3 Social and Economic Impacts.....	4-17
	4.3.4 Impacts on Minority and Low Income Populations.....	4-25
	4.3.5 Uncontrolled Petroleum and Hazardous Materials.....	4-26
	4.3.6 Cultural Resources.....	4-27
	4.3.7 Public Parks, Recreation Areas, Wildlife Refuges, Trails and Publicly-Used Facilities.....	4-31
	4.3.8 Section 4(f) Properties.....	4-32
4.4	PHYSICAL AND BIOLOGICAL ENVIRONMENT.....	4-34
	4.4.1 Forests.....	4-34
	4.4.2 Aquatic Resources and Wetlands.....	4-36
	4.4.3 Wildlife Habitat, Significant Wildlife Habitat, and Essential Fish Habitat.....	4-62
	4.4.4 Endangered, Threatened, and Species of Special Concern.....	4-68
4.5	ATMOSPHERIC ENVIRONMENT.....	4-69
	4.5.1 Air Quality.....	4-69

4.5.2	Noise Environment	4-75
4.6	CONSTRUCTION IMPACTS AND MITIGATION	4-80
4.6.1	Water Quality and Wetlands.....	4-80
4.6.2	Wildlife.....	4-80
4.6.3	Air Quality.....	4-81
4.6.4	Noise Impacts.....	4-81
4.6.5	Traffic Management and Control.....	4-81
4.6.6	Utilities.....	4-81
4.7	INDIRECT AND CUMULATIVE IMPACTS.....	4-82
4.7.1	Indirect Impacts	4-83
4.7.2	Cumulative Impacts.....	4-85
4.7.3	Summary of Cumulative Impacts	4-98
4.8	SUMMARY OF STUDY COMMITMENTS.....	4-99
4.8.1	Farmed Lands	4-100
4.8.2	Cultural Resources (Historical and Archaeological)	4-100
4.8.3	Public Parks, Recreation Areas, Wildlife Refuges, Trails, and Publicly-Used Facilities.....	4-100
4.8.4	Surface and Groundwater Quality	4-100
4.8.5	Aquatic Habitats	4-101
4.8.6	Wetlands	4-102
4.8.7	Wildlife and Fisheries	4-103
4.8.8	Air Quality.....	4-104
4.8.9	Noise	4-104
4.8.10	Utilities.....	4-104
4.9	SUMMARY OF IMPACTS.....	4-104
4.10	RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	4-105
4.11	ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION	4-106
5.0	RESPONSE TO COMMENTS	5-1
5.1	INTRODUCTION.....	5-1
5.2	PURPOSE AND NEED	5-2
5.3	ALTERNATIVES.....	5-3
5.4	AQUATIC RESOURCES	5-4
5.5	SOCIAL AND ECONOMIC ENVIRONMENT	5-6
5.6	UTILITIES	5-7
5.7	OTHER ISSUES.....	5-8
6.0	COORDINATION AND CONSULTATION	6-1
6.1	FEDERAL, STATE, AND LOCAL AGENCY CONSULTATION	6-1
6.2	PUBLIC INVOLVEMENT	6-3
6.3	COORDINATION WITH LOCAL COMMUNITIES AND ORGANIZATIONS	6-3
6.4	STUDY WEB SITE.....	6-4
7.0	PREPARERS.....	7-1
7.1	FEDERAL HIGHWAY ADMINISTRATION	7-1
7.2	MAINE DEPARTMENT OF TRANSPORTATION	7-1
7.3	VANASSE HANGEN BRUSTLIN, INC.....	7-4
7.4	RKG ASSOCIATES	7-6

7.5	BARTON AND GINGOLD	7-6
80	CIRCULATION LIST	8-1
8.1	FEDERAL AGENCIES	8-1
8.2	STATE AGENCIES	8-1
8.3	ELECTED OFFICIALS	8-2
8.4	SOVEREIGN NATIONS	8-2
8.5	REGIONAL AGENCIES	8-2
8.6	LOCAL COMMUNITIES	8-2
8.7	PAC MEMBERS.....	8-3
8.8	OTHER INTERESTED PARTIES	8-4
8.9	MEMBERS OF THE PUBLIC.....	8-4
9.0	REFERENCES.....	9-1
10.0	INDEX.....	10-1
 APPENDIX A – RECORD OF DECISION - ACTS TIER 1 FEIS*		
 APPENDIX B – AGENCY CORRESPONDENCE*		
 APPENDIX C –ACTS SDEIS AND FEIS COMMENT LETTERS*		
 APPENDIX D – ACTS SDEIS RE-EVALUATION*		
 APPENDIX E – NOISE AND TRAFFIC APPENDIX*		
 VOLUME 2–FIGURES		

*Appendices can be found on the CD inside the back cover of Volume 1 of this FEIS. Parties interested in obtaining a hard copy of these appendices can contact Russell D. Charette, Project Manager at MaineDOT at (207) 624-3238.

Tables

Table #	Title	Page
S-1	Key Environmental Impacts – Presque Isle Bypass	S-8
S-2	Required Permits and Approvals	S-13
S-3	Conceptual Cost Estimate for the Presque Isle Bypass Alignment Options	S-13
1-1	Required Permits and Approvals	1-10
1-2	Conceptual Cost Estimate for the Presque Isle Bypass Alignment Options	1-10
2-1	Alternative and Alignment Options Evaluated and Reasons for Not Carrying Forward/Not Being Identified as the Preferred Alternative.....	2-15
2-2	No-Action Alternative: Six-Year Plan Projects within the Presque Isle Area	2-17
2-3	Summary of Transportation Benefits vs. No-Action Alternative (2035).....	2-25
2-4	Comparison of Physical Features and Key Environmental Impacts	2-25
3-1	AADT Summary	3-5
3-2	Prime Farmland Soils and Farmland of Statewide Importance within the Reference Area	3-12
3-3	Population Trends and Projections: 1990-2010	3-14
3-4	Population Change by Age: 1990-2010	3-14
3-5	Labor Force, Employment, and Unemployment Rate Trends	3-15
3-6	Business Establishment Trends: 2001-2009	3-16
3-7	Median Household Income Trends: 2000-2010.....	3-17
3-8	Housing Unit Trends: 1990-2010	3-17
3-9	Total Municipal Expenditures: 2010	3-18
3-10	Total Municipal Revenues: 2010.....	3-18
3-11	Municipal Property Tax Base: 2010.....	3-19
3-12	Top Ten Major Employers- Aroostook County: 2012.....	3-19
3-13	Household Income Distribution, Presque Isle.....	3-23
3-14	Presque Isle Racial Composition Trends: 2000-2010.....	3-24
3-15	Participation in TANF and Food Stamp Programs	3-25
3-16	Subsidized Housing Units in Presque Isle LMA and Aroostook County: 2009	3-26
3-17	Known Spills within One-Half Mile of the Presque Isle Bypass Alignment Options.....	3-29
3-18	Historic Properties within the Area of Potential Effects (APE) for the Presque Isle Bypass.....	3-34
3-19	Public Recreational Facilities	3-37

Table #	Title	Page
3-20	Watersheds Designated as “At-Risk” by Maine Stormwater Management Law and Non-Point Source Pollution Priorities in the Presque Isle Bypass Reference Area.....	3-40
3-21	National Ambient Air Quality Standards.....	3-59
3-22	Typical Sound Levels	3-62
4-1	Projected Demands Vs. No-Action Alternative (2035).....	4-5
4-2	Summary of Transportation Benefits vs. No-Action Alternative (2035).....	4-6
4-3	Impacts to Land (Acres)	4-11
4-4	Impacts to Structures (Buildings)	4-12
4-5	Impacts to Farmed Land and Agricultural Soils (Acres).....	4-15
4-6	Total Estimated Land and Structure Acquisition Values and Economic Impacts.	4-19
4-7	Forest Impacts by Forest Type (Acres).....	4-35
4-8	Potential Impacts to Streams (Number of New Crossings).....	4-41
4-9	Wetland Impacts by Wetland Type (Acres).....	4-44
4-10	Functions and Values of Affected Wetlands	4-50
4-11	Wetland Impacts by Wetland and Alignment Option.....	4-51
4-12	Wetland Impact Minimization.....	4-52
4-13	USACE Recommended Compensatory Mitigation – Proposed Action (Alignment Option 7).....	4-54
4-14	Potential Wetland Mitigation Sites	4-59
4-15	Carbon Monoxide (CO) Microscale Results (2035)	4-70
4-16	Particulate Matter (PM10) Microscale Results.....	4-71
4-17	Mesoscale Analysis Results, Presque Isle Bypass.....	4-73
4-18	Noise Abatement Criteria (NAC) One-Hour, A-Weighted Sound Levels In Decibels (dBA)	4-76
4-19	Noise Receptor Impacts.....	4-78
4-20	Noise Receptor Mitigation Analysis	4-79
4-21	Typical Construction Equipment Noise Emissions.....	4-82
4-22	Past and Foreseeable Future Actions and Trends.....	4-89
4-23	Cumulative Impacts to Land (Acres)	4-92
4-24	Cumulative Impacts to Perennial Streams (Number of New Crossings)	4-96
4-25	Cumulative Wetland Impacts (Acres).....	4-97
4-26	Summary of Cumulative Impacts.....	4-99
4-27	Summary of Transportation Benefits Vs. No-Action Alternative (2035).....	4-107
4-28	Comparison of Physical Features and Key Environmental Impacts	4-107

Figures

Figure #	Title
S-1	Presque Isle Bypass Alignment Options
S-2 a-f	Detailed View of Presque Isle Bypass Alignment Option 7
1-1	ACTS Study Area
1-2	Tier 1 FEIS Corridors
2-1	Presque Isle Reference Area and Study Area
2-2	Presque Isle Downtown Street Network
2-3	Presque Isle Bypass Alignment Options
2-4 a-i	Detailed View of Presque Isle Bypass Tier 2 FEIS Alternatives
2-5	Preferred Alternative – Presque Isle Bypass
2-6 *	Ranking of Transportation Benefits
3-1	High Crash Locations
3-2	Key Social and Cultural Constraints
3-3	Forested Land
3-4a	Farmed Land
3-4b	Farmland Soils
3-5	Snowmobile and Pedestrian Trails
3-6	Registered Underground Storage Tanks and Known Spills
3-7	Known Historic Sites and Prehistoric and Historic Archaeological Sites
3-8	Archaeologically Sensitive Areas
3-9	Wetlands and Water Resources
3-10	Wetland Areas
3-11	Fisheries, Wildlife, and Rare Species
3-12	Canada Lynx Critical Habitat
4-1	Traffic Demand (2035)
4-2	Key Social and Cultural Resources Superimposed over FEIS Alignment Options
4-3	Forested Land Superimposed over FEIS Alignment Options
4-4a	Farmed land Superimposed over FEIS Alignment Options
4-4b	Farmland Soils Superimposed over FEIS Alignment Options
4-5a-d	Structures Potentially Affected By Tier 2 FEIS Alignment Options
4-6	Registered Underground Storage Tanks and Known Spills Superimposed over FEIS Alignment Options
4-7a-d	Section 4(f) Properties Superimposed over FEIS Alignment Options
4-8	Known Prehistoric or Historic Archaeological Sites Superimposed over FEIS Alignment Options
4-9	Archaeologically Sensitive Areas Superimposed over FEIS Alignment Options

Figure #	Title
4-10	Wetlands and Water Resources Superimposed over FEIS Alignment Options
4-11a-i	Detailed View of Potential Wetlands Superimposed over FEIS Alignment Options
4-12a	Potential Wetland Mitigation Parcels, Presque Isle
4-12b	Potential Wetland Mitigation Parcel, Drew Plantation
4-13	Fisheries, Wildlife, and Rare Species Superimposed over FEIS Alignment Options
4-14*	Mobile Source Air Toxics Emissions

*Figures 2-6 and 4-14 can be found in this volume (Volume 1). All other figures can be found in Volume 2 of this FEIS.

Terms

100-Year Floodplain – The portion of the floodplain submerged by the statistical flood event with a 1-percent probability of occurring in any year.

Advisory Council on Historic Preservation (ACHP) – The major policy advisor to the Federal government in the field of historic preservation. The 20 members of the Council are appointed by the President and include the Secretary of Agriculture, the Secretary of the Interior, the Architect of the Capitol, the chairman of the National Trust for Historic Preservation, and the president of the National Conference of State Historic Preservation Officers.

Annual Average Daily Traffic (AADT) – The total yearly traffic volume on a given highway segment divided by the number of days in the year. AADT is expressed in vehicles per day (vpd).

Aquifer – Rock or sediment that is saturated with water and sufficiently permeable to transmit economically significant quantities of water to wells and springs.

Archaeological Resources – Materials and objects that remain below the ground surface as evidence of the life and culture of historic, prehistoric, or ancient people, such as artifacts, structures, or settlements. Resources of concern are located in areas known or suspected to contain subsurface artifacts of pre-European or post-European settlement populations. Areas of expected moderate to high archaeological sensitivity according to various factors including present and past topography, exposure, slope, distance to water, and availability of food.

Archaeologically Sensitive Areas – Archaeologically sensitive areas contain one or more variables that make them likely locations for evidence for past human activities.

Area of Potential Effect (APE) – According to 36 CFR 800.16(d), the Area of Potential Effect is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The Area of Potential Effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Army Corps of Engineers (USACE) – A federal agency that administers Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act; its regulatory programs address wetlands and waterways protection.

Arterials – Roads with high traffic volumes that provide linkage between major cities and towns and developed areas, capable of attracting travel over long distances. Basically, they provide service to interstate and intercounty travel demand. The arterial system typically provides for high travel speeds and the longest trip movements. The degree of access control on an arterial may range from full control (freeways) to entrance control on, for example, an urban arterial through a densely developed commercial area.

At-Grade –The intersection of two roads, or a road and a railway, that cross at the same elevation.

At-Risk Watershed – Watersheds contributing to waterbodies that are at risk of eutrophication due to new development and phosphorus-laden runoff. These waterbodies include public drinking water supplies and waters that currently exhibit algal blooms or other signs of eutrophication. At-risk watersheds are defined according to criteria in Maine’s Stormwater Law (5 M.R.S.A. § 3331).

Attainment Area – A geographic area in which levels of a criteria air pollutant meet the health-based primary standard (National Ambient Air Quality Standard) for the pollutant. Attainment areas are defined using federal pollutant limits set by the U.S. Environmental Protection Agency (EPA).

Best Management Practice (BMP) – A structural and/or management practice employed before, during and after construction to protect receiving water quality. These practices either provide techniques to reduce soil erosion or remove sediment and pollutants from surface runoff.

Biodiversity –The diversity of genes, species, and ecosystems. This term includes the entire hierarchy of ecological organization, and encompasses regional ecosystem diversity (landscape diversity), local ecosystem diversity (community diversity), species diversity, and genetic diversity within populations of a species.

Boreal Forest – Boreal forests, which extend in large bands across North America and Eurasia, are dominated by coniferous trees.

Carbon Monoxide (CO) – A colorless, odorless, tasteless gas formed in large part by incomplete combustion of fuel. Full combustion activities (i.e. transportation, industrial processes, space heating, etc.) are the major sources of CO.

Clean Air Act Amendments (CAAA) – The Clean Air Act and the 1990 Amendments allows the Environmental Protection Agency to set limits on certain air pollutants ensuring basic human health and environmental protection from air pollution. The Environmental Protection Agency also has the authority to limit air emissions of air pollutants from sources such as chemical plants, utilities, and steel mills.

Collector Roads – Roads characterized by a roughly even distribution of their access and mobility functions. These routes gather traffic from local roads and streets and deliver it to the arterial system. Traffic volumes and speeds will typically be lower than those of arterials.

Controlled-Access Highway – A highway that provides limited points of access and egress. Freeways, such as I-95, are controlled access highways in which access points occur only at interchanges. These highways serve mobility needs, and are designed to accommodate higher travel speeds.

Cumulative Impacts – The impacts on the environment that result from the incremental impact of a project when added to other past, present, and reasonable foreseeable future actions regardless of what agency or person undertakes such other actions.

Daily Traffic Volume – The number of vehicles that use a given roadway over a 24-hour period in both directions.

dB – Unit of measurement of sound level. A unit used to express relative difference in power or intensity, usually between two acoustic or electric signals, equal to ten times the common logarithm of the ratio of the two levels.

dBA –An abbreviation for A-weighted decibel. The decibel is a unit used to describe sound pressure levels on a logarithmic scale. For community noise impact assessment, an A-weighted frequency filter is used to approximate the way humans hear sound.

Deciduous – Refers to woody vegetation, such as oak or maple trees, that shed their leaves after the growing season.

Deer Wintering Areas – Areas of softwood-dominated forest that provide food resources and shelter for deer during severe winter conditions.

Demand – Vehicular traffic demand (volume) on a given highway segment, expressed in vehicles per day (vpd).

Demand Shift – The change in demand (volume) on a given highway segment, expressed in vehicles per day (vpd). Demand shifts can be caused by new corridors that provide a faster and/or shorter travel route.

Disadvantaged Population – A group of people, living in one area, who have a median income below the federal poverty level, or who exhibit other indicators of economic disadvantage.

Draft Environmental Impact Statement (DEIS) – The document prepared by the Federal Highway Administration (FHWA) in accordance with FHWA National Environmental Policy Act (NEPA) regulations (23 CFR Part 771). These regulations require that the EIS evaluate all reasonable alternatives considered, discuss the reasons that alternatives have been eliminated from detailed study, summarize the studies, reviews, consultations, and coordination required by environmental laws and Executive Orders.

Edge Habitat – An area along a transitional zone between two or more vegetation cover types that provides feeding, breeding, nesting, or cover habitat for wildlife.

Endangered Species – Any species which is in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act – Legislation (16 U.S.C. Section 1531.43) requires federal agencies to conserve listed species of plants and animals meaning that all methods and procedures that would return a species from the possibility of extinction should be implemented, including habitat conservation, habitat acquisition, and research. Each state has an equivalent state laws and regulations.

Environmental Justice – Executive Order 12898 requires each federal agency to “make achieving environmental justice part of its mission by identifying and addressing... disproportionately high and adverse human health or environmental impacts on minority populations and low-income populations.”

Essential Fish Habitat (EFH) – Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity, as defined by the regional Fishery Management Council and regulated under the Magnuson-Stevens Fishery Conservation and Management Act.

Farmland Protection Policy Act (FPPA) – A statute enacted in 1981 by the United States Department of Agriculture (USDA) to ensure that significant agricultural lands be protected from conversion to non-agricultural uses. For highway projects receiving federal aid, the regulations promulgated under the FPPA (7 CFR Part 658, 1984) require a state highway authority (MaineDOT) to coordinate with the USDA Natural Resources Conservation Service. The FPPA regulates four types of farmland

soils; prime farmland, unique farmland, farmland of state-wide importance, and farmland of local importance.

Farmland Soils – Soils suited to producing crops; those with soil quality, growing season and moisture supply needed to produce a sustainable yield when treated and managed using acceptable methods. Specifically, farmland soils are those soil types designated by the Natural Resources Conservation Service (NRCS) in accordance with the Farmland Protection Policy Act (FPPA) of 1981 by the United States Department of Agriculture (USDA).

Farmland Soils of Statewide or Local Importance – Farmland, other than prime or unique farmland, that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops, as determined by the appropriate State or unit of local government agency or agencies, and that the Secretary determines should be considered as farmland (see definition of “Prime Farmlands” below).

Federal Emergency Management Agency (FEMA) – A former independent agency that became part of the Department of Homeland Security in March 2003 – is tasked with responding to, planning for, recovering from and mitigating against disasters.

Federal Highway Administration (FHWA) – The branch of the U.S. Department of Transportation responsible for administering the funding of federal-aid highway projects.

Final Environmental Impact Statement (FEIS) – The document prepared after circulation of a DEIS (or SDEIS) and consideration of comments received. FHWA NEPA regulations (23 CFR Part 771.125) require that the FEIS identify a preferred alternative, evaluate all reasonable alternatives considered, discuss and respond to substantive comments on the EIS, summarize public involvement, and describe the mitigation measures that will be incorporated into the proposed action.

Floodplain – The level area adjoining a river channel inundated during periods of high flow.

Floodway – The channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order that the 100-year flood be carried without substantial increases in flood heights.

Fragmentation – Subdivision of a forest or other habitat into isolated patches by roads, land clearing, or other human or natural alterations of the landscape, accompanied by the loss of a certain portion of the original habitat.

Functional Conflict – Highways provide a balance between providing access (with multiple access points) and mobility (with limited access points). Freeways are

designed to maximize mobility and serve regional traffic demands as opposed to local roads (or collectors) that provide multiple access points to adjacent land uses (residences or businesses). Functional conflicts arise when regional traffic that would be better served on a freeway, uses local roads.

Geographic Information System (GIS) – A computer-based application used to perform spatial analysis.

Geometric Deficiency – A deficiency that occurs when a highway’s geometric characteristics (lane width, shoulder width, horizontal curvature, vertical grade, etc.) do not meet prevailing design standards.

Grade – The slope of a road along the direction of travel, normally characterized by the vertical rise per unit of longitudinal distance.

Grade Separation – The intersection of two roads, or a road and a railway, that cross at different elevations. One roadway overpasses or underpasses the other roadway with a structure(s).

Groundwater Recharge – Groundwater recharge is a hydrologic process where water moves downward from surface water to groundwater.

Hazardous Waste Materials – Hazardous waste is waste that is dangerous or potentially harmful to human health and the environment. Hazardous waste can be liquids, solids, gases, or sludges. Hazardous waste can be discarded commercial products, like cleaning fluids or pesticides, or the by-products of manufacturing processes.

Herbaceous – Herbaceous vegetation is a plant that has leaves and stems that die down at the end of the growing season to the soil level.

High Crash Location (HCL) – A High Crash Location is an intersection or highway segment that experiences an abnormally high number of accidents relative to the traffic demands that are served. For the State of Maine, the Maine Department of Transportation identifies HCLs.

Historic Resources – Properties, structures and districts that are listed in or have been determined to be eligible for listing in the National Register of Historic Places.

Hourly Traffic Volume – The number of vehicles that use a given road over a 1-hour period.

Hydric Soils – Soils that are saturated, flooded, or ponded long enough during the growing season to develop at least temporary conditions where there is no free

oxygen in the soil around the roots. Hydric soils correspond to federally and state regulated wetlands in many circumstances.

Impervious Surface – Relating to hydrology. A surface through which precipitation cannot penetrate, causing direct runoff or perching (examples include asphalt paving and roofs).

Indirect Impacts – Impacts caused by the Proposed Action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Inland Waterfowl and Wading Bird Habitat (IWWH) – Wetlands that provide habitat for waterfowl (geese, brant, ducks) and wading birds (heron, egrets, bittern, rails), and that meet certain criteria for size, quality, and percent open water as established by Department of Inland Fish and Wildlife regulations.

Interstate – A freeway-type highway that is part of the National Highway System.

Labor Market Area (LMA) – Labor market areas are regional areas with a high concentration of employment opportunities. These are economically integrated units within which workers may readily change jobs without changing their place of residence.

Lacustrine – Of and related to lakes.

Land and Water Conservation Fund – A system for funding Federal, State and local parks and conservation areas, created by the Land and Water Conservation Fund Act of 1965.

Limited-Access Facility – A highway where access to abutting properties is restricted or limited by control of the right-of-way.

Local Roads and Streets – All public roads and streets not classified as arterials or collectors will have a local classification. Local roads and streets are characterized by many points of direct access to adjacent properties and have relatively minor role in accommodating mobility. Speeds and traffic volumes are usually low.

Low-Income Population – The final Department of Transportation Order 5610.2 defines low-income persons as those whose “median household income is below the United States Department of Health and Human Services poverty guidelines.”

Magnuson-Stevens Fishery Conservation and Management Act – Legislation (16 U.S.C. 1855(b)) governing all fisheries resources within 320 kilometers (200 miles) of the U.S. coast that established regional Fishery Management Councils and required the preparation of Fisheries Management Plans.

MaineDOT Highway Design Guide – A tool developed by the Maine Department of Transportation that provides guidance for the design of roads and highways in the State of Maine in addition to the Federal Highway Administration design criteria.

Maine Land Use Regulation Commission (LURC) – Title 12, M.R.S.A, Chapter 206 – A Commission established by Title 12, M.R.S.A., Chapter 206 to administer the Land Use Regulation Law (12 M.R.S.A. § 681) by preparing land use standards prescribing standards for the use of air, lands and waters within the plantations and unorganized townships of Maine.

Maine’s Sensible Transportation Policy Act (STPA) – Maine’s Sensible Transportation Policy Act is a state law enacted in 1991 by the citizens of Maine that provides a decision making framework for examining a range of alternatives. The STPA is applicable to transportation planning decisions, capital investment decisions, and project selection decisions made by the Maine Department of Transportation.

Maintenance Area – Maintenance areas are nonattainment areas that have been redesignated by the Environmental Protection Agency as attainment areas. To be redesignated, an area must both meet air quality standards, and have a 10-year plan for continuing to meet and maintain air quality standards and other requirements of the Clean Air Act.

Median Household Income – Median income is the amount of which divides the income distribution into two equal parts, half having income above that amount, and half having income below that amount. Household income is often the combination of two income earners pooling the resources rather than family income considered two or persons related through blood, marriage, or adoption pooling resources.

Mesoscale Air Quality Analysis – A regional-level analysis of air for chemical constituents

Microscale Air Quality Analysis – An analysis of air for chemical constituents, typically conducted for a small study area such as an intersection.

Minority Population – According to the U.S. Census Bureau, a minority person is defined as an individual who is a member of one of the following population groups: Black or African American; American Indian or Alaskan Native; Asian; Native Hawaiian; Other Pacific Islander, and some other race alone, and two or more races.

Mitigation – Actions that avoid, minimize, or compensate for potential adverse impacts.

Mobile Source Air Toxics – Mobile source air toxics are compounds emitted from highway vehicles and non-road equipment which are known or suspected to cause serious health and environmental effects.

National Ambient Air Quality Standards (NAAQS) – The prescribed level of pollutants in the outside air that cannot be exceeded during a specified time in a specified geographic area.

National Environmental Policy Act of 1969, as amended (NEPA) – The federal legislation that requires an interdisciplinary approach in planning and decision-making for federal-aid actions. The Act includes requirements for the contents of environmental impact statements that are to accompany every recommendation for major federal actions significantly affecting the quality of the human environment. The interdisciplinary study approach includes the analysis of potential impacts to the natural, social and economic environment.

National Historic District – An area, comprising numerous buildings and their setting, identified as historic in the National Register of Historic Places.

National Marine Fisheries Services (NMFS) – The National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) is a federal agency responsible for the stewardship of the nation’s living marine resources and their habitat.

National Priority List (NPL) – The “Superfund” statute (42 U.S.C. Sect. 9601) requires the EPA to establish a National Priorities List of sites which are to be given top priority consideration for removal of hazardous substances and remedial action.

National Register of Historic Places (National Register) (NRHP) – A list of structures, sites and districts of national historical significance as determined by the keeper of the NRHP under the National Historic Preservation Act of 1966, as amended.

National Wetlands Inventory (NWI) – A program administered by the U.S. Fish and Wildlife Service for mapping and classifying wetland resources in the United States.

Natural Resources Conservation Service (NRCS) – Formerly the Soil Conservation Service, NRCS is a department within the United State Department of Agriculture that is responsible for administering the Farmland Protection Policy Act.

New Location Highway – A highway proposed to be constructed on land not currently used for transportation facilities.

Nitrogen Oxides (NO_x) – Nitric oxide (NO) and Nitrogen dioxide (NO₂) are collectively referred to as oxides of nitrogen (NO_x). NO forms during high temperature combustion process. NO₂ forms when NO further reacts in the atmosphere. NO_x reacts with the sunlight to form ozone, a colorless gas associated with smog or haze conditions. Ozone is a pollutant regulated by the Clean Air Act Amendments of 1990.

Noise Abatement Criteria (NAC) – Noise levels measured in decibels that are used as a basis of comparison for evaluating the impact from predicted design year noise and for determining whether noise abatement measures should be considered.

Noise Abatement Measures – Actions that reduce traffic noise impacts. Noise abatement measures can be traffic management measures, alteration of horizontal and vertical alignments, acquisition of property rights for construction of noise barrier, construction of noise barriers, acquisition of real property or interest for buffer zones, or noise insulation of public use or nonprofit institutional structures.

Noise Receptor – Locations that may be affected by noise: Sensitive receptors include residences, parks, schools, churches, libraries, hotels, and other public buildings.

Nonattainment Area – Areas of the country where air pollution levels persistently exceed the national ambient air quality standards may be designated as nonattainment.

Non-Point Source Pollution (NPS) – Pollution of waterbodies that does not originate at a single specific source such as an industrial discharge or discharge from a wastewater treatment plant. Sources of non-point pollution include runoff from highways, agricultural fields, golf courses, and lawns.

Outstanding River Segment (ORS) – A section of a river or stream designated by the Maine Natural Resources Protection Act (12 M.R.S.A. § 403) for protection because of the special resource values of its flowing waters and shorelines.

Ozone – A gas which is a variety of oxygen. Ozone is a pollutant regulated by the Clean Air Act Amendments of 1990. Ground-level ozone is the main component of smog. Ozone is not directly emitted by motor vehicles, but is formed when oxides of nitrogen react with sunlight.

Palustrine – The group of vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. Palustrine wetlands may be situated shoreward

of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes.

Palustrine Forested Wetland (PFO) – A palustrine wetland dominated by trees, commonly referred to as a swamp.

Palustrine Emergent Wetland (PEM) – A palustrine wetland dominated by herbaceous species, typically cattails, sedges and grasses, commonly referred to as a marsh.

Palustrine Scrub-Shrub Wetland (PSS) – A palustrine wetland dominated by shrubs.

Particulate Matter – Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particulate matter is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The EPA groups particle pollution into two categories: “inhalable coarse particles,” such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter; and “fine particles,” such as those found in smoke and haze, are 2.5 micrometers or smaller in diameter.

Peak Hour – The hour of the day when traffic volume on a given roadway is highest. A separate peak hour can be defined for morning and evening periods.

Peak Hour Volume – The traffic volume that occurs during the peak hour, expressed in vehicles per hour (vph). Peak hour volumes are typically 10 to 15 percent of daily volumes.

Peak Hour Leq – Represents the noisiest hour of the day/night and usually occurs during peak periods of motor vehicle traffic. The Leq is the equivalent sound level measurement, which means it averages background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time.

Preferred Alternative – The alignment option which has been identified by MaineDOT as the best alignment of the alignment options reviewed. Alignment Option 7 has been identified for the Presque Isle Bypass as it best satisfies the Purpose and Need while impacting the least amount of cultural and environmental resources.

Primary/Direct Impacts – The immediate effects on the social, economic, and physical environment caused by the construction and operation of a highway; these

impacts are usually experienced within the right-of-way or in the immediate vicinity of the highway or other element of the proposed action.

Prime Farmland - Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

Prime Farmland Soil – Soil map units that are designated by the Natural Resources Conservation Service as having the properties needed to produce sustained high yield crops when managed with modern farming techniques.

Proposed Action – The proposed project, in this case: the Route 1-161 Connector in Caribou and the Presque Isle Bypass.

RCRA Generator – An entity that produces hazardous waste regulated under the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. sect. 6901), which mandates the appropriate identification, tracking, and disposal of hazardous waste.

Record of Decision (ROD) – The document, prepared by the Federal Highway Administration, that presents the basis for the Federal agency action, summarizes any mitigation measures to be incorporated, and documents any required Section 4(f) approvals. No Federal agency action may be undertaken until a Record of Decision has been signed. A Record of Decision is prepared no sooner than 30 days after the public release of the FEIS.

Relocations – The displacement of a residence, business or other structure from a property owner, for public use, that requires the residents or business to be moved to an alternate location.

Riparian – An area of land that encompasses and is contiguous to a stream or other water body.

Riverine – Of and relating to rivers.

Rural – According to the 2010 United States Census Bureau, a rural area encompasses all population, housing, and territory not included within an urban area (as defined later in this Terms chapter).

Safe Drinking Water Act (SDWA) – The Safe Drinking Water Act (42 U.S.C. 300f) ensures the quality of drinking water by establishing national health-based standards

to protect against both naturally-occurring and man-made contaminants found in drinking water. Under SDWA, the Environmental Protection Agency sets the standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

Safety Deficiency – In the context of this study, a safety deficiency is a highway segment or intersection that contains a high crash location (HCL).

Section 106 of the National Historic Preservation Act (Section 106) – The National Historic Preservation Act of 1966 (16 U.S.C. 470f), Section 106, requires Federal agencies to take into account the effect of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Preservation the opportunity to comment on such undertakings.

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C., Section 303) (Section 4(f)) – Legislation protecting publicly owned parks, public recreation areas, historic properties or wildlife and waterfowl refuges. The statute states that no Department of Transportation project may use land from these areas unless there is demonstrated to be no prudent and feasible alternative to using the land, and the project includes all possible planning to minimize harm resulting from the use.

Section 404 of the Clean Water Act (Section 404) – The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 401 et seq.) is the enabling legislation for protection of waters of the United States by the Army Corps of Engineers and the U.S. Environmental Protection Agency.

Section 6(f) of the Land and Water Conservation Fund Act of 1965 (Section 6(f)) – Legislation that provides for the public purchase and preservation of tracts of land.

Significant Wildlife Habitat – Wildlife habitats, including deer wintering yards, waterfowl and wading bird habitat, seabird nesting habitat, and significant vernal pools, that are protected under 38 M.R.S.A. § 480-B.

State Implementation Plan (SIP) – A plan created under The 1990 Clean Air Act Amendments (CAAA) that establishes emission reduction requirements for ozone and carbon monoxide non-attainment areas. Proposed projects must demonstrate that the impacts of their emissions are consistent with the appropriate SIP.

Stormwater Pollution Prevention Plan (SWPPP) – A plan required for major construction projects under the EPA's National Pollutant Discharge and Elimination System (NPDES) general permit for construction activities. The SWPPP is required to

address measures to prevent erosion, sedimentation, and other potential discharges of pollutants to water bodies and wetlands.

Stormwater Runoff – The portion of precipitation that flows toward stream channels, lakes, or other waterbodies as surface flow.

Supplemental Draft Environmental Impact Statement (SDEIS) – The document prepared by the Federal Highway Administration (FHWA) in accordance with FHWA National Environmental Policy Act (NEPA) regulations (23 CFR Part 771.130). An EIS shall be supplemented when the Administration (FHWA) determines that: 1) Changes to the proposed action would result in significant impacts not evaluated in the EIS; or 2) New information or circumstances relevant to environmental concerns and bearings on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS. (An SDEIS was prepared for this study and distributed in 2006 due to changes in the study and environment that have occurred since the publication of the Aroostook County Transportation Study DEIS in February 2002.)

Surface Water Supply Watershed – The watershed that contributes to a public drinking water supply.

Threatened Species – Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Traditional Cultural Property (TCP) – A property or site that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important to maintaining the continuing cultural identity of the community.

Transportation Deficiencies – A highway related facility that is unable to safely and efficiently satisfy travel demands because of the intensity of traffic volumes, capacity, and/or safety.

Transportation Improvement Program (TIP) – A staged multiyear program of transportation projects funded by the Federal Highway Administration and Federal Transit Administration.

Transportation Systems Management (TSM) – Relatively low cost measures to increase capacity and/or provide safety improvements on the existing transportation system. These measures typically include traffic signal timing or phasing adjustments, designation of turning lanes at specific intersection or driveways, access management improvements, and enhanced signage or markings.

Type I Project – A proposed Federal or Federal-aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.

U.S. Department of Agriculture (USDA) – A federal agency responsible for administering programs that address farming issues.

U.S. Environmental Protection Agency (EPA) – A federal agency responsible for administering programs that address environmental issues.

U.S. Fish and Wildlife Service (USFWS) – A federal agency responsible for addressing the protection of fish and wildlife including rare, threatened, or endangered species. The USFWS plays an advisory role in the Section 404 regulatory program administered by the U.S. Army Corps of Engineers.

Unique Farmland – Land other than prime farmland that is used for the production of specific high-value food and fiber crops, as determined by the Secretary of Agriculture. It has a special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming techniques.

Upgrade – A geometric improvement to an existing highway segment.

Urban – According to the 2010 United States Census Bureau, an urban area is defined by an area with a population of 50,000 or greater.

Vegetation Cover Type – A biological community characterized by certain vegetation characteristics, such as hardwood forest, mixed forest, shrub, herbaceous, and urban or residential managed vegetation.

Vehicle-Hours Traveled (VHT) – VHT is a measure of automobile use and trip time. One vehicle traveling one hour constitutes one vehicle-hour.

Vehicle-Miles Traveled (VMT) – VMT is a measure of automobile use and trip length. One vehicle traveling one mile constitutes one vehicle-mile.

Vernal Pool – A temporary pool of surface water that provides breeding habitat for certain amphibian and invertebrate species.

Volatile Organic Compounds (VOCs) – Colorless gaseous compounds originating, in part, from the evaporation and incomplete combustion of fuels. In the presence of

sunlight VOCs react to form ozone, a pollutant regulated by the Clean Air Act Amendments.

Watershed – A region or area that contains all land ultimately draining to a water course, body of water, or aquifer.

Wellhead Protection Area (WPA) – Areas of land where human activities are regulated to protect the quality of ground water that supplies public drinking water wells.

Wetland – Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wild and Scenic River – A river or river segment, designated by the National Park Service, because of the outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values (16 U.S.C. 1271-1287).

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
ACHP	Advisory Council on Historic Preservation
ACTS	Aroostook County Transportation Study
APE	Area of Potential Effect
BMP	Best Management Practice
BPP	Basic Project Purpose
CAAA	Clean Air Act Amendments of 1990
CAL3QHC	EPA’s modeling methodology for predicting pollutant Concentrations near Roadway intersections
CEI	Cost Effectiveness Index
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
dB	Decibel
dba	Loudness (sound pressure level) measured on a logarithmic scale in units of decibels (dB), using an A-weighted filter
DEIS	Draft Environmental Impact Statement
DPS	Distinct Population Segment
DWA	Deer Wintering Area
DWP	Maine Drinking Water Program
ECTR	Economic Technical Report
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
EVTR	Environmental Technical Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency

FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPFA	Farmland Protection Policy Act
GIS	Geographic Information System
HAP	Hazardous Air Pollutant
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCL	High Crash Location
IF&W	Maine Department of Inland Fisheries and Wildlife
I-95	Interstate 95
ITS	Interconnecting Trail System
IWWH	Inland Waterfowl and Wading Bird Habitat
kg	kilogram
LEDPA	Least Environmentally Damaging Practicable Alternative
Leq	One-hour equivalent sound level
LMA	Labor Market Area
LURC	Maine Land Use Regulation Commission
MDOC	Maine Department of Conservation
Maine DEP	Maine Department of Environmental Protection
MaineDOT	Maine Department of Transportation
MBPL	Maine Bureau of Parks and Lands
MDMR	Maine Department of Marine Resources
ME-GAP	Maine Gap Analysis Program
MEPDES	Maine Pollutant Discharge Elimination System
MHPC	Maine Historic Preservation Commission
MM&A	Montreal, Maine and Atlantic Railroad
MNAP	Maine Natural Areas Program
MOA	Memorandum of Agreement
mph	miles per hour
MPS	Maine Public Service
MSAT	Mobile Source Air Toxics
M.R.S.A.	Maine Revised Statutes Annotated
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program

NHPA	National Historic Preservation Act
NMDC	Northern Maine Development Commission
NMFS	National Marine Fisheries Service
NO	Nitrogen Monoxide
NO₂	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRIS	National Register Information System
NRCS	Natural Resources Conservation Service
NRIMC	Natural Resource and Information Mapping Center
NRPA	Maine Natural Resources Protection Act
NWI	National Wetlands Inventory
OGIS	Maine Office of Geographic Information Systems
ORS	Outstanding River Segment
OSHA	Occupational Safety and Health Administration
PAC	Public Advisory Committee
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PM_{2.5}	Particulate Matter (2.5 micron particle size)
PM₁₀	Particulate Matter (10 micron particle size)
ppm	parts per million
PSS	Palustrine Scrub-Shrub Wetland
PUB	Palustrine Unconsolidated Bottom
RCRA	Resource Conservation and Recovery Act
ROD	Record Of Decision
ROW	Right-of-way
SCS	Soil Conservation Service (now the NRCS)
SDEIS	Supplemental Draft Environmental Impact Statement
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SPO	Maine State Planning Office
STPA	Maine’s Sensible Transportation Policy Act

SWH	Significant Wildlife Habitat
SWPPP	Stormwater Pollution Prevention Plan
TANF	Temporary Assistance to Needy Families
TCP	Traditional Cultural Property
TDM	Transportation Demand Management
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
TNM	Traffic Noise Model
tpy	tons per year
TSM	Transportation System Management
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tanks
VOC	Volatile Organic Compound
vpd	vehicles per day
VHT	Vehicle-Hours Traveled
VMT	Vehicle-Miles Traveled
WPA	Wellhead Protection Area

Summary

Study Overview

The Federal Highway Administration (FHWA) and the Maine Department of Transportation (MaineDOT) have undertaken the Aroostook County Transportation Study (ACTS) pursuant to the National Environmental Policy Act (NEPA) and the Maine Sensible Transportation Policy Act (STPA) to identify transportation improvements that would enhance travel mobility and efficiency within northeastern Aroostook County and support regional economic growth.

The ACTS has been undertaken as a phased or tiered study. NEPA regulations encourage the use of tiered Environmental Impact Statements (EIS) to focus analysis on the actual issues that are ripe for decision and exclude from consideration issues that are already decided or not yet ripe. For highway projects, Tier 1 EISs generally focus on broad issues, such as general location, while Tier 2 NEPA documents (usually an EIS or Environmental Assessment [EA]) focus on site-specific impacts and mitigation for individual elements of the larger study.

The purpose of the Tier 1 EIS was to identify potential corridors, within which specific highway alignments could be further refined and analyzed in subsequent NEPA documents. The Tier 1 Draft Environmental Impact Statement (DEIS), published in March 2002, examined four major corridors at a macro-level, basing the impact analysis on Geographic Information System (GIS)-level information. It did not attempt to identify or analyze impacts of specific highway alignments within the corridors, nor did it examine the use of reduced right-of-way (ROW) widths and/or specific roadway cross sections.

MaineDOT and FHWA prepared a Supplemental Draft Environmental Impact (SDEIS) (published in June 2006) which included both Tier 1 and Tier 2 level analyses. At the Tier 1 level, similar to the DEIS, it described four major north-south corridors, consisting of 11 individual roadway segments, connecting I-95 to the St. John Valley. These corridors were generally modifications of those studied in the DEIS. The Tier 2 Analysis describes the affected environment and environmental consequences specific to the Proposed Action (Segment 4 and Segment 7).

In December 2009, an FEIS was circulated by MaineDOT and FHWA that included both Tier 1 level analysis for the entire ACTS, and Tier 2 level analysis for the Route 1-161 Connector in Caribou only. After agency and public review, a Final Record of Decision (ROD) for the Tier 1 FEIS for the ACTS was issued by the FHWA Division Administrator, Maine Division on February 1, 2010. The ROD for the Route 1-161 Connector Tier 2 FEIS was issued on February 4, 2010.

As stated in the SDEIS, FHWA and MaineDOT have deferred the selection of an overall preferred corridor and instead have advanced a FEIS Proposed Action consisting of Segment 2, Segment 4 (the Caribou Route 1 – 161 Connector) and Segment 7 (the Presque Isle Bypass). Segment 4, the Caribou Connector was opened to traffic on August 17, 2012. These Tier 2 proposed actions would serve all potential corridors and do not preclude future determinations.

This FEIS presents Tier 2 alignment-specific information for the preferred alternative for the Presque Isle Bypass (Segment 7). The preferred alternative is Alignment Option 7, a 9.8-mile bypass of Route 1 east of downtown Presque Isle. The alignment options evaluated for the Presque Isle Bypass in this FEIS are shown on Figure S-1. A detailed view of the Preferred Alternative is provided in Figure S-2a through Figure S-2f. These figures are provided in Volume 2 of this document. These alignment options vary in length from 8.3 to 9.8 miles long. Upon FHWA's issuance of the ROD following completion of the FEIS, MaineDOT expects to be able to proceed into final design, ROW acquisition, and permitting for the Presque Isle Bypass.

This FEIS also provides MaineDOT with the decision-making tool required by Maine's STPA, which requires MaineDOT to "evaluate the full range of reasonable transportation alternatives for significant highway construction or reconstruction projects." The STPA also encompasses transportation improvements that provide economic benefits.

Comments on the SDEIS/Tier I FEIS

Comments on the SDEIS and the Tier I FEIS were received at the three public hearings held for the SDEIS and through the mail during the comment period for the SDEIS and the Tier I FEIS. Over 400 people attended the SDEIS public hearings. FHWA received 40 comment letters regarding the SDEIS. These comment letters include Federal agency comments submitted by the U.S. Environmental Protection Agency (EPA). One state elected official provided comments. State agency comments were submitted by the State Historic Preservation Officer. Local and regional comments were submitted by officials of Caribou, Presque Isle, and the County of Aroostook.

Community organizations and businesses that submitted comments on the SDEIS included the Aroostook Municipal Association, the Aroostook Partnership for Progress, Leaders Encouraging Aroostook Development (LEAD), Loring Commerce

Center, Maine Public Service Company, the Northern Maine Development Commission, the Presque Isle Snowmobile Club, and Sleeper's Store of Caribou.

FHWA received three letters regarding the Tier I FEIS. Federal agency comments were submitted by the EPA. State agency comments were submitted by the Maine Department of Inland Fisheries and Wildlife. One letter was received from Caribou Management Company (concerning retail property in Caribou). All comment letters are found in Appendix C.

Responses to substantive comments related to the ACTS Tier I FEIS or the Caribou, Route 1-161 Connector Project Tier II FEIS were provided in the RODs for these documents. Responses to substantive comments on the ACTS SDEIS or Tier I FEIS related to the Presque Isle Bypass are provided in Chapter 5. There are no other outstanding comments that have not been addressed in either the ROD for the ACTS Tier I FEIS, the Caribou, Route 1-161 Connector Project Tier II FEIS or this Presque Isle Bypass Tier II FEIS.

Relevant Issues for the FEIS

Based upon comments that were received on the SDEIS and others received throughout the study, the major issues for the FEIS analysis concerning the Presque Isle Bypass include:

- Transportation impacts, including improved mobility, safety, and reduced travel times.
- Land use impacts, particularly those to active farms, and impacts caused by property takings along existing and proposed new highways.
- Impacts to cultural resources, primarily those to historic properties along existing and proposed new highways.
- Impacts to the natural environment, particularly those to aquatic systems, and the potential for habitat fragmentation.
- The potential for secondary impacts, beneficial and/or adverse, caused by induced development.

Purpose of the Study

As was presented in the ACTS Tier 1 EIS, the purpose of the ACTS is to evaluate transportation alternatives that would improve the region's economy by improving transportation mobility. Aroostook County has an inadequate transportation system that limits access and mobility to, from, and within the county. Poor mobility in turn limits economic opportunity.

Specific elements of the need for transportation improvements include:

- A long-term loss of population in Aroostook County;
- A chronically higher unemployment rate in the Study Area than the state average;
- A job growth rate which has been chronically below the state average;
- A lack of diverse job opportunities, which would retain and attract workers; and
- A need to improve transportation access to, from, and within Aroostook County and the surrounding provinces to improve access to jobs, reduce long distances and travel times for goods to market, and address issues of transportation system continuity.

During the Highway Methodology process, the U.S. Army Corps of Engineers (USACE), in consultation with MaineDOT, identified a Basic Project Purpose (BPP) for the Presque Isle Bypass. The BPP for the Presque Isle Bypass states **“the purpose of the Segment 7 (Presque Isle Bypass) transportation improvements is to enhance regional transportation by reducing travel times and improving north-south and east-west traffic flow at Presque Isle, Maine thereby improving public safety and traffic flow/mobility in downtown Presque Isle.”**

Proposed Action

Based upon the transportation, economic, and environmental analyses, MaineDOT intends to advance a Proposed Action consisting of one of the segments that has independent utility and which would partially satisfy the Purpose and Need of the overall ACTS. Construction of this segment would not completely satisfy the ACTS Purpose and Need because it fails to address some elements of the ACTS Purpose and Need. For example, construction of this segment would not improve traffic flow through Houlton or Mars Hill or improve safety at high crash locations outside of Presque Isle. The Proposed Action that is the subject of this FEIS consists of the Presque Isle Bypass – a new 9.8-mile long limited access highway east of downtown Presque Isle.

This FEIS also evaluates the No Action Alternative as required by NEPA regulations. No Action is defined as continuing MaineDOT’s ongoing construction program with no additional extraordinary projects. MaineDOT’s *Six-Year Transportation Improvement Plan (Six-Year Plan) for 2010-2015* lists the projects that the Department expects to fund during that period. The plan includes both highway reconstruction and highway bridge maintenance projects. This program of improvements is scheduled to be carried out regardless of whether or not a separate construction project arises from this EIS process. For example, if MaineDOT were to decide to construct a new highway following this study, other improvements already in the *Six-Year Plan* would still go forward. A project that arises out of this study would not

preclude other programmed improvements unless, of course, the projects involved the same segment of highway. In that case the *Six-Year Plan* project would likely be subsumed by the project stemming from this study.

Decision making with regard to the other segments (Segments 1, 2, 3, 5, 6, 8, 9, 10, and 11) is being deferred at this time. Segment 4 was constructed during 2012. Any future action with regard to the deferred segments would require additional NEPA review.

The Proposed Action, the Presque Isle Bypass, has logical termini and independent utility and satisfies the ACTS Purpose and Need by:

- ▶ Improving mobility through reducing travel times for through trips on Route 1 between points north and south of Presque Isle for present and future traffic;
- ▶ Improving public safety in Presque Isle through reducing vehicular conflicts caused by an undesirable mix of local/through traffic and car/truck traffic;
- ▶ Reducing unsafe speed differentials along Route 1 in Presque Isle;
- ▶ Improving safety at five High Crash Locations (HCL); and
- ▶ Providing better access to the east side of Presque Isle, particularly the Easton Industrial Area.

The Presque Isle Bypass would address the need for traffic relief (particularly trucks) in downtown Presque Isle; would improve safety at five HCLs; would improve access to the Easton Industrial Areas (east of Presque Isle); would improve travel times within and through Presque Isle; and would support the transportation and economic goals of the City of Presque Isle's Comprehensive Plan.

The Presque Isle Bypass would require a Section 404 Permit under the Clean Water Act from the USACE. Therefore, subsequent to the SDEIS, MaineDOT initiated the Section 404 Highway Methodology Process (Highway Methodology) with the USACE. The Highway Methodology is the process that the New England Division of the USACE uses to coordinate the Section 404 review process with the NEPA process.

In order to coordinate the USACE's Section 404 permitting process with the NEPA process, MaineDOT submitted to the USACE a Phase I Avoidance Technical Memorandum (June 2007) and a Phase II Permit Application (December 2007) in accordance with the Highway Methodology requirements¹ and has continued coordination with the USACE since that time.

¹ USACE New England Division. October 1993. *The Highway Methodology Workbook. Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process.*

The USACE, in coordination with the EPA, the U.S. Fish & Wildlife Service (USFWS), and other participating agencies, determined that of the eight alternatives presented in the USACE Phase I document, five should be advanced to Phase II: No Action Alternative, Route 1 Upgrade/Transportation System Management (TSM) Alternative, and Alignment Options 2X, 4B, and 6. The other alignment options (Alignment Options 3, 4A, and 5) evaluated in the SDEIS were dismissed because they had greater impact to social and natural resources than other alignment options considered. Therefore, Alignment Options 3, 4A, and 5 are not evaluated in this FEIS. The USACE published a public notice on September 23, 2008 and solicited comments on the Phase II Permit Application.

Alignment Options 2X and 4B are refinements of the SDEIS Alignment Options and were developed subsequent to the SDEIS based on comments from the USACE, EPA, and City of Caribou to minimize impacts to wetlands and farmland. Alignment Option 2X was later refined further and renamed Alignment Option 7.

Based on an evaluation of transportation benefits and impacts to social and natural environmental resources (Tables 2-3 and 2-4 on page 2-25), MaineDOT has identified Alignment Option 7 as the Preferred Alternative. On June 27, 2012, the USACE identified Alignment Option 7 as the Least Environmental Damaging Practical Alternative (LEDPA) (see Appendix B).

Presque Isle Bypass - Major Environmental Impacts

This section identifies the potential major impacts that may occur with the Presque Isle Bypass, and considers transportation effects, economic effects, and impacts to land use, historic resources, public parks and recreation areas, floodplains, wetlands, wildlife habitat, air quality, and noise. These areas were identified by resource agencies and the public during Scoping and in subsequent meetings received the greatest attention from the federal review agencies. The key environmental impacts of the FEIS alignment options considered for the Presque Isle Bypass are provided on Table S-1 (Page S-8). This FEIS considers many other areas of impact as well, including low-income and minority populations, uncontrolled petroleum and hazardous wastes, water resources, aquatic habitats, vegetation, fisheries, and endangered and threatened species. The reader should refer to the appropriate subsection of Chapter 4 for additional discussion of impacts.

The transportation effects of each alignment option were assessed for their ability to provide travel time and distance savings, improve transportation efficiency, improve safety, and improve mobility. The Proposed Action has the potential to improve community cohesion and continuity by diverting through traffic from downtown Presque Isle. The reduction in through traffic volumes may reduce noise, improve the ability of pedestrians to cross streets, and improve the connection between neighborhoods.

The analysis of impacts to land use and communities included determining the amount of land within each alignment option footprint, particularly in the economically and socially important categories of forest land, agricultural land, and developed land. The number of buildings within each alignment option, and the number and area of active farm fields within each of the alignment option were also assessed. Constructing the Presque Isle Bypass would require that developed and undeveloped land be converted to transportation use. Developed land to be converted to transportation use includes privately-owned land and structures. The acquisition process is guided by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act). All of the alignment options studied, except Alignment Option 7, have the potential to impact historic properties. None of the alignment options would affect archaeological sites or public parks and other recreation areas.

Potential impacts to wetlands include direct impacts (the loss of wetland area, functions and values) and indirect impacts (changes in water quality, hydrology, or wildlife habitat values). The analysis of impacts to wildlife and fisheries included the amount of wildlife habitat potentially lost due to construction, the locations of work within fisheries habitats, the potential indirect effects on wildlife communities due to fragmentation and the creation of highway barriers, and the potential impacts to state-regulated wildlife resources, which include deer wintering areas and inland waterfowl and wading bird habitats.

Impacts to farmland were considered to be of critical importance to the affected community because of their protected status under the Federal Farmland Protection Policy Act (FPPA) and because of the importance that agriculture plays in the economy of Aroostook County and its way of life.

For air quality, a localized (microscale) analysis examined changes in carbon monoxide (CO) concentrations at the most congested intersection in the ACTS Study Area with respect to the National Ambient Air Quality Standards (NAAQS) for CO and particulate matter (PM₁₀). A regional (mesoscale) analysis examined changes in CO, volatile organic compounds (VOCs), nitrogen oxides (NO_x), and particulate matter. The air quality study demonstrates that the Presque Isle Bypass (any of the alternatives evaluated in this FEIS) would conform to the Clean Air Act Amendments and the State Implementation Plan.

The noise analysis evaluated potential noise impacts by calculating the distance from the edge of a new or widened highway to where the future sound levels are expected to be substantially higher than the existing sound levels or approach or exceed FHWA's Noise Abatement Criteria (NAC). An increase of 15 decibels (dBA) is MaineDOT's noise impact criterion for new highway corridors. The Presque Isle Bypass Alignment Options would result in noise impacts that exceed FHWA's NAC. However, due to the low number of benefitted receptors, the noise barrier costs

exceed the MaineDOT criteria of \$31,000 per benefitted receptor. Therefore, noise barriers are not feasible and reasonable for the Presque Isle Bypass.

The major environmental impacts that would result from the Presque Isle Bypass alignment options are those to agricultural lands and wetlands. Table S-1 (Page S-8) summarizes some of the key environmental impacts for the Presque Isle Bypass. Chapter 4 presents the impacts to all resources in detail. As indicated in Table S-1, Alignment Option 7, the preferred alternative, results in the least amount of farmland impact, Section 106 Adverse Effects and use of Section 4(f) properties. The Secretary of Transportation may only approve transportation projects if there are no feasible and prudent alternatives to the use of properties protected under Section 4(f) of the DOT Act of 1966. As Alignment Option 7 avoids use of all historic and recreational Section 4(f) properties, it is the preferred alternative.

Table S-1
Key Environmental Impacts- Presque Isle Bypass

	Number of Structures Impacted	Active Farmland Impacted (acres)	Forest Impacted (acres)	Number of Section 106 Adverse Effects	Number of Section 4(f) Uses	Wetlands Impacted (acres)
Alignment Option 4B	12	264	19.1	1	1	18.2
Alignment Option 6	18	289	18.7	3	4	13.8
Alignment Option 7 (Preferred Alternative)	27	218	21.0	0	0	22.0

Presque Isle Bypass Mitigation Measures

Following the issuance of a ROD by FHWA, MaineDOT would initiate final design of the Presque Isle Bypass. During final design, MaineDOT would continue to refine the alignment and its right-of-way within the preferred corridor to further avoid and minimize impacts to the natural, social, and economic environments and to coordinate with those that are affected.

This section summarizes the measures for the Presque Isle Bypass that MaineDOT is committing to in order to mitigate for impacts to the various resources that would be affected. MaineDOT considers many Best Management Practices (BMPs) to be standard operating procedures that are not included in the category of “mitigation.” Many BMPs would be implemented in accordance with MaineDOT policies and procedures. The following mitigation measures would be employed after potential unavoidable impacts have been minimized.

Snowmobile Trails

Each of the FEIS alignment options (Alignment Options 4B, 6, and 7) cross multiple snowmobile trails that are part of the Interconnected Trail System (ITS) network and connecting club trails. These trails are all on privately-owned land. In Presque Isle, ITS 88 and 83 follows the southern bank of the Aroostook River following it northward toward Caribou. These multi-use recreational trails are on former railroad property owned by the Canadian-Pacific Railway. The bridge over the Aroostook River, proposed as part of each of the alignment options, would span ITS 83, allowing continued trail access under the bridge. MaineDOT, in consultation with the City of Presque Isle, would develop a permanent plan to provide an appropriate crossing of the highway for all existing trails to ensure adequate sight distances and trail continuity.

Farmland

Mitigation for farmland impacts would be developed during final design of the Preferred Alternative. MaineDOT, in accordance with the FPPA, has completed U.S. Department of Agriculture (USDA) Natural Resource Conservation Service's (NRCS) Farmland Conversion Impact Rating (NRCS Form AD 1006, see Appendix B). According to the results of the NRCS evaluation, consideration of alternative actions *i.e.*, alternative sites, modifications, or mitigation is not required. However, MaineDOT would work with land owners and farm operators to further refine the Preferred Alternative such that it avoids impacting productive fields to the greatest extent practicable. Where practicable, MaineDOT would avoid bisecting large fields and instead follow the edges of fields to minimize disruption to farming operations. MaineDOT would also work with farmers to minimize the effect of the new highway on farming operations. MaineDOT would consider providing underpasses for farm equipment where needed and where practical to do so.

Oil and Hazardous Materials

Construction of the Presque Isle Bypass may encounter contaminated soils, and/or groundwater, in some locations. The project would not generate any hazardous materials. All alignment options for the Presque Isle Bypass traverse relatively undeveloped woodland and agricultural fields, except along the banks of the Aroostook River which traverse a more developed area. There is no evidence for the generation of hazardous materials within areas that would be impacted by the Preferred Alternative. If required, MaineDOT would perform Phase II subsurface explorations and testing for the Preferred Alternative during the final design phase to determine if waste or contamination would be encountered during construction. These explorations would be focused on areas where excavation would be necessary to construct the highway and in areas where drainage structures or utilities may be installed below the existing grade.

Water Quality

No substantial impact to surface or ground water quality are expected to result from construction of the Preferred Alternative as MaineDOT would implement erosion and sedimentation control BMPs as described in the *Best Management Practices for Erosion and Sedimentation Control Manual* (the BMP Manual). The BMPs are designed to reduce alteration to stream hydrology, treat stormwater runoff, and control erosion and sedimentation. These erosion and sedimentation control BMPs are required for any MaineDOT action, and would be incorporated into the design and specifications for the Preferred Alternative.

Aquatic Habitat

During final design and permitting, MaineDOT would continue to refine the alignment and its ROW within the preferred corridor to further avoid and minimize impacts to aquatic habitats of all types. Mitigation of river and stream impacts would focus on minimizing the impacts of new or widened crossings. These measures include:

- Using bridges rather than culverts to maintain channel substrate, flow, and bank characteristics where possible;
- Using retaining walls rather than fill slopes to minimize overall impact area.

Additional mitigation measures would also include restoration of bank and channel disturbed during construction to provide naturally vegetated banks and increase channel habitat. These measures would provide stabilization to reduce erosion and sedimentation. All stream crossings would be designed in accordance with MaineDOT's July 2008 *Waterway and Wildlife Policy and Design Guide for Aquatic Organism, Wildlife Habitat, and Hydrologic Connectivity*.

Wetlands

Construction of the Preferred Alternative would result in approximately 22.0 acres of wetland loss. MaineDOT is committed to mitigating for unavoidable impacts to wetlands and would work with the USACE and the Maine Department of Environmental Protection (Maine DEP) during the design and permitting phase to ensure that a wetland mitigation program that fully meets federal and state regulatory requirements is designed and implemented.

Four preliminary sites have been identified as potential wetland mitigation areas that could provide a range of 40 to 1,712 acres of mitigation for impacts expected to occur from construction of the Preferred Alternative. A detailed description of each of these potential wetland mitigation areas is provided in Chapter 4. MaineDOT would continue to investigate the feasibility of these sites and would consult with agencies throughout the

mitigation site selection process and development of the wetland mitigation program during the final design process.

Wildlife Habitat and Fisheries

Mitigation measures for impacts to wildlife habitat include a variety of structural measures intended to prevent wildlife mortality and mitigate for fragmentation effects of new highways, as well as measures to protect water quality and habitat quality. MaineDOT would consider the use of separate wildlife crossings, extended bridges, bottomless and natural bottom fish passage structures, and oversized culverts as mitigation for impacts to wildlife habitat, such as reducing conflicts between motorists and moose or deer. To reduce costs, MaineDOT may combine waterway structures and wildlife passage structures. Other measures, such as habitat preservation and vegetation management that may mitigate for impacts to wildlife habitat, would also be considered. MaineDOT would consult further with Maine Department of Inland Fisheries and Wildlife (IF&W) to evaluate potential locations for wildlife mitigation measures and site-specific fisheries mitigation measures. Design details of these mitigation measures would be determined during the final design and permitting phase for the Presque Isle Bypass.

Applicable Regulations, Permits, Preliminary Cost Estimate, and Required Coordination

This section describes federal and state statutes and regulations that require interagency and public coordination during preparation and review of an EIS. These programs also require that certain permits and approvals be obtained prior to construction. A preliminary cost estimate for the FEIS Alignment Options is also provided. MaineDOT actions that may proceed after the completion of this EIS process may include final design, right-of-way acquisition, construction, permitting, and implementation of mitigation measures.

This FEIS helps MaineDOT meet the requirements of the Maine STPA, which requires MaineDOT to “evaluate the full range of reasonable transportation alternatives for significant highway construction or reconstruction projects.”

Applicable Regulations

Federal statutes and regulations that are applicable to this study include:

- NEPA, through the FHWA NEPA regulations at 23 CFR 771;
- Sections 401 and 404 of the Clean Water Act;
- Section 4(f) of the U.S. DOT Act ;

- Section 6(f) of the Land and Water Conservation Fund Act
- Section 106 of the National Historic Preservation Act;
- Clean Air Act;
- Farmland Protection Policy Act;
- Federal-aid Highway Standards;
- Endangered Species Act;
- Executive Order 11990, Protection of Wetlands;
- Executive Order 11988, Protection of Floodplains;
- Executive Order 12898, Environmental Justice;
- EPA, National Pollutant Discharge Elimination System;
- Magnuson-Stevens Fishery Conservation and Management Act;
- Bald and Golden Eagle Protection Act; and
- Uniform Relocation Assistance and Real Property Acquisition Policies Act.

State statutes and regulations that are applicable to this study include:

- Maine Sensible Transportation Policy Act of 1991;
- Maine Department of Environmental Protection, Natural Resources Protection Act;
- Maine Department of Environmental Protection, Solid Waste Management Law;
- Maine Department of Environmental Protection/Maine Department of Transportation, Stormwater Memorandum of Agreement; and
- Maine Endangered Species Act of 1975;

Required Permits

Table S-2 (Page S-13) lists the federal and state permit and approvals required for the Presque Isle Bypass.

**Table S-2
 Required Permits and Approvals**

PERMIT OR APPROVAL	AGENCY
Federal	
Record of Decision	Federal Highway Administration
Individual Clean Water Act Section 401/404 permit	U.S. Army Corps of Engineers/ U.S. Environmental Protection Agency
Section 106 of the National Historic Preservation Act	Advisory Council on Historic Preservation/ Maine Historic Preservation Commission
State	
Wetlands Individual Permit/ Water Quality Certificate	Maine Department of Environmental Protection
MEPDES – General Permit for Construction Activity	Maine Department of Environmental Protection

Conceptual Cost Estimate

Table S-3 (Page S-13) presents conceptual cost estimate for the each of the Presque Isle Bypass Alignment Options. This conceptual cost estimate includes engineering, ROW acquisitions, and mitigation. The 2008 conceptual cost estimate is valid as supported by a review of the 2011-2012 costs for design and construction of Segment 4 – Caribou Connector.

**Table S-3
 Conceptual Cost Estimate for the Presque Isle Bypass
 Alignment Options¹**

Alternative	Cost (\$ Million)
Alignment Option 4B	\$120.0
Alignment Option 6	\$130.0
Alignment Option 7	\$132.0

¹ 2012 construction cost estimate

Coordination

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

The Study Team coordinated with federal and state agencies during the preparation of this FEIS to obtain information on environmental conditions, review potential impacts, and obtain agency input. These agencies included the USACE, EPA, NRCS, USFWS, National Marine Fisheries Service (NMFS), IF&W, Maine DEP, Land Use

Regulation Commission (LURC), Maine Historic Preservation Commission (MHPC), the Maine State Planning Office (SPO), and the Maine Natural Areas Program (MNAP).

Since 2006, the Study Team also presented information on the progress of the ACTS at Interagency Coordination Meetings. These meetings were attended by representatives of the USFWS, USACE, EPA, Maine DEP and MHPC. A two-day interagency wetland mitigation field visit was held on November 1 and November 2, 2006.

1

Introduction

How to Read This Chapter: The Maine Department of Transportation (MaineDOT) has advanced the Presque Isle Bypass as the second Tier 2 Proposed Action of the Aroostook County Transportation Study (ACTS) because construction of this segment would improve transportation mobility in Presque Isle, the largest city in Aroostook County, as well as regionally, thus advancing the goals of the ACTS Purpose and Need more effectively than other segments.

This chapter defines the actions by the Federal Highway Administration (FHWA) and MaineDOT that are the subject of this Final Environmental Impact Statement (FEIS) and establishes the purpose of and need for these actions. In addition, this chapter reviews the history of the study and the relevant issues considered in the FEIS. It also lists the federal and state permits and actions likely to be necessary in order to implement the Proposed Action.

All accompanying figures are bound separately in Volume 2 of this FEIS, with the exception of Figures 2-6 and 4-14 which are embedded within the Volume 1 text.

1.1 Introduction

The FHWA and the MaineDOT have undertaken the ACTS pursuant to the National Environmental Policy Act (NEPA) and the Maine Sensible Transportation Policy Act (STPA) to identify transportation improvements that would enhance travel mobility and efficiency within northeastern Aroostook County and support regional economic growth. The ACTS Study Area is shown on Figure 1-1.

The ACTS has been undertaken as a phased or tiered NEPA study, as described in the Notice of Intent and subsequent NEPA documents. The purpose of the Tier 1 study (the ACTS) was to identify potential corridors that would satisfy the transportation and economic objectives of the ACTS. The Tier 1 study also identified segments of the overall north-south corridor that could be funded and constructed within a reasonable timeframe as funding became available. Each of these 11 Tier 2 segments have logical endpoints (termini) and independently enhance travel mobility and efficiency.

The Tier 1 Draft Environmental Impact Statement (DEIS) and the Supplemental Draft Environmental Impact Statement (SDEIS) examined four major corridors at a macro-level, basing the impact analysis on Geographic Information System (GIS)-level information and using uniform impact widths (300 feet for new corridors and 150 feet for upgraded corridors). It did not attempt to identify or analyze impacts of specific highway alignments within the corridors, nor did it examine the use of reduced right-of-way widths and/or specific roadway cross sections.

In December 2009, an FEIS was circulated by MaineDOT and FHWA that included both Tier 1 level analysis for the entire ACTS, and Tier 2 level analysis for the Route 1-161 Connector in Caribou only. After agency and public review, a Final Record of Decision (ROD) for the Tier 1 FEIS for the ACTS was approved by the FHWA Division Administrator, Maine Division on February 1, 2010 (Appendix A).

This FEIS identifies a **Proposed Action** for the Presque Isle Bypass. The Proposed Action is Alignment Option 7, a 9.8-mile limited access highway east of downtown Presque Isle. MaineDOT intends to advance the Presque Isle Bypass forward into final design and permitting upon FHWA's issuance of the ROD.

1.1.1 ACTS DEIS

The ACTS began in 1999 with a series of meeting with local residents and public officials. The Scoping Process for the ACTS DEIS was initiated by a Notice of Intent to prepare an EIS published in the *Federal Register* (week of September 17, 1999). A series of Public Scoping Meetings were held on September 14, 15, and 16, 1999 in Frenchville, Presque Isle, and Houlton, Maine, respectively.

The Notice of Availability of the DEIS appeared in the *Federal Register* on March 8, 2002. The DEIS presented the screening process that led to the identification of the 4 alternative highway corridors that were analyzed in detail, along with the No-Action Alternative. A series of 3 public hearings on the DEIS were held in Presque Isle, Frenchville, and Houlton on March 19, 20, and 21, 2002, respectively. At these hearings, FHWA and MaineDOT heard testimony with regard to the 4 DEIS Corridors. The comment period on the DEIS closed on April 30, 2002.

1.1.2 ACTS SDEIS

MaineDOT and FHWA prepared the SDEIS (published in June 2006) as a Tiered NEPA document, and it included both Tier 1 and Tier 2 level analyses. The Notice of Availability of the SDEIS appeared in the *Federal Register* on July 3, 2006.

At the Tier 1 level, similar to the DEIS, the 4 major north-south corridors connecting I-95 to the St. John Valley were described. The SDEIS corridors, later adopted as the FEIS corridors, are shown on Figure 1-2. These corridors were generally modifications

of those studied in the DEIS. The Proposed Action in the SDEIS included Corridor Management Plans for Route 1 between Caribou and Van Buren. For the first time during the ACTS, the SDEIS contained a Tier 2-level analysis of three of the eleven segments. The three segments listed below comprised the SDEIS Proposed Action.

- ▶ Segment 2 – an approximately 25.9-mile, two-lane upgrade of Route 161 between Caribou and Cross Lake Township;
- ▶ Segment 4¹ – the Route 1-161 Connector - an approximately 5.5-mile new connection between the Route 1/ High Street intersection and Route 161 in Caribou; and
- ▶ Segment 7 – the Presque Isle Bypass – a new 9.8-mile long bypass east of downtown Presque Isle (the subject of this FEIS).

1.1.3 ACTS SDEIS Re-evaluation

In compliance with the FHWA's NEPA regulations (23 CFR 771.129), because more than three years passed since the publication of the SDEIS and the preparation of a FEIS, MaineDOT prepared a Re-evaluation of the SDEIS to determine if there had been significant changes to the environment that would have a bearing on the proposed action or its impacts. The March 2009 Re-evaluation included, in compliance with FHWA's NEPA regulations (23 CFR 771.111(f)), a Logical Termini and Independent Utility Analysis for Segment 4 (Route 1-161 Connector in Caribou) and Segment 7 (Presque Isle Bypass).

In a letter dated April 2, 2009, the FHWA Division Administrator determined that there was no need to supplement the ACTS SDEIS and approved MaineDOT's request to independently advance two segments of the ACTS (Segments 4 and 7) as stand-alone NEPA projects (see Appendix D).

1.1.4 ACTS FEIS

In December 2009, an FEIS was circulated by MaineDOT and FHWA that included both Tier 1 level analysis for the entire ACTS, and Tier 2 level analysis for the Route 1-161 Connector in Caribou only. FHWA and MaineDOT deferred the selection of an overall preferred north-south corridor within the December 2009 ACTS FEIS. While the Tier 1 FEIS did not identify a preferred corridor, the Tier 2 proposed actions would serve all potential corridors and do not preclude future determinations.

¹ The length of Segment 4 in the Tier 2 FEIS was reduced to 4.3 miles.

In lieu of an overall preferred corridor, the ACTS FEIS identified a “**Proposed Action**” that consisted of highway construction of one of the eleven SDEIS Corridor segments, Segment 4, the Route 1-161 Connector in Caribou. After agency and public review, a Final ROD for the Tier 1 FEIS for the ACTS was approved by the FHWA Division Administrator, Maine Division on February 1, 2010. MaineDOT deferred decision making on nine of the ten remaining segments until such time as conditions warrant construction and there is reasonable funding available for them. The remaining segment, Segment 7, the Presque Isle Bypass, is the subject of this FEIS.

1.2 Purpose and Need

As was presented in the ACTS FEIS, the purpose of the ACTS is to evaluate transportation alternatives that would improve the region’s economy by improving transportation mobility. Aroostook County has an inadequate transportation system that limits access and mobility to, from, and within the county. Poor mobility in turn limits economic opportunity.

Specific elements of the need for transportation improvements include:

- A long-term loss of population in Aroostook County;
- A chronically higher unemployment rate in the Study Area than the state average;
- A job growth rate which has been chronically below the state average;
- A lack of diverse job opportunities, which would retain and attract workers; and
- A need to improve transportation access to, from, and within Aroostook County and the surrounding provinces to improve access to jobs, reduce long distances and travel times for goods to market, and address issues of transportation system continuity.

During the Highway Methodology process, the USACE, in consultation with MaineDOT, identified a Basic Project Purpose (BPP) for the Presque Isle Bypass. The BPP for Segment 7 is “**the purpose of the Segment 7 (Presque Isle Bypass) transportation improvements is to enhance regional transportation by reducing travel times and improving north-south and east-west traffic flow at Presque Isle, Maine thereby improving public safety and traffic flow/mobility in downtown Presque Isle.**”

1.3 Scope of the FEIS

This FEIS for the Presque Isle Bypass has been prepared in conformance with the requirements of the Council on Environmental Quality (CEQ) NEPA regulations and

with FHWA’s NEPA regulations and guidance documents.² This FEIS has five main purposes:

- Respond to comments on the ACTS SDEIS with respect to the Presque Isle Bypass;
- Identify the Preferred Alternative (the Proposed Action for this FEIS);
- Refine the Preferred Alternative in response to the comments on the SDEIS;
- Disclose the environmental consequences of the Presque Isle Bypass; and
- Identify the mitigation commitments for the Presque Isle Bypass.

1.3.1 Comments on the SDEIS/Tier I FEIS

Comments on the SDEIS and the Tier I FEIS were received at the three public hearings held for the SDEIS and through the mail during the comment period for the SDEIS and the Tier I FEIS. Over 400 people attended the SDEIS public hearings. FHWA received 40 comment letters regarding the SDEIS. These comment letters include Federal agency comments submitted by the U.S. Environmental Protection Agency (EPA). One state elected official provided comments. State agency comments were submitted by the State Historic Preservation Officer. Local and regional comments were submitted by officials of Caribou, Presque Isle, and the County of Aroostook.

Community organizations and businesses that submitted comments on the SDEIS included the Aroostook Municipal Association, the Aroostook Partnership for Progress, Leaders Encouraging Aroostook Development (LEAD), Loring Commerce Center, Maine Public Service Company, the Northern Maine Development Commission, the Presque Isle Snowmobile Club, and Sleeper’s Store of Caribou.

FHWA received three letters regarding the Tier I FEIS. Federal agency comments were submitted by the EPA. State agency comments were submitted by the Maine Department of Inland Fisheries and Wildlife. One letter was received from Caribou Management Company (concerning retail property in Caribou). All comment letters are found in Appendix C.

Responses to substantive comments related to the ACTS Tier I FEIS or the Caribou, Route 1-161 Connector Project Tier II FEIS were provided in the RODs for these documents. Responses to substantive comments on the ACTS SDEIS or Tier I FEIS related to the Presque Isle Bypass are provided in Chapter 5. There are no other outstanding comments that have not been addressed in either the ROD for the ACTS

² See Section 1.6 on page 1-8 for citations of CEQ regulations and FHWA NEPA regulations.

Tier I FEIS, the Caribou, Route 1-161 Connector Project Tier II FEIS or this Presque Isle Bypass Tier II FEIS.

The EPA noted that on-alignment upgrades would be less environmentally damaging than new alignment highways. The EPA recommended that extensive further study would be required for any corridor to address concerns regarding impacts to wetlands, groundwater, and water supplies, and that secondary impacts (uncontrolled growth and induced growth) were also concerns.

Municipalities, community organizations, and businesses expressed a wide range of opinions concerning the preferred corridor. Most municipalities indicated that the corridor segments proposed as an upgrade or widening of existing highways would adversely impact communities and residents, and would not meet the transportation objectives of the study. Many of the citizens' letters express concerns that their property would be adversely affected by the proposed highway corridors. Comment letters are found in Appendix C. Responses to ACTS SDEIS and FEIS comments specific to the Presque Isle Bypass are provided in Chapter 5.

1.3.2 Relevant Issues for the FEIS

Based upon comments that were received on the SDEIS and others received throughout the study, the major issues for the Presque Isle Bypass FEIS include:

- Transportation impacts, including improved mobility, safety, and reduced travel times;
- Land use impacts, particularly those to active farms, and impacts caused by property takings along existing and proposed new highways;
- Impacts to cultural resources, primarily those to historic properties along existing and proposed new highways;
- Impacts to the natural environment, particularly those to aquatic systems and the potential for habitat fragmentation; and
- The potential for secondary impacts, beneficial and/or adverse, caused by induced development.

1.4 Federal and State Decisions and Actions

This FEIS has been prepared to summarize the analyses conducted since the SDEIS; to identify a Proposed Action; to respond to comments received on the SDEIS for the Presque Isle Bypass; and to assess the potential transportation, social, economic, and environmental impacts of the Proposed Action. Following the completion of this FEIS, FHWA would issue a ROD that identifies the mitigation measures for the Proposed

Action that would be incorporated into the proposed project. MaineDOT actions that may proceed after the completion of this FEIS process may include final design, right-of-way acquisition, construction, permitting, and implementation of mitigation measures.

This FEIS also helps MaineDOT to meet the requirements of the Maine STPA, which requires MaineDOT to “evaluate the full range of reasonable transportation alternatives for significant highway construction or reconstruction projects.”

1.5 Regulatory Coordination

MaineDOT coordinated with federal and state agencies during the preparation of this FEIS to obtain information on environmental conditions, review potential impacts, and obtain agency input. These agencies included the USACE, EPA, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Maine Department of Inland Fisheries and Wildlife (IF&W), Maine Department of Environmental Protection (Maine DEP), Land Use Regulation Commission (LURC), Maine Historic Preservation Commission (MHPC), the Maine State Planning Office (SPO), and the Maine Natural Areas Program (MNAP). MaineDOT and FHWA also consulted with the Aroostook Band of MicMac Indians in December 2008 as part of the Section 106 coordination process with this federally-recognized Indian Tribe.

Over the last 13 years, MaineDOT has presented information on the overall ACTS and the Presque Isle Bypass numerous times to federal and state environmental agencies during Interagency Coordination Meetings. These meetings were generally attended by representatives of the USFWS, USACE, EPA, Maine DEP, and MHPC. MaineDOT also presented information on the progress of the ACTS at Interagency Coordination Meetings held on the following dates:

- April 11, 2006
- August 8, 2006
- March 13, 2007
- April 10, 2007
- June 27, 2007
- December 4, 2009
- February 9, 2010
- October 11, 2011

The Presque Isle Bypass would require a Section 404 Permit under the Clean Water Act from the USACE. In order to coordinate the USACE’s Section 404 permitting process with the NEPA process, MaineDOT submitted to the USACE a Phase I Avoidance Technical Memorandum (June 2007) and a Phase II Permit Application

(June 2008) in accordance with the Highway Methodology requirements.³ The Highway Methodology is the process that the New England Division of the USACE uses to coordinate the Section 404 review process with the NEPA process.

The Phase II Permit Application presented more detailed information on the alignment options advanced from Phase I to allow for meaningful agency and public comment. In January 2008, representatives from the USACE and FHWA attended a meeting of the City of Presque Isle's City Council and Planning Board to discuss the USACE Phase II Permit Application. In a letter dated June 27, 2012, the USACE identified Alignment Option 7 as the LEDPA (refer to Appendix B).

1.6 Applicable Regulations and Permits

This section describes federal and state statutes and regulations that require interagency and public coordination during preparation and review of an EIS. These programs also require that certain permits and approvals be obtained prior to construction.

1.6.1 Applicable Regulations

Federal statutes and regulations that are applicable to this study include:

- ▶ NEPA as amended, and regulations found at 40 CFR 1500-1508 and the FHWA NEPA regulations at 23 CFR 771;
- ▶ Sections 401 and 404 of the Clean Water Act of 1972, as regulated by the USACE and the EPA through 33 U.S.C. 1251-1376;
- ▶ Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. 303 and 23 CFR 774;
- ▶ Section 6(f) of the Land and Water Conservation Fund Act of 1965, 16 U.S.C. 460;
- ▶ Section 106 of the National Historic Preservation Act of 1966, 36 CFR 800;
- ▶ Clean Air Act, 42 U.S.C. 7401-7671q;
- ▶ Farmland Protection Policy Act, 7 U.S.C. 4201-4209;
- ▶ 23 U.S.C. 109, Federal-aid Highway Standards;
- ▶ Endangered Species Act of 1973, 16 U.S.C. 1531 et. seq as regulated at 50 CFR 17 and 50 CFR 402;
- ▶ Executive Order 11990, Protection of Wetlands, May 24, 1977;
- ▶ Executive Order 11988, Protection of Floodplains, May 24, 1977;

³ USACE New England Division. October 1993. The Highway Methodology Workbook. Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process.

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, February 11, 1994;
- EPA, National Pollutant Discharge Elimination System, 40 CFR 122;
- Magnuson-Stevens Fishery Conservation and Management Act, 50 CFR Part 600;
- Bald and Golden Eagle Protection Act, 16 U.S.C. 668-668c; and
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. 61 and 49 CFR Part 24.

State statutes and regulations that are applicable to this study include:

- Maine Sensible Transportation Policy Act of 1991, 23 M.R.S.A. § 73;
- Maine Department of Environmental Protection, Natural Resources Protection Act, 38 M.R.S.A. § 480-A et seq;
- Maine Department of Environmental Protection, Solid Waste Management Law, 38 M.R.S.A. § 1301;
- Maine Department of Environmental Protection/Maine Department of Transportation, Stormwater Memorandum of Agreement, December, 2007;
- Maine Endangered Species Act of 1975, 12 M.R.S.A. § 7751 et seq.

1.6.2 Required Permits

Table 1-1 (Page 1-10) lists the federal and state permit and approvals required for the Presque Isle Bypass.

**Table 1-1
 Required Permits and Approvals**

PERMIT OR APPROVAL	AGENCY
Federal	
Record of Decision	Federal Highway Administration
Individual Clean Water Act Section 401/404 permit	U.S. Army Corps of Engineers/ U.S. Environmental Protection Agency
Section 106 of the National Historic Preservation Act	Advisory Council on Historic Preservation/ Maine Historic Preservation Commission
State	
Wetlands Individual Permit/ Water Quality Certificate	Maine Department of Environmental Protection
MEPDES – General Permit for Construction Activity	Maine Department of Environmental Protection

1.6.3 Conceptual Cost Estimate

Table 1-2 (Page 1-10) presents conceptual cost estimates for the each of the Presque Isle Bypass Alignment Options. This conceptual cost estimate includes engineering, ROW acquisitions, and mitigation. The 2008 conceptual cost estimate is valid as supported by a review of the 2011-2012 costs for design and construction of Segment 4 – Caribou Connector.

**Table 1-2
 Conceptual Cost Estimate for the Presque Isle Bypass
 Alignment Options¹**

Alternative	Cost (\$ Million)
Alignment Option 4B	\$120.0
Alignment Option 6	\$130.0
Alignment Option 7	\$132.0

¹ 2008 construction cost estimate

1.7 Overview of FEIS

Chapter 2 presents a summary of the alignment options studied for the Presque Isle Bypass and describes the Proposed Action.

Chapter 3 describes the existing conditions within the Presque Isle Bypass Reference Area and Study Area, including transportation, land use, economic, social, and

cultural environment, the physical and biological environment, and the atmospheric environment.

Chapter 4 presents the analysis of the anticipated direct, secondary, and cumulative transportation, land use, economic, social, cultural, natural resource, and atmospheric impacts for the Proposed Action. It also presents MaineDOT's proposed mitigation measures.

Chapter 5 provides responses to comments received on the SDEIS and Tier I FEIS concerning the Presque Isle Bypass.

Chapter 6 summarizes the coordination and consultation with federal, state, and local agencies that MaineDOT has undertaken throughout the ACTS as well as the public participation process.

Chapter 7 lists the FEIS preparers.

Chapter 8 provides the FEIS circulation list.

Chapter 9 lists the documents referenced throughout the FEIS.

Chapter 10 is the Index.

Appendix A contains the FHWA's Record of Decision – ACTS Tier 1 FEIS.

Appendix B contains agency correspondence.

Appendix C contains the SDEIS comment letters and public hearing transcripts.

Appendix D contains the ACTS SDEIS evaluation.

Appendix E contains supplementary traffic and noise analysis

Volume 2 contains the FEIS figures.

This Page Intentionally Left Blank

2

Tier 2 Proposed Action

How to Read This Chapter: This chapter describes the alternatives analysis that has led to the identification of the Preferred Alternative within Segment 7, the Presque Isle Bypass. All accompanying figures are bound separately in Volume 2 of this FEIS, with the exception of Figures 2-6 and 4-14 which are embedded within the Volume 1 text.

2.1 Introduction

The Federal Highway Administration (FHWA) and the Maine Department of Transportation (MaineDOT) have deferred identifying an overall ACTS preferred corridor in the Tier 1 FEIS for the Aroostook County Transportation Study (ACTS). However, based upon the transportation, economic, and environmental analyses and available funding within the foreseeable 20-year construction expectation, MaineDOT has identified Segment 7, the Presque Isle Bypass, as the second Tier 2 ACTS corridor segment to be advanced. Segment 4, the Route 1-161 Connector in Caribou, was the first ACTS corridor segment to be advanced for construction. MaineDOT also implemented Corridor Management Plans (CMPs) for portions of Route 1 between Presque Isle and Caribou and between Caribou and Van Buren.

Segment 7 is a key component of the overall program of improvements being studied as part of the ACTS. The need for, and benefits of, the Presque Isle Bypass should not be considered in a vacuum, but rather must be seen as a critical component of a long-term program meant to serve the entire ACTS Area.

2.1.1 Purpose and Need

Improved traffic through or around Presque Isle would help to reduce travel time to, from, and within Aroostook County; improve traffic flow in the Presque Isle area; reduce potential for accidents; and reduce speed differentials in the developed area

and among highway uses. Segment 7 has logical termini and independent utility¹ and would satisfy the Purpose and Need of the Study in the following ways:

- Improve mobility by reducing travel times for through trips on Route 1 between points north and south of Presque Isle for present and future traffic;
- Improve public safety in Presque Isle by reducing vehicular conflicts caused by an undesirable mix of local/through traffic and car/truck traffic;
- Reduce unsafe speed differentials along Route 1 in Presque Isle;
- Improve safety at five High Crash Locations (HCL); and
- Provide better access to the east side of Presque Isle, particularly the Easton Industrial Area.

2.1.2 U.S. Army Corps of Engineers Basic Project Purpose

During the Section 404 Highway Methodology Process (Highway Methodology), the United States Army Corps of Engineers (USACE), in conjunction with MaineDOT, identified a Basic Project Purpose (BPP) for Segment 7. The BPP states:

The purpose of the Segment 7 transportation improvements is to enhance regional transportation by reducing travel times and improving north-south and east-west traffic flow at Presque Isle, Maine thereby improving public safety and traffic flow/mobility in downtown Presque Isle.

Each alignment option and alternative evaluated for Segment 7 satisfies, to varying degrees, the USACE BPP and the Purpose and Need of the ACTS as described in Section 1.2 (Page 1-4).

2.1.3 Segment 7 Reference Area and Study Area

This FEIS describes the existing natural and social resources both in a defined Reference Area and a Study Area. As seen on Figure 2-1, the Study Area for the Presque Isle Bypass is smaller than the Reference Area. The Study Area is defined as the area where alignment options for the Presque Isle Bypass (east of downtown Presque Isle) were developed. The Reference Area has been defined to provide a broader context for the analysis. The Segment 7 Reference Area is approximately 68 square miles (43,700 acres), consisting of most of the City of Presque Isle and the northern portion of the Town of Westfield.

¹ As approved by the FHWA Division Administrator upon review of MaineDOT's *Aroostook County Transportation Study – NH-HP-6462 (10) – SDEIS Reevaluation and Caribou and Presque Isle Logical Termini and Independent Utility Analysis*, March 31, 2009.

Downtown Presque Isle serves as the shopping, business, and employment center for this area. It is a dense population center and provides a full range of community resources and services, including educational, medical, civic, recreational, and commercial facilities. The Aroostook River traverses the Reference Area from west to east, and is the northern boundary of downtown Presque Isle.

In contrast, areas outside the developed downtown area along Route 1 consist predominately of farmland (approximately 21,200 acres) and undeveloped forest (approximately 20,200 acres).

2.1.4 Presque Isle Roadway and Highway Characteristics

The City of Presque Isle is the largest city in Aroostook County and is the center of economic activity within Aroostook County. Route 1 is the major north-south route through Presque Isle and serves as the central thoroughfare for the commercial downtown of Presque Isle, which stretches from the University of Maine at Presque Isle north to the Aroostook River. Figure 2-2 provides a map of a portion of the Presque Isle street network. Route 1 in Presque Isle has the highest traffic volumes of any city in Aroostook County. In 2004, average annual daily traffic on Route 1 in downtown Presque Isle (at Academy Street) was approximately 18,440 vehicles per day.

Within central Aroostook County, Route 1 serves both as the major through highway and also as Presque Isle's "Main Street" serving adjacent businesses and other destinations within the downtown. Motorists must use Route 1 to travel north-south in this region because the Route 1 Bridge over the Aroostook River is the only bridge crossing the Aroostook River in the Presque Isle area. This mix of through traffic (approximately 10 percent of which are trucks) with local traffic creates conflict as through-travelers desire a high speed free flow condition that is interrupted by the slower local traffic.

There are nine signalized intersections along Route 1 in downtown Presque Isle. Several of these intersections suffer from excessive queues and high vehicular delays during the morning and evening peak hours, particularly at the State Street at Main Street and Academy Street at Main Street intersections, which experience Level of Service (LOS) E/F conditions. These queues and delays are the result of left-turning vehicles on Route 1 blocking through traffic, as exclusive turning lanes are not provided. The northbound left-turn lane from Route 1 onto State Street and the southbound left-turn lane from Route 1 onto Academy Street cause substantial delays for through-traffic motorists.

Conflicts between trucks and other vehicles are exacerbated by the large volume of raw materials that are transported by truck from regions north and west of Presque Isle to businesses east of Presque Isle, particularly McCain Foods, Inc.'s potato processing plant and the J.M. Huber Corporation's Engineered Woods plant

on Station Road in the Easton Industrial Area in Easton. Trucks destined for Easton from the north generally approach on Route 1 in Presque Isle, cross the Aroostook River, turn left (east) onto Maysville Street (Route 163), pass the Aroostook Centre Mall, continue east on Route 163, turn south onto Burlock Road/Marston Road to reach Conant Road, then continue east to the intersection with Station Road. This route is circuitous, has areas of steep grades without climbing lanes, and follows steeply crowned, narrow, local residential roads with inadequate or no shoulders.

Motorists traveling to Easton from Mapleton on Route 163 need to travel through downtown Presque Isle. From Route 163, motorists would need to turn right onto State Street, then right onto Main Street (Route 1), and then turn left onto Academy Street (Route 10). Truck traffic passing through downtown Presque Isle from areas west of Presque Isle traveling to Easton causes traffic backups and lessens the quality of life in the area because of noise and air quality impacts.

2.2 Alternatives Evaluated

This section describes the No-Action, build, and other alternatives that have been studied for Segment 7. MaineDOT studied 11 different bypass alignment options and a Route 1 Upgrade/Transportation System Management (TSM) Alternative with the potential to satisfy the National Environmental Policy Act (NEPA) Purpose and Need for the Presque Isle Bypass. Eight alignment options were previously presented in the Supplemental Draft Environmental Impact Statement (SDEIS) and included two western bypasses of downtown Presque Isle (Far West Bypass, Near West Bypass), and six eastern bypasses (Alignment Options 1, 2, 3, 4, 5, and 6). MaineDOT, in coordination with the USACE and other Federal and state regulatory agencies, developed three additional alignment options (Alignment Options 4A, 4B, and 7) during the subsequent Highway Methodology process. During this period, Alignment Option 2 was modified to reduce wetland and farmland impacts and renamed Alignment Option 2X. In coordination with the City of Presque Isle, Alignment Option 2X was further modified and renamed Alignment Option 7.

The alternatives and alignment options evaluated for Segment 7 (shown on Figure 2-3) include:

- No-Action Alternative
- Route 1 Upgrade/TSM Alternative
- Presque Isle Bypass Alignment Options
 - Far West Bypass
 - Near West Bypass
 - Alignment Option 1
 - Alignment Option 2 (modified slightly and renamed 2X)
 - Alignment Option 3

- Alignment Option 4
- Alignment Option 4A
- Alignment Option 4B
- Alignment Option 5
- Alignment Option 6
- Alignment Option 7

Eight of the 11 Presque Isle Bypass Alignment Options, described below, satisfy the Purpose and Need to some degree. The No-Action, Route 1 Upgrade/TSM, Near West Bypass, and Far West Bypass Alternatives do not satisfy the Purpose and Need.

The Far West Bypass and Near West Bypass Alignment Options each consist of a new location highway west of the City of Presque Isle. All other Alignment Options are primarily new location highways east of the city. The Route 1 Upgrade/TSM Alternative consists of intersection and roadway improvements within downtown Presque Isle combined with appropriate TSM improvements. All new location alignment options are envisioned as eventually being four-lane, median-divided, access-controlled highways. MaineDOT plans initially to build a two-lane access-controlled facility, but would acquire a 300-foot wide right-of-way (ROW) to accommodate widening to four lanes in the future, should conditions warrant.

2.2.1 Alternatives Not Carried Forward

MaineDOT previously examined the Route 1 Upgrade/TSM Alternative, two alignment options west of downtown Presque Isle (Far West Bypass and Near West Bypass) and six alignment options east of downtown Presque Isle (Alignment Options 1, 2X, 3, 4, 4A, and 5). These alternative and alignment options were not carried forward from either the DEIS, SDEIS, or during the USACE Highway Methodology Phase I Avoidance or Phase II Permit Application process.

The environmental impact analysis for those alternatives not carried forward from the DEIS, including the Far West Bypass, Near West Bypass, and Alignment Options 3 and 5, was based on the impact of a four-lane roadway cross section. The impacts of the alignment options subsequently evaluated and not carried forward from the USACE Highway Methodology Phase I Avoidance or Phase II Permit Application process (the Route 1 Upgrade/TSM Alternative and Alignment Options 1, 2X, 4, and 4A) were based on the impacts related to a two-lane roadway cross section. Table 2-1 (Page 2-15) presents all previously evaluated alternatives and Alignment Options and the reason for their not being carried forward.

The following sections discuss the alternatives evaluated but not carried forward during the DEIS or the USACE Highway Methodology Phase I Avoidance Process.

2.2.1.1 Far West Alternative

The Far West Bypass, shown on Figure 2-3, is approximately 21 miles long, six miles longer than the existing route on Route 1. It diverges west from Route 1 just north of the Presque Isle/Westfield town line, passes between Echo Lake and Arnold Brook Lake, turns north and intersects Route 163 in the town of Mapleton and crosses the Aroostook River in the town of Washburn, before turning east and reconnecting with Route 1 in Caribou, just south of its intersection with Route 164.

The Far West Bypass needed to take a route that began south of the Arnold Brook impoundment and the large wetland system associated with Presque Isle Stream to the northwest of the impoundment. North of Route 163, difficult topography, specifically Haines Mountain (elevation 920 feet) just north of Woodland Road, required that the option continue due north and cross the Aroostook River, before it could be swung back to the east. Thus, environmental constraints and topography “pushed” the Far West Bypass too far west into the towns of Mapleton and Washburn to effectively attract travelers.

Reason for Not Carrying Forward

The Far West Bypass was not carried forward from the DEIS analysis because it would not satisfy the NEPA Purpose and Need.² It provided only a marginal transportation benefit in terms of vehicle-hours traveled (VHT)³ compared to the eastern alternatives and substantially increases vehicle-miles traveled (VMT).⁴ Its relative lack of benefit is due to its length and circuitous route which avoid sensitive environmental constraints west of Route 1 in Presque Isle. It would not improve mobility or address functional conflicts in Presque Isle.

The Far West Bypass would not remove through trips from Route 1. It would therefore not improve mobility by reducing travel time for through trips on Route 1 between points north and south of Presque Isle, would not improve public safety by removing through trips on Route 1 in downtown Presque Isle, and would not reduce vehicular conflicts caused by an undesirable mixture of local/through traffic and car/truck traffic. Although the bypass would be posted at 65 mph, because it would not remove traffic from Route 1, it would not reduce unsafe speed differentials on Route 1.

The Far West Bypass would also not improve access to large industrial facilities east of Presque Isle, such as the Easton Industrial Area, the Huber Engineered Woods factory, and McCain Foods’ potato processing facility.

² Refer to the Aroostook County Transportation Study, Initial Corridor Screening Technical Memorandum which was an appendix to the DEIS. The Far West Alternative is referred to in the Technical Memorandum as Alternative 36.

³ VHT = vehicle hours traveled. A measurement of the total hours traveled by all vehicles. It is calculated by multiplying the number of vehicles times the travel time of those vehicles on specific routes or links.

⁴ VMT = vehicle miles traveled. VMT is a measure of automobile use and trip length.

2.2.1.2 Near West Alternative

The Near West Bypass, shown on Figure 2-3, is approximately 3.6 miles long (0.5 mile longer than the existing route on Route 1) and is severely constrained by the Northern Maine Regional Airport property, the Montreal-Maine-Atlantic (MM&A) Railway, and the Northern Maine Fairgrounds. It diverges west from Route 1 approximately 2,000 feet north of the Route 1 crossing of the MM&A Railway in Presque Isle. It then extends northwest and crosses the MM&A Railway and Presque Isle Stream (just downstream of the public water supply intake) before turning northeast and threading between the Northern Maine Regional Airport and the Northern Maine Fairgrounds. It then intersects Route 227 opposite the Parsons Street Connector (Route 163). Vehicles would then follow the Parsons Street Connector to connect back with Route 1, just south of the Aroostook River.

Reason for Not Carrying Forward

The Near West Bypass was not carried forward from the DEIS because it would not satisfy the NEPA Purpose and Need. The Near West Bypass would improve mobility by reducing travel time for through trips on Route 1 between points north and south of Presque Isle. This alternative would not improve access to large industrial facilities east of Presque Isle, such as the Easton Industrial Area, the Huber Engineered Woods factory, and McCain Foods' potato processing facility. The Near West Bypass would also not reduce vehicular conflicts within downtown Presque Isle caused by an undesirable mixture of local/through traffic and car/truck traffic.

The Near West Bypass would also impact substantial amounts of farmland at its southern end and crosses Presque Isle Stream near the public water supply intake.

2.2.1.3 Alignment Option 3

Alignment Option 3, shown on Figure 2-3, was one of the Presque Isle Bypass alignments presented in the DEIS. It would diverge from Route 1 just north of the Presque Isle/ Westfield town line and extend north crossing Henderson Road, Williams Road, the MM&A Railway, and Easton Road (Route 10). It then swings slightly northeast and crosses Conant Road, State Street, Routes 163/167, the Aroostook River, the MM&A Railway a second time, Reach Road (Route 210), and Higgins Road before rejoining Route 1 south of Brewer Road (Route 210). This alignment option is approximately 9.9 miles long, 0.2 miles longer than the existing route on Route 1.

Alignment Option 3 bisects a number of large farm fields and crosses them at a diagonal, rather than making perpendicular crossings. Farm operators prefer as large a field as possible because farm operations, such as planting and harvesting, are faster, more efficient, and cost effective when large farm equipment can make long straight passes with few turns or other obstructions (*e.g.*, rock outcrops). Because modern farm machinery has a large turning radius, areas in "corners" are not reachable and often go

unplanted. For these reasons, farm operators indicated to MaineDOT that they would prefer that any new roads cross fields at their edges to keep as large an area as possible intact and that crossings be made at perpendicular angles to minimize the areas lost in corners.

Alignment Option 3 makes several diagonal crossings of farm fields in the area south of the MM&A Railway, and would have particularly severe impacts to the large, productive farm field at the corner of Centerline and Easton Road. It would also make undesirable diagonal crossings of fields north of the Aroostook River.

Reason for Not Carrying Forward

Alignment Option 3 satisfies the transportation elements of the NEPA Purpose and Need as it would provide similar traffic benefits as the other eastern alignment options being considered. However, Alignment Option 3 was not carried forward from the DEIS because it would have severe farmland impacts (283 acres with substantial operational impacts). This alternative also results in substantial impact to wetlands (53 acres, based on a four-lane cross section) and to historic (four) and Section 4(f) properties (five).

2.2.1.4 Alignment Option 5

Alignment Option 5, shown on Figure 2-3, diverges from Route 1 near the Presque Isle/Westfield town line. It extends north, passing through primarily farm and forest land, crossing Henderson Road, Williams Road, the MM&A Railway, Easton Road (Route 10), and Conant Road. It then extends slightly northwest crossing State Street, Routes 163/167, the Aroostook River, the MM&A Railway a second time, Reach Road (Route 210), and Higgins Road before rejoining Route 1 just south of Brewer Road (Route 210). Alignment Option 5 minimizes farmland impacts by skirting the edges of fields and passing through patches of undeveloped forest and wetlands. This alignment option is approximately 10.0 miles long, 0.3 miles longer than the existing route on Route 1.

Reason for Not Carrying Forward

Alignment Option 5 satisfies the transportation elements of the NEPA Purpose and Need, and it would provide similar traffic benefits as the other alignment options being considered. However, this alternative was not carried forward from the DEIS because it would result in the greatest amount of wetland impact (126 acres, based on a four-lane cross section) among the eastern bypass alignment options evaluated. Alignment Option 5 would also impact 163 acres of farmland and would affect more historic (five) and Section 4(f) properties (five) than the other alignment options studied.

2.2.1.5 Alignment Option 1

Alignment Option 1, shown on Figure 2-3, leaves Route 1 near the Presque Isle/Westfield town line and extends north crossing Henderson Road, the MM&A Railway, and Easton Road (Route 10). It then swings northeast and crosses Conant Road, Routes 163/167, the Aroostook River, wastewater lagoons associated with the former McCain potato processing plant, the MM&A Railway a second time, Reach Road (Route 210), and Higgins Road before rejoining Route 1 south of Brewer Road (Route 210). North of Route 163/167, Alignment Option 1 follows essentially the same alignment as Alignment Options 2X and 4A.

This alignment option is approximately 10.3 miles long, 0.6 miles longer than the existing route on Route 1, and includes upgrading approximately 0.4 miles of existing Route 1 at both the northern and southern connections to Route 1. Alignment Option 1 bypasses 9.7 miles of existing Route 1.

Alignment Option 1 has an at-grade intersection with Route 1 (north and south) and Conant Road and a grade-separated intersection at Route 163/167. The other roadways intersected by this option (Henderson Road, Williams Road, Easton Road, Reach Road and Higgins Road) would not be provided access and would be either overpassed or underpassed.

Reason for Not Carrying Forward

While Alignment Option 1 satisfies the transportation elements of the NEPA Purpose and Need, this alternative was not carried forward because it results in substantial wetland impact (36 acres, based on a two-lane cross section), affects several vernal pools (four), and negatively affects several historic properties (three), and Section 4(f) properties (three).

During the USACE Highway Methodology Phase I Avoidance process, the USACE dismissed Alignment Option 1, not carrying it forward for consideration in the Phase II Permit Application.

2.2.1.6 Alignment Option 4 (Centerline Road)

Alignment Option 4 (Centerline Road), shown on Figure 2-3, includes an upgrade of approximately two miles of Route 1 from Cambridge Road in Westfield to Centerline Road. This alignment option would then follow the existing Centerline Road ROW that extends due north-south between Route 1 and State Street. The alignment option would then be extended on new alignment northward across State Street, Routes 163/167, the Aroostook River, the MM&A Railway, and Reach Road (Route 210), before swinging west to rejoin Route 1.

Centerline Road is currently a rural arterial uncontrolled access roadway (with a varying 35- to 45-mph speed limit), which consists of a single 11-foot lane with two-

four-foot gravel shoulders in each direction. To achieve the desired functional classification, MaineDOT highway design standards require a limited access highway with a design speed of 65 mph speed limit (posted speed limit would be 55 mph) to consist of a single 12-foot lane with a 10-foot paved shoulder in each direction.

Alignment Option 4 is approximately 9.7 miles long, including upgrading approximately 2 miles of existing Route 1 at the southern connection and 0.35 miles of the northern connection to Route 1. Alignment Option 1 bypasses 7.8 miles of existing Route 1.

Reason for Not Carrying Forward

Alignment Option 4 satisfies the transportation elements of the NEPA Purpose and Need. However, Alignment Option 4 was not carried forward because it presents difficult construction problems that affect its practicability and results in severe social impacts as it requires a substantial number of residential and commercial displacements.

During the USACE Highway Methodology Phase I Avoidance process, the U.S. Environmental Protection Agency (EPA) requested that MaineDOT more fully evaluate Alignment Option 4 because of its potential to minimize impact to aquatic resources. The following provides a summary of MaineDOT's evaluation of the engineering practicability and the environmental impacts related to Alignment Option 4.

Engineering Practicability

MaineDOT determined that Alignment Option 4 is not a practicable alternative. The large hill at the southern end of Centerline Road between Henderson Road and the MM&A Railway presents substantial engineering problems. Meeting highway design requirements for grades requires a 30- to 60-foot cut in the hill over a 2,200-foot section of road and fill sections up to 70 feet deep over a 3,400-foot long section. Despite the large cut and fill sections, northbound and southbound truck climbing lanes would be required to traverse this hill. Because truck climbing lanes generally extend beyond the crest of a hill, the required cut would need to be wide enough to accommodate 4 traffic lanes, substantially increasing the land disturbance of this alternative and resulting in a less than desirable highway design.

Environmental Impacts

At 12.0 acres, Alignment Option 4 has the fewest acres of wetland impact of all the bypass options considered and nearly the fewest acres of farmland impact, however, it results in the greatest number of impacts to buildings.

Alignment Option 4 requires taking 40 structures along Centerline Road. This is a substantial portion of the properties along Centerline Road, and results in far more displacements than any of the other alignment options. The majority of these

structures are residential homes. These displacements would add to the loss of taxable property in Presque Isle, adversely affecting the community's tax base. As a limited-access highway, Alignment Option 4 would create an artificial eastern boundary to "inner" Presque Isle (particularly in the fast-growing residential area along Centerline Road, north of Academy Street), constraining future residential and commercial growth.

During the USACE Highway Methodology Phase I Avoidance process, the USACE dismissed Alignment Option 4, not carrying it forward for consideration in the Phase II Permit Application.

2.2.1.7 Alignment Option 4A

Alignment Option 4A, shown on Figure 2-3, was developed by MaineDOT in response to comments from the EPA that a shorter bypass be considered.

Alignment Option 4A consists of upgrading 4.2 miles of Route 1 from Cambridge Road in Westfield to approximately 0.5 mile south of the MM&A Railway. This upgrade consists of reconstructing Route 1 to provide a 12-foot lane and 10-foot shoulder in each direction. This portion of Route 1 would remain an uncontrolled access highway. South of the MM&A Railway, Alignment Option 4A would diverge from Route 1, extend northeast across agricultural land, and cross the MM&A Railway, Centerline Road, and Academy Street. It would continue north crossing Route 163/167, the Aroostook River, the MM&A Railway a second time, Reach Road (Route 210), and Higgins Road before rejoining Route 1 just south of Brewer Road. North of Route 163/167, Alignment Option 4A follows essentially the same alignment as Alignment Options 1 and 2X.

Alignment Option 4A is approximately 10.5 miles long, including upgrading approximately 4.2 miles of existing Route 1 at the southern connection to Route 1 and 0.35 miles of the northern connection to Route 1. Alignment Option 1 bypasses 5.6 miles of existing Route 1.

Reason for Not Carrying Forward

Alignment Option 4A satisfies the transportation elements of the NEPA Purpose and Need. However, Alignment Option 4A was not carried forward because it performed very poorly in the traffic analysis (Alignment Options 7, 6, 4B, and 2X all performed better). Due to its circuitous route, Alignment Option 4A was the only alignment option to result in an increase in VMT compared to the No-Action Alternative.

Further, Alignment Option 4A affects 19 acres of wetland and 174 acres of farmland (based on a two-lane roadway cross section). This alternative would have an adverse impact on farmland operations because it diagonally bisects about a dozen large farmfields, severely limiting their usefulness and affecting the local economy

through reduced production. The other eastern bypass alignments under consideration (except Alignment Option 4B) were specifically designed to cross along the edge of farmfields, or to cross parallel to the property line, thus limiting the impact to the remaining farm property.

During the USACE Highway Methodology Phase I Avoidance process, the USACE dismissed Alignment Option 4A, not carrying it forward for consideration in the Phase II Permit Application.

2.2.1.8 Alignment Option 2X

Alignment Option 2X, shown on Figure 2-3, leaves Route 1 near the Presque Isle/Westfield town line and extends north across Henderson Road, swings northwest and then north after crossing the MM&A Railway. After crossing Easton Road (Route 10) it turns northwest and crosses Conant Road, Routes 163/167, the Aroostook River, Reach Road (Route 210) and Higgins Road before converging with Route 1 south of Brewer Road (Route 210). North of Route 163/167, Alignment Option 2X follows essentially the same alignment as Alignment Options 1 and 4A. This alignment option is approximately 10.7 miles long, bypassing 9.7 miles of existing Route 1.

Alignment Option 2X has an at-grade intersection with Route 1 (south and north) and Conant Road and a grade-separated intersection at Route 163/167. The other roads and railroads intersected by this option (Henderson Road, MM&A Railway, Easton Road, Reach Road and Higgins Road) would not be provided access and would be either overpassed or underpassed.

Alignment Option 2X would result in 33.5 acres of wetland impact (based on a two-lane cross section), the highest wetland impact of the Alignment Options evaluated in the USACE Highway Methodology Phase II Permit Application. This alternative would also impact 183 acres of farmland and 17 structures. This alternative requires 11 stream crossings and impacts two vernal pools. No historic properties or Section 4(f) property would be affected.

Reason for Not Carrying Forward

While Alignment Option 2X satisfies the transportation elements of the NEPA Purpose and Need, this alignment option was not carried forward because, compared to the other alternatives evaluated in the USACE Highway Methodology Phase II Permit Application, Alignment Option 2X has the greatest wetland impact (33.5 acres) and requires the greatest number of stream crossings (11). This alignment option also affects two vernal pools. During the USACE Highway Methodology Phase II Permit Application process, the USACE dismissed Alignment Option 2X because of substantial wetland impact.

2.2.1.9 Route 1 Upgrade/Transportation System Management (TSM)

The Route 1 Upgrade/TSM Alternative, shown on Figure 2-3, includes highway and traffic signal equipment improvements at the signalized intersections in downtown Presque Isle, where appropriate, to enhance north-south travel along Route 1 and along the east-west routes that connect with Route 1.

Specifically, these improvements would include increasing the number of traffic lanes along Route 1 in downtown Presque Isle from to four to five lanes between Chapman Street and Church Street and modifying traffic signals at certain intersections. The added traffic lane would provide left-turn lanes at congested intersections. This would be accomplished by eliminating on-street parking lanes in downtown Presque Isle.

The existing street network in Presque Isle provides regional north-south connectivity along Route 1 (Main Street). Route 1 south of downtown Presque Isle is a two-lane rural highway with a 55 mph speed limit and sparse development. From the University of Maine north through downtown Presque Isle to Reach Road, Route 1 transitions to a four-lane urban street with on-street parking, dense commercial development, and passes through nine signalized intersections and ten unsignalized intersections. The posted speed limit in the downtown area is 25 mph, but traffic flow and speeds are controlled by the frequent traffic signals. East-west traffic crosses Route 1 at State Street, Allen Street, and the Parsons Street Connector-Maysville Street intersection, just south of the Aroostook River.

The densely-developed downtown business district includes a wide range of businesses and community services (the Social Security Administration, banks, restaurants, law offices, retail shops, the Northeastland Hotel, and car and recreational vehicle dealers).

Since this alternative would result in few, if any, impacts to aquatic resources the USACE and EPA requested that MaineDOT provide additional information concerning the practicability of this alternative. The following provides a summary of the additional investigation by MaineDOT and the City of Presque Isle related to the economic impact of this alternative.

Economic Impact

MaineDOT, in coordination with the City of Presque Isle, evaluated the economic effect of removing on-street parking in the downtown area. Based on extensive coordination with the business community (including a survey⁵ of downtown businesses conducted by the City of Presque Isle in March 2009), MaineDOT and the City of Presque Isle concluded that the Route 1 Upgrade/TSM Alternative was

⁵ City of Presque Isle, *Survey of Downtown Presque Isle Businesses*, March 25, 2009

undesirable because the downtown business district largely relies upon on-street parking for their patrons. The City of Presque Isle and the downtown business community felt that the loss of on-street parking would have a severe negative economic impact.

In November 2009, the City of Presque Isle provided additional information to MaineDOT⁶ concerning the availability and practicability of parking mitigation measures, *e.g.*, replacing parking spaces elsewhere or providing shuttle services. The parking analysis concluded that during business hours there is a high demand for the limited parking available in downtown Presque Isle. Several businesses (Braden Movie Theatre and Elks Club) create additional peak-period demand for on-street parking during movies and other events. Overall, excess public parking spaces does not exist along Main Street and adjacent streets to make up for the loss of 70 on-street parking spaces.

As a result, the Route 1 Upgrade/TSM Alternative is not supported by the City of Presque Isle because of its potential negative effect on downtown businesses. The then Presque Isle City Manager stated, in the City's submittal of the Parking Survey that "the city is opposed to eliminating downtown parking on Main Street" and that "many businesses are entirely dependent on Main Street parking as they do not have private parking lots." Furthermore, the City Manager stated that "constructing new parking lots behind businesses is not a realistic solution. Topography, location of a railroad line behind business located on the westerly side of Main Street, and store entrances facing Main Street are all limiting factors in attempting to relocate parking to new off-site parking lots."

Reason for Not Carrying Forward

The Route 1 Upgrade/TSM Alternative does not satisfy the NEPA Purpose and Need. This alternative would still require all north-south traffic to pass through the downtown business district of Presque Isle, and all east-west traffic to cross Route 1 in downtown Presque Isle and travel on residential city streets to access industrial facilities east of downtown Presque Isle. This alternative would not improve regional connectivity or traffic flow.

Because all traffic would continue to pass through the downtown business district, this alternative would not reduce the number of through trucks in the downtown area, and therefore would not improve safety or traffic flow in Presque Isle.

Overall, the Route 1 Upgrade/TSM Alternative was not carried forward because it does not satisfy the NEPA Purpose and Need and, through the removal of on-street parking in downtown Presque Isle, would likely result in substantial negative economic impacts to downtown businesses.

⁶ City of Presque Isle, *Downtown Presque Isle, Replacement Parking Analysis*, November 12, 2009

**Table 2-1
 Alternative and Alignment Options Evaluated and Reasons for Not Carrying Forward /Not Being Identified as the Preferred Alternative**

Alternative or Alignment Option	Carried Forward? (Yes/No)	Reason for Not Carrying Forward/Not Being Selected as the Preferred Alternative
No-Action	Yes	Does not satisfy Purpose and Need
Route 1 Upgrade/TSM	No	Does not satisfy Purpose and Need Substantial negative economic impacts related to loss of street parking
Far West Bypass	No	Does not satisfy Purpose and Need Does not improve mobility or public safety Would not reduce vehicular conflicts in downtown Presque Isle. Would not improve access to Easton Industrial facilities
Near West Bypass	No	Would not reduce vehicular conflicts in downtown Presque Isle Would not improve access to Easton Industrial facilities. Excessive farmland impact and close to public water supply intake
Alignment Option 1	No	Substantial wetland impact (36 acres), several vernal pools and historic properties (three)
Alignment Option 2X	No	Severe wetland impact (33.5 acres) and impacts two vernal pools. 183 acres of farmland impact
Alignment Option 3	No	Severe wetland (53 acres), farmed land (283 acres) impact, historic property impact (four), and Section 4(f) properties (five)
Alignment Option 4	No	Severe engineering difficulties and numerous residential displacements (40)
Alignment Option 4A	No	Poor transportation benefit (results in an increase in VMT) and severe farmland impact (174 acres). 14 acres of wetland impact
Alignment Option 4B (FEIS Alternative)	Yes	Severe engineering difficulties, farmland impact (264 acres), and two historic/Section 4(f) properties affected.
Alignment Option 5	No	Severe wetland (126 acres) and farmland (163 acres), Substantial impact to historic properties (five) and Section 4(f) properties (five)
Alignment Option 6 (FEIS Alternative)	Yes	Severe farmed land impact (289 acres) and four historic/Section 4(f) property impacts
Alignment Option 7 (Preferred Alternative)	Yes	Superior transportation benefit, no historic/Section 4(f) property impact. Selected as the Preferred Alternative.

2.2.2 FEIS Alternatives

The following sections describe the alternatives and alignment options evaluated and advanced for further study within the SDEIS, the subsequent USACE Highway Methodology Phase II Permit Application, and this FEIS. These alternatives include the No-Action Alternative and Alignment Options 4B, 6, and 7.

Table 2-4 (Page 2-25) provides a comparison of costs, physical features, and key environmental impacts of the Presque Isle Bypass FEIS Alternatives.

2.2.2.1 No-Action Alternative

The No-Action Alternative serves as a baseline to which other alternatives can be compared. The No-Action Alternative is defined as continuing MaineDOT's ongoing construction program with no additional extraordinary projects. MaineDOT's *Six-Year Transportation Improvement Plan (Six-Year Plan) for 2010-2015* lists the potential projects planned for construction during that period. It includes both highway reconstruction and highway bridge maintenance projects.

The *Six-Year Plan* includes several highway projects along or adjacent to portions of Routes 1 and Route 10 that are within the Presque Isle area. Table 2-2 (Page 2-17) lists the candidate projects that have been identified as a need but are not currently programmed in any capital improvement program.⁷ Projects in the *Six-Year Plan* are generally not as extensive as those envisioned in this FEIS. The *Six-Year Plan* does not include any new highways in the Study Area, and the reconstruction projects are generally limited to highway rehabilitation/ reconstruction as they currently exist. Although the scope of improvements for each location in the *Six-Year Plan* has not been developed, they generally do not include such features as widening or adding shoulders, or adding truck climbing lanes. The goal of this FEIS process is to assist decision makers in identifying alternatives for much more substantial improvements in the Presque Isle area, including a new location highway and/or major upgrades to existing highways.

The No-Action Alternative was not identified as the Preferred Alternative because it would not satisfy the NEPA Purpose and Need; would not improve mobility and north-south access to activity centers; would not provide travel time savings; would not improve safety; and would not improve functional conflicts in town centers. The No-Action Alternative will continue to be carried forward as a baseline comparison

⁷ This program of potential improvements would be carried out regardless of whether or not a separate construction project arises from this FEIS. For example, if MaineDOT were to decide to construct a new 4-lane highway following this study, other improvements already in the *Six-Year Plan* would still go forward. A project that arises out of this study would not preclude other programmed improvements unless, of course, the projects involved the same segment of highway, in which case the *Six-Year Plan* project would likely be subsumed by the project stemming from this study.

for the other alternatives being evaluated in this FEIS.

**Table 2-2
 No-Action Alternative: Six-Year Plan Projects within the Presque Isle Area**

Highway & Municipality	Location	Miles
Route 1		
Presque Isle	Highway Improvements: Beginning at Rice Street and extending 1.14 miles to Blake Street.	1.14
Route 10		
Presque Isle	Bridge Replacement: Phair Crossing Bridge (#3259) over the Bangor and Aroostook Railroad, located 0.83 of a mile northerly of the Easton town line.	0.02
Presque Isle	Highway Resurfacing: Route 10 beginning at Conant Road and extending westerly 1.4 miles to Main Street	1.40
Presque Isle – Easton	Pavement Overlay: Route 10 beginning 0.12 miles easterly of the Easton-Presque Isle town line and extending westerly 5.44 miles to Conant Road	5.44

Source: MaineDOT Multimodal Six-Year Capital Improvement Plan 2010-2015

2.2.2.2 Alignment Option 4B

Alignment Option 4B, shown on Figure 2-3 and Figure 2-4a through Figure 2-4i, was developed by MaineDOT in response from EPA’s request that a shorter bypass be developed. This alignment option consists of upgrading 1.7 miles of Route 1 from Cambridge Road in Westfield to the Route 1/Centerline Road intersection. Alignment Option 4B continues north, roughly parallels Centerline Road to the east, and goes east around the hill between Henderson Road and Williams Road. Immediately north of Easton Road (Route 10), Alignment Option 4B briefly crosses to the west of Centerline Road and then re-crosses back to the east of Centerline Road then extends northward across Routes 163/167, the Aroostook River, the MM&A Railway, and Reach Road (Route 210) before swinging west to rejoin Route 1.

Alignment Option 4B is approximately 8.3 miles long, including upgrading approximately 1.7 miles of existing Route 1 at the southern connection to Route 1 and 0.35 miles at the northern connection to Route 1. Alignment Option 4B bypasses 8.1 miles of existing Route 1.

Alignment Option 4B has at-grade intersections with Route 1 (north and south), Easton Road (Route 10), and Conant Road, as well as a grade-separated intersection with Route 163/167. The other roadways and railroads intersected by this option

(Henderson Road, MM&A Railway, Williams Road, Reach Road, and Higgins Road) would not be provided access and would either be overpassed or underpassed.

Alignment Option 4B requires substantial amounts of cut and fill in the area between the MM&A Railway and Henderson Road. Cuts over 40 feet deep for more than 1,200 feet and fills up to 70 feet deep for a distance of more than 3,800 feet long are required.

Alignment Option 4B would result in 18.2 acres of wetland impact, the second lowest wetland impact of the FEIS Alignment Options. This alignment option would also impact 264 acres of farmland and 12 structures. Alignment Option 4B would impact two historic properties protected under Section 4(f). This alignment option requires eight stream crossings and falls within two USACE 750-foot critical terrestrial habitat vernal pool buffer zones.

Alignment Option 4B satisfies the transportation elements of the NEPA Purpose and Need. However, Alignment Option 4B was not identified as the preferred alternative because, similar to Alignment Option 4, it presents difficult construction problems that affect its practicability. Specifically, the large hill at the southern end of Centerline Road between Henderson Road and the MM&A Railway would require substantial cuts and fills and truck climbing lanes to meet highway design requirements for steep grades.

This alignment option has the second highest impact to farmland on an acreage basis (264 acres). It would have the greatest adverse impact on farmland functions because this alignment option diagonally bisects about a dozen large farmfields, severely limiting their usefulness and affecting the local economy through reduced production. The other eastern bypass alignments under consideration (except Alignment Option 4A) were specifically designed to cross along the edge of a farmfield, or to cross parallel to the property line, thus limiting the impact to the remaining farm property.

Further, Alignment Option 4B requires the use of two Section 4(f) historic properties. The Secretary of Transportation cannot approve a project that requires the use of a Section 4(f) property if other feasible and prudent alternatives exist that do not require the use of Section 4(f) properties.

2.2.2.3 Alignment Option 6

Alignment Option 6, shown on Figure 2-3 and Figures 2-4a through 2-4i, was developed at the request of the USACE to provide an alignment with as little wetland impact as possible without regard to other resources, specifically farmland. This alignment option is generally the farthest east of the alignment options analyzed and diverges from Route 1 near the Presque Isle/Westfield border and extends north crossing Henderson Road, the MM&A Railway, Easton Road, and Conant Road. It

then swings northwest, crossing Routes 163/167, the Aroostook River, the MM&A Railway a second time, Reach Road (Route 210), and Higgins Road, before rejoining Route 1 south of Brewer Road (Route 210). Alignment Option 6 is approximately 9.7 miles long, including upgrading approximately 0.15 miles of existing Route 1 at the southern connection to Route 1 and 0.35 miles at the northern connection to Route 1. Alignment Option 6 bypasses 9.8 miles of existing Route 1.

Alignment Option 6 has at-grade intersections with Route 1 (north and south), and Conant Road and a grade-separated intersection with Route 163/167. The other roadways and railroads intersected by this option (Henderson Road, MM&A Railway, Easton Road, Reach Road, and Higgins Road) would not be provided access and would be either overpassed or underpassed.

Alignment Option 6 would result in 13.8 acres of wetland impact, the lowest wetland impact of the FEIS Alignment Options. This alignment option would impact 289 acres of farmland and 18 structures. This alignment option requires 10 stream crossings and falls within four USACE 750-foot critical terrestrial habitat vernal pool buffer zones. Four historic properties protected under Section 4(f) would be affected by this alignment option.

Alignment Option 6 satisfies the transportation elements of the NEPA Purpose and Need. Alignment Option 6 results in the lowest wetland impact (13.8 acres, based on a two-lane cross section) of all the FEIS bypass options. However, Alignment Option 6 was not identified as the preferred alternative because, at 289 acres, it affects the greatest amount of farmland. This alignment option also falls within four USACE 750-foot critical terrestrial habitat vernal pool buffer zones and is the only alignment option to affect Inland Waterfowl and Wading Bird Habitat (IWWH).

Further, Alignment Option 6 requires the use of four historic properties protected under Section 4(f). The Secretary of Transportation cannot approve a project that requires the use of a Section 4(f) property if other feasible and prudent alternatives exist that do not require the use of Section 4(f) properties.

2.2.2.4 Alignment Option 7 (Preferred Alternative)

Alignment Option 7 (a modification of Alignment Option 2X) was developed by MaineDOT, in conjunction with the City of Presque Isle, with the goal of reducing overall farmland impacts and lessen farm operation conflicts while avoiding wetlands.

Alignment Option 7, shown on Figure 2-3, Figures 2-4a through 2-4i, and Figure 2-5, leaves Route 1 near the Presque Isle/Westfield town line and extends north across Henderson Road, swings northwest and then north after crossing the MM&A Railway. After crossing Easton Road (Route 10) it turns northwest and

crosses Conant Road, Routes 163/167, the Aroostook River, and Reach Road (Route 210) before converging with Route 1 south of Brewer Road (Route 210).

This alignment option is approximately 9.8 miles long, one-half mile longer than the existing route on Route 1, and includes upgrading approximately 0.07 miles of existing Route 1 at the southern connection to Route 1 and 0.35 miles of the northern connection to Route 1. Alignment Option 7 bypasses 9.2 miles of existing Route 1.

Alignment Option 7 has an at-grade intersection with Route 1 (south and north). The Conant Road intersection would be at-grade or grade separated. The Route 163/167 intersection would be grade-separated. The other roads and railroads intersected by this option (Henderson Road, MM&A Railway, Easton Road, and Reach Road) would not be provided access and would be either overpassed or underpassed.

Alignment Option 7 would result in 22.0 acres of wetland impact. This alignment option would impact 218 acres of farmland and 27 structures. Alignment Option 7 falls within seven USACE 750-foot critical terrestrial habitat vernal pool buffer zones and requires 10 stream crossings. Importantly, this alignment option does not affect any historic properties or require the use of any Section 4(f) resources.

Alignment Option 7 satisfies the transportation elements of the NEPA Purpose and Need. Alignment Option 7 has been identified as the Preferred Alternative, as described in the next section. Alignment Option 7 is the Proposed Action of this FEIS.

2.3 Identification of the Preferred Alternative

The identification of the Preferred Alternative for Segment 7 was based on an analysis of the forecast transportation benefits and environmental impacts of the alternatives and alignment options evaluated for Segment 7. The Proposed Action of this FEIS is construction of the Presque Isle Bypass. Alignment Option 7 is the Preferred Alternative for the Presque Isle Bypass. The following sections describe the results of the transportation benefit analysis and environmental impact analysis which led to selection of the Preferred Alternative.

2.3.1 Transportation Benefit Analysis

The SDEIS Traffic Technical Memorandum (TTM)⁸ contains a detailed description of the Aroostook County Travel Demand Model that was used to evaluate how the Presque Isle Bypass Alternatives and Alignment Options performed with respect to the NEPA Purpose and Need. This methodology was subsequently applied to all Alignment Options evaluated.

⁸ Vanasse Hangen Brustlin, Inc. August 2005. *Supplemental Draft Environmental Impact Statement, Traffic Analysis Technical Memorandum*. Prepared for the Maine Department of Transportation

To better compare the relative difference between the performance of all alternatives and alignment options, the results were indexed. For each performance measure, the optimal values were indexed to 1.0, the worst values were indexed to 0, and the remaining values were rated proportionally between 0 and 1.0 (Figure 2-6, Page 2-23).

As seen on Table 2-3 (Page 2-25), for most performance measures considered (travel time savings, VMT, VHT, mobility, and downtown traffic shifts), Alignment Options 6 and 7 have the greatest transportation benefits. These alternatives save the most time (5.4 and 5.3 minutes, respectively) and would remove the most through traffic from downtown Presque Isle (4,390 to 4,320 vehicles per day, including 550 to 540 trucks per day). Of the 3 FEIS build options, Alignment Option 6 would provide greatest overall transportation benefits. Alignment Option 7 ranked second in the transportation benefit analysis with Alignment Options 4B providing the least overall transportation benefit.

2.3.2 Environmental Impact Summary

The Segment 7 Alignment Options were evaluated in the SDEIS and during the USACE Highway Methodology Phase I and Phase II process to determine their impact on wetlands, stream crossings, and IWWH based on the calculated slope limits for a two-lane facility. Impacts to structures, farmland, historic properties, and Section 4(f) properties are based on a 300-foot ROW width because these impacts are caused by land acquisition. Impact to vernal pool upland habitat is based on a 250-foot and 750-foot offset buffer from the center of the vernal pool. Detailed results of the environmental impact analysis for the FEIS Alternatives (Alignment Options 4B, 6, and 7) can be found in Chapter 4. A summary of the results is provided below.

The key environmental impacts assessed were impacts to wetlands, streams, farmland, structures, historic structures, and Section 4(f) properties (Table 2-4, Page 2-25). Wetland impacts were considered because of the need to minimize impacts to the aquatic environment under federal and state regulations. Impacts to resources protected under Section 106 of the National Historic Preservation Act (NHPA), as amended and under Section 4(f) of the DOT Act [Section 4(f)], were also evaluated. Section 4(f) of the DOT Act stipulates that a DOT action may not use land from a Section 4(f) property (public parks, public recreation lands, public wildlife refuges, or historic sites) unless there are no prudent and feasible alternatives to the use of that land.

Impacts to farmland were considered to be of critical importance to the affected community because of their protected status under the Federal Farmland Protection Policy Act and because of the importance that agriculture plays in the economy of Aroostook County and its way of life.

There are no alignment options that would completely avoid wetland impacts. Wetland impacts calculated for the various alignment options ranged from approximately 13.8 acres for Alignment Option 6 to 22.0 acres for Alignment Option 7. The alignment options can be ranked with respect to wetland impacts, from least (greatest wetland impact avoidance) to most (least wetland avoidance):

1. Alignment Option 6 (least)
2. Alignment Option 4B
3. Alignment Option 7 (most)

Alignment Option 4B requires eight new stream crossings while all other Alignment Options require 10 stream crossings.

Historic property impacts were low among all alignment options. Alignment Option 7 does not require any historic property impacts. Alignment Option 4B would impact two historic properties protected under Section 4(f). Alignment Option 6 would affect four historic properties, including a minor property impact to the English Barn on Caribou Road. The remaining three historic property impacts require more substantial property and structure takings which FHWA determined constitutes a Section 106 Adverse Effect.

Farmland impacts ranged from 218 acres for Alignment Option 7 to 289 acres for Alignment Option 6. Alignment Option 7 would be the least disruptive to farming operations because it affects the fewest acres of farmland and does not cross diagonally across farmfields. This analysis considered the operational impacts associated with crossing the center of a field rather than impacts only along the periphery of a field.

The alignment options can be ranked with respect to farmland impacts, from least (acres of farmland affected) to most (acres of farmland affected):

1. Alignment Option 7 (least)
2. Alignment Option 4B
3. Alignment option 6 (most)

Each Alignment Option would affect structures (residential, commercial, agricultural, industrial, or utility). The number of structures affected ranges from 12 for Alignment Option 4B to 27 for Alignment Option 7. The ranking of alignment options with respect to structures is:

1. Alignment Option 4B (least)
2. Alignment Option 6
3. Alignment Option 7 (most)

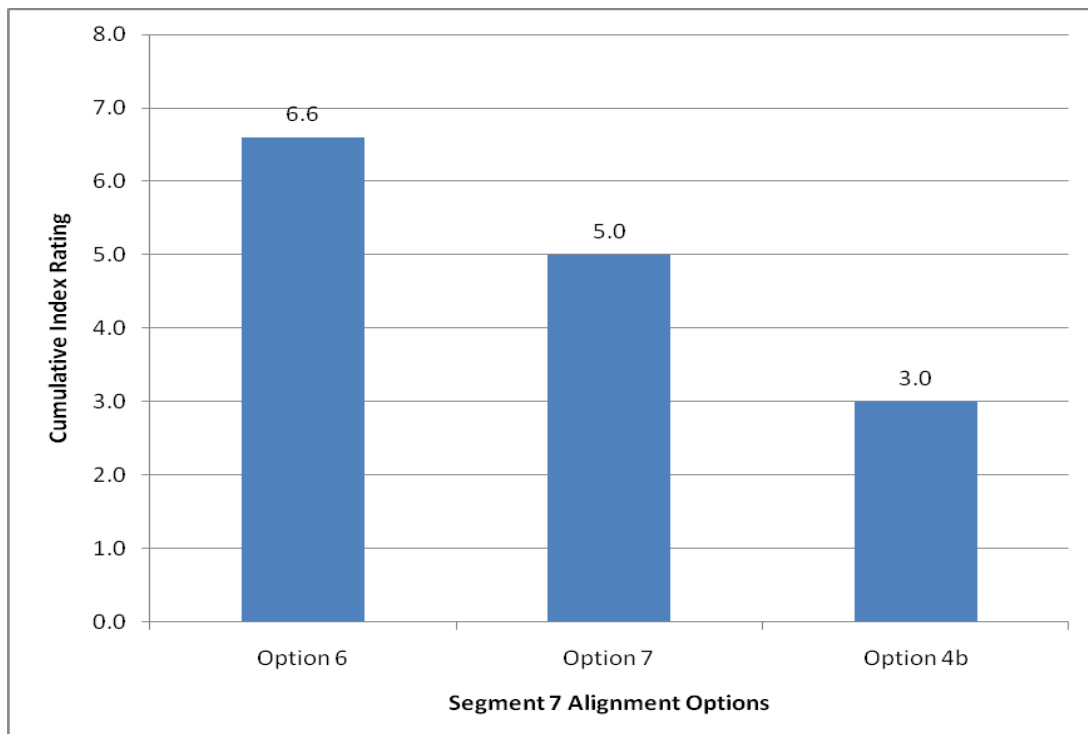
2.3.3 Preferred Alternative

MaineDOT, based on an evaluation of the transportation benefit analysis and the environmental impact analysis, identified Alignment Option 7 as the Preferred Alternative for Segment 7. Alignment Option 7 is the Proposed Action of this FEIS.

Of the alignment options evaluated, Alignment Option 7 offers the best balance of improving transportation mobility while limiting, to the extent feasible, impacts to natural and social environmental resources. While Alignment Options 4B and 6 would impact less wetland, they do so at the expense of farmland and structures, some of which are historic structures protected under Section 4(f). The Secretary of Transportation cannot approve a project that requires the use of a Section 4(f) property if other feasible and prudent alternatives exist that do not require the use of Section 4(f) properties. In a December 12, 2011 letter to the USACE, FHWA stated that of the alternatives remaining under consideration for the Presque Isle Bypass, the historic properties impacted by Alignment Options 4B and 6 are eligible for the National Register of Historic Places and that these impacts would result in an Adverse Effect in accordance with Section 106 of the National Historic Preservation Act (Appendix B). A transportation use, such as acquisition or demolition of an historic property is a Section 4(f) use. Alignment Option 7, however, is a feasible and prudent avoidance alternative that does not result in the use of Section 4(f) property.

The USACE, in a letter dated June 27, 2012, identified Alignment Option 7 as the Least Environmentally Damaging Practical Alternative (LEDPA) (Appendix B).

Figure 2-6: Ranking of Transportation Benefits



This Page Intentionally Left Blank

**Table 2-3
 Summary of Transportation Benefits vs. No-Action Alternative (2035)**

	Truck VHT	Total VHT	Total VMT	Travel Time	Mobility	Downtown PI Truck ADT	Downtown PI Total ADT
No-Action Alternative				15 min.	39%	990 trucks	13,840 vehicles
<i>Change vs. No-Action Alternative:</i>							
Alignment Option 4B	-50 vehicle-hours	-310 vehicle-hours	-770 vehicle-miles	-4.1 min.	45% (+6 %)	-420 trucks (-42%)	-3,330 vehicles (-24%)
Alignment Option 6	-80 vehicle-hours	-560 vehicle-hours	-2,090 vehicle-miles	-5.4 min.	46% (+7 %)	-550 trucks (-55%)	-4,390 vehicles (-32%)
Alignment Option 7	-80 vehicle-hours	-540 vehicle-hours	-1,320 vehicle-miles	-5.3 min.	46% (+7 %)	-540 trucks (-55%)	-4,320 vehicles (-31%)

VHT – Vehicle-hours traveled
 VMT – Vehicle-miles traveled
 Travel Time - travel time for through trips on Route 1 between points north and south of Presque Isle
 Mobility is the percent of daily traffic through the Segment 7 Study Area that travels on freeways and principal arterial roads.
 ADT – Average daily traffic
 Note: Shaded area denote the optimal value for each measure. Entries in bold and italics denote the worst value for each measure

**Table 2-4
 Comparison of Physical Features and Key Environmental Impacts**

Alignment Option	Cost (2012 Cost Estimate)	Length of New Highway (mi)	Length of Upgraded Highway (mi)	Aquatic Resources					Other Environmental Resources			
				Wetland Impacts ¹ (ac)	Number of Stream Crossings ¹	Significant Vernal Pools Affected	Within USACE Critical Habitat of Non-Significant Vernal Pools	Inland Waterfowl and Wading Bird Habitat (acres)	Farmland Impacts ² (acres)	Structures Impacted ²	Historic Properties Affected ²	Section 4(f) Properties Affected ^{2,3}
Alignment Option 4B	\$120.0M	8.3	2.0	18.2	8	0	2	0	264	12 (10 Residential)	2	2
Alignment Option 6	\$130.0M	9.7	0.5	13.8	10	0	4	0.7	289	18 (15 Residential)	4	4
Alignment Option 7	\$132.0M	9.8	0.4	22.0	10	0	7	0	218	27 (19 Residential) ⁴	0	0

1 Based on width of a two-lane highway.
 2 Based on the full ROW Width.
 3 Includes Historic Property Impacts
 4 One residential property is also used as commercial

This Page Intentionally Left Blank

3

Affected Environment

How to Read This Chapter: Chapter 3 describes the existing conditions and resources relevant to the Presque Isle Bypass in Presque Isle, Maine. Existing conditions are described for the roadway or highway transportation, socioeconomic, and physical and biological environment that may be affected by or may affect the nature of transportation improvements within the Presque Isle Bypass Reference Area.

All accompanying figures are bound separately in Volume 2 of this FEIS, with the exception of Figures 2-6 and 4-14 which are embedded within the Volume 1 text.

3.1 Introduction

This chapter summarizes the existing roadway or highway transportation environment, land use, economic, social and cultural environment, and the existing physical and biological environment. These environmental factors are presented because they provide a baseline for the assessment of potential future transportation and economic benefits and provide a baseline for the assessment of potential environmental, land use, cultural, social, and economic effects of the Presque Isle Bypass.

For the purpose of land use, social, and biological analyses, this FEIS describes the existing natural and social resources both in a defined Study Area and a Reference Area. As seen on Figure 2-1, the Study Area for the Presque Isle Bypass is smaller than the Reference Area. The Study Area is defined as the area where alignment options for the Presque Isle Bypass (east of downtown Presque Isle) were developed. The Study Area northern and southern limits are set as the limits of each alignment option. To the west, the Study Area limit is just west of Route 1. To the east, the Study Area limit runs parallel to the Presque Isle city line before crossing the Aroostook River and meeting with the western limit near Route 1.

A Reference Area has been defined to provide a broader context for the analysis of environmental impacts. The Presque Isle Bypass Reference Area is approximately 68 square miles (43,700 acres), consisting of most of the City of Presque Isle and the northern portion of the Town of Westfield. The Presque Isle Bypass Reference Area is bounded on the east and west by the Presque Isle city lines. The northern boundary of the Reference Area is approximately three miles south of the Presque Isle northern city line. To the south, the Reference Area extends into the Town of Westfield for approximately one mile beyond the Presque Isle southern city boundary.

Downtown Presque Isle, in the northwestern portion of the Reference Area, contains many businesses, residential neighborhoods, and the Northern Maine Regional Airport. Presque Isle is the commercial hub of the region. The downtown area contains many locally-owned businesses including restaurants, retail outlets, and professional and personal services. The areas immediately surrounding downtown Presque Isle contain larger chain businesses including retail outlets, restaurants, hardware stores, professional services and the Aroostook Medical Center.

The majority of the Reference Area consists of farmland and undeveloped forest. The Reference Area consists predominately of farmland (approximately 21,200 acres) and undeveloped forest (approximately 20,200 acres). The Aroostook River and the Presque Isle Stream run through the northern portion of the Reference Area. Arnold Brook Lake and Echo Lake are in the western part of the Reference Area.

Existing conditions described in this chapter include:

- Transportation Environment
 - The existing highway transportation system;
 - Existing traffic conditions; and
 - Geometric and safety deficiencies.
- Land Use, Economic, Social, and Cultural Environment
 - Land use;
 - Agricultural land;
 - Social and economic conditions;
 - Minority and low income populations;
 - Uncontrolled petroleum and hazardous materials;
 - Cultural resources; and
 - Public parks and recreation land.
- Physical and Biological Environment
 - Forests;
 - Aquatic resources and wetlands;
 - Wildlife habitat, significant wildlife habitat, and essential fish habitat; and
 - Endangered, threatened, and species of special concern.

- Atmospheric Environment
 - Air quality; and
 - Noise environment.

Unless otherwise noted, the information in this chapter is summarized from the Supplemental Draft Environmental Impact Statement (SDEIS) and the following technical memoranda prepared for the Aroostook County Transportation Study (ACTS):

- The *SDEIS Corridor Traffic Analysis Technical Memorandum*¹ (*SDEIS TTM*) contains detailed information on the existing traffic, highway, and safety conditions in the Study Area, based on existing information provided by Maine Department of Transportation (MaineDOT), an origin-destination survey conducted for this study in August 1999, and data on geometric and safety deficiencies collected during the spring and summer of 1999.
- The *SDEIS Economic Technical Report*² (*SDEIS ECTR*) contains an analysis of the population, employment, community, and economic characteristics of the Study Area, based on available secondary sources and supplemented by information provided by knowledgeable local public officials and business representatives.
- The *SDEIS Environmental Technical Report*³ (*SDEIS EVTR*) provides detailed descriptions of the environmental and cultural resources and constraints as well as a full description of the federal and state regulations relevant to each resource. Resources addressed in this report include aquatic resources; vegetation; wildlife; endangered, threatened, and other protected species; land use; and cultural resources. Available existing information was compiled from a variety of sources, including state agencies, local municipalities, and the Northern Maine Development Commission (NMDC).
- The *Aroostook County Transportation Study United States Army Corps of Engineers (USACE) Highway Methodology Phase I Avoidance and Phase II Permit Application – Presque Isle Bypass*⁴ contain detailed comparative analysis of the alternatives and alignment options considered for the Presque Isle Bypass. This included a transportation benefit analysis and a comparison of impacts to social and natural environmental resources including wetlands, farmland, structures, historic properties, and Section 4(f) resources.
- The *Aroostook County Transportation Study (MaineDOT #06462.10) – Presque Isle Bypass, Section 106 Determination of Effect Report*⁵ provides detailed descriptions of the proposed alignment options, the Area of Potential Effect, the process for

1 Vanasse Hangen Brustlin, Inc. August 2005. *Supplemental Draft Environmental Impact Statement, Corridor Traffic Analysis Technical Memorandum*. Prepared for the Maine Department of Transportation.

2 Vanasse Hangen Brustlin, Inc. August 2005. *Supplemental Draft Environmental Impact Statement, Economic Technical Report*. Prepared for the Maine Department of Transportation.

3 Vanasse Hangen Brustlin, Inc. August 2005. *Supplemental Draft Environmental Impact Statement, Environmental Technical Report*. Prepared for the Maine Department of Transportation.

4 Vanasse Hangen Brustlin, Inc. June 2007, June 2008 *Aroostook County Transportation Study USACE Highway Methodology Phase I Avoidance and Phase II Permit Application – Presque Isle Bypass* Prepared for the Maine Department of Transportation

5 Vanasse Hangen Brustlin, Inc. July 2011 *Aroostook County Transportation Study (MaineDOT #06462.10) – Presque Isle Bypass, Section 106 Determination of Effect Report*. Prepared for the Maine Department of Transportation

identifying historic properties, assessment of effects to historic properties, and identification of archeological areas. This Determination of Effect Report was submitted to Maine Historic Preservation Commission (MHPC) by MaineDOT in July 2011. In a letter dated September 26, 2011, MHPC concurred⁶ with the Determination of Effect.

3.2 Transportation Environment

This section provides a general overview of the existing transportation conditions in the Reference Area for the Presque Isle Bypass. It describes the key highways that serve the Presque Isle Bypass Reference Area and quantifies existing traffic demands, and geometric/safety deficiencies on the key highways. Information concerning the existing bus service in the Presque Isle area is also provided. Potential impacts on the transportation environment from construction of the Presque Isle Bypass are discussed in Chapter 4 (Section 4.2, Page 4-2).

3.2.1 The Transportation System

The City of Presque Isle is the largest city in Aroostook County and is the center of economic activity within Aroostook County. Route 1 is the major north-south route through Presque Isle and serves as the central thoroughfare for the commercial downtown of Presque Isle, which stretches from the University of Maine at Presque Isle north to the Aroostook River. Figure 2-2 provides a map of a portion of the Presque Isle street network.

Route 1 in Presque Isle has the highest traffic volumes of any location in Aroostook County. In 2004, average annual daily traffic on Route 1 in downtown Presque Isle (at Academy Street) was approximately 18,440 vehicles per day. Within central Aroostook County, Route 1 serves both as the major through highway and also as Presque Isle's "Main Street" serving adjacent businesses and other destinations within the downtown. Motorists must use Route 1 to travel north-south in this region because the Route 1 Bridge over the Aroostook River is the only bridge crossing the Aroostook River in the Presque Isle area. This mix of through traffic (approximately 10 percent of which are trucks) with local traffic creates conflict as through-travelers desire a high speed free flow condition that is interrupted by the slower local traffic. Along Route 1 in downtown Presque Isle, the mix of traffic along with pedestrians and traffic lights causes even slower traffic conditions.

⁶ Maine Historic Preservation Commission, July 26, 2011, *Determination of Effect, Presque Isle Bypass, Pin 6462.10, pursuant to the Maine Programmatic Agreement and Section 106 of the National Historic Preservation Act of 1966, as amended.*

3.2.2 Existing Traffic Conditions

Traffic volumes presented in this section are based on counts conducted by MaineDOT in 2004 through an ongoing statewide traffic counting program. Average annual daily traffic (AADT) volumes for key Study Area highways are shown in Table 3-1 (Page 3-5). Traffic volumes from 2004 still represent existing traffic conditions for the Presque Isle area because the population of Presque Isle has not substantially increased (1.9 percent increase since 2000). Employment levels have also remained virtually unchanged.

The higher traffic volumes in the Presque Isle Bypass Reference Area (over 15,000 vehicles per day) occur on Route 1 within downtown Presque Isle. The regional highways in the Reference Area, including Route 10, and Route 210, carry notably lower traffic volumes (below 10,000 vehicles per day) when compared to volumes in downtown Presque Isle.

**Table 3-1
 AADT Summary**

Highway	Location	2004 AADT ¹
Route 1 (Main Street)	Route 163 (Maysville Street)	15,420
Route 1 (Main Street)	Route 167 (North Street)	17,740
Route 1 (Main Street)	Route 227 (State Street)	14,280
Route 1 (Main Street)	Route 10 (Academy Street)	18,440
Route 10 (Academy Street)	Fleetwood Street	8,860
Route 163 (Parsons Road Connector)	Route 227 (State Street)	9,440
Route 163 (Maysville Street)	Route 167 (North Street)	5,460
Route 163/167 (Fort Fairfield Road)	Burlock Road	5,890
Route 210 (Reach Road)	Higgins Road	900

Source: 2008 Maine Transportation Count Book- Traffic counts for Presque Isle are from 2004

¹ AADT – Average annual daily traffic

3.2.3 Geometric and Safety Deficiencies

A safety review was conducted within the Reference Area limits to determine if the traffic demands being placed on the highways combined with the geometric conditions of the highways have resulted in unsafe operating conditions. High Crash Locations (HCL) and geometric deficiencies were identified for the key highways. An HCL is defined as a location with eight or more crashes in a three year period.

High Crash Locations

HCLs identified using MaineDOT data from 2007 to 2009 are listed below and are shown on Figure 3-1. HCLs occur at the following five locations in Presque Isle:

1. Park Street at Parsons Street
2. Central Drive at Parsons Street
3. State Street at Third Street
4. Route 1: Main Street at Maysville Street to the Wal-Mart Entrance
5. Route 1: Main Street from Summer Street to North Street

Geometric Deficiencies

Geometric deficiencies exist when the criteria contained within the MaineDOT Highway Design Guide are not met for the design speed of the facility. Reviews of vertical geometry, horizontal geometry, and highway lane and shoulder widths were completed. Geometric deficiencies along major roadways in Aroostook County include narrow lane and shoulder widths, and vertical and horizontal curves that exceeded current MaineDOT's design standards.

Geometric deficiencies in the Presque Isle area (and generally in all of Aroostook County) are related to the rolling terrain typical of the Reference Area with the most evident deficiency being vertical geometry. Vertical curvature refers to a highway's up and down grade changes. Vertical grades (steepness) are an issue for the safety of both large trucks and passenger vehicles. The MaineDOT criteria for maximum grades are based on functional classification, urban/rural location, type of terrain, design speed, and scope of the project. There is one area along Route 1 in Presque Isle near the Westfield town boundary with a vertical curve deficiency. Climbing lanes, which could reduce the potential for travel delay due to slower moving truck traffic, are not present.

3.2.4 System Continuity and Mobility

One of the overarching goals of this study is to identify a faster, safer, and more reliable route for motorists and trucks within and through the Presque Isle area. This can be accomplished by shifting regional traffic demand to highways with less interruptions and higher classifications to maximize mobility and travel speeds. For example, regional north-south traffic demands are not efficiently handled on Route 1 through downtown Presque Isle (four miles) which contains nine signalized intersections (see Figure 3-1) and the speed limit changes 4 times and varies between 25 mph and 45 mph.

Continuity and mobility varies with a highway's functional classification. Roads with a low classification, such as local and collector roads, primarily provide local access rather than regional continuity and mobility. Highways with higher classifications,

such as Interstate Highways and Principal Arterials, tend to provide a safer, faster, and more reliable route because of limited access points, higher speed design standards, and more passing opportunities. This tradeoff between mobility and access is directly related to reliability. For regional travel, a shift from lower classification roadways (local/collector) to higher classification (arterial) reflects an improvement in the study area mobility.

Sixty-one percent of the travel demands in the Reference Area are carried on roadways that have a low functional classification and numerous points of access and egress. Approximately 39 percent of the vehicle trips through the Reference Area occur on highways with a high functional classification such as freeways and principal arterials that historically have a lower crash occurrence. Existing traffic volumes are shown in Table 3-1 (Page 3-5).

3.2.5 Existing Bus Service

Scheduled bus service in Aroostook County is provided by the Aroostook Regional Transportation System (ARTS). ARTS serves all of Aroostook County, the Danforth area in Washington County, and the Patten area in Penobscot County. Scheduled bus service in Aroostook County is divided into five main routes anchored in the cities of Presque Isle, Caribou, Fort Kent, Madawaska, and Houlton.

In Presque Isle, the bus runs five days per week and serves in-town Presque Isle as well as trips to Fort Fairfield, Mapleton, Ashland, Portage, Sheridan, Oxbow, Masardis, Blaine, East Plantation, Robinson, Caribou, Mars Hill, Westfield, Bridgewater, and Easton. The in-town bus service in Presque Isle has stops at the Northern Maine Community College, the University of Maine at Presque Isle campus, the Aroostook Medical Center, the corner of State Street and Main Street, the North Street Plaza, the Aroostook Centre Mall, Mardens/Graves, and Wal-Mart.

3.3 Land Use, Economic, Social, and Cultural Environment

This section identifies elements of the human environment that provide important context to the study and that may be affected by potential actions taken as a result of this study. Information is presented on the existing resources:

- Land use;
- Farmed land and farmland soils;
- Economic environment;
- Minority and disadvantaged populations;
- Uncontrolled petroleum and hazardous wastes;
- Cultural resources; and
- Public parks and recreation lands.

Figure 3-2 illustrates the key social and cultural resources within the Reference Area that may pose constraints related to potential future transportation improvements.

3.3.1 Land Use

Land use is an important factor to consider in evaluating new and upgraded transportation corridors for several reasons. The impacts of new and upgraded corridors on land use are important to consider when making decisions on where transportation improvements should be made, because impacts to land uses could potentially adversely affect the economy and social fabric of the communities within the Reference Area. In the Presque Isle area, there are several major land use categories that greatly influence the social and economic fabric of the community, including agriculture, forestry, and recreation (particularly snowmobiling).

This section describes the existing conditions in the Presque Isle Bypass Reference Area for these important land uses and provides information on known uncontrolled petroleum and hazardous waste sites that could affect the implementation of transportation improvements. Potential impacts on land use from the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are included in Chapter 4 (Section 4.3.1, page 4-10).

3.3.1.1 Land Use Patterns

Forested and agricultural lands dominate land use patterns in the Presque Isle Bypass Reference Area. Together these uses account for 41,400 acres of land in the Reference Area (the total size of the Reference Area is approximately 43,700 acres). Forested land, including managed forestry, covers 20,200 acres of the Reference Area (Figure 3-3). Farmed land is the largest single land use, covering approximately 21,200 acres in the Reference Area (Figure 3-4).

Developed areas are generally limited to central Presque Isle and land adjacent to highway corridors in the Presque Isle area such as Route 1, Route 163, Route 167, and Route 227. Developed areas cover the remaining 2,300 acres of the 43,700-acre Reference Area.

3.3.1.2 Tribal Lands

The Aroostook Band of Micmac Indians is the only federally recognized sovereign tribal nation who owns land in the vicinity of the Presque Isle Bypass Reference Area. This land is north of the Presque Isle Bypass Reference Area, adjacent to Route 1 in Caribou. The Aroostook Band of Micmac Indians also owns 1,343 acres on eight parcels of land in Littleton, Bridgewater, Presque Isle, Limestone, Caribou, and Connor Township.

3.3.1.3 Snowmobile Trails

Aroostook County's 2,000 miles of snowmobile trails makes the region a destination for winter tourism. The main trail system, known as the Interconnected Trail System (ITS), runs throughout Aroostook County, including Presque Isle. There are several other regional connector trails (RT) and maintained club trails that connect to the ITS in the Presque Isle area. These include RT 76/76A, RT 81B, and RT 83 Bypass Trail. These trails are on privately-owned lands. There are no publicly-owned snowmobile trails in the Presque Isle Reference Area, therefore, Section 4(f) properties are not present. Snowmobile trails in the Reference Area are illustrated on Figure 3-5.

3.3.1.4 Land Use Planning and Zoning

Compatibility of transportation plans with local comprehensive plans and zoning must be considered in an Environmental Impact Statement (EIS). This section provides information on the relevant plans and zoning for the municipalities within the Presque Isle Bypass Reference Area.

The City of Presque Isle's Comprehensive Plan (2007) lists five transportation goals. Goals that are relevant to the Presque Isle Bypass include:

- That the location and alignment of any by-pass be fully evaluated by the City Council, City Planning Board, Maine Department of Transportation, Army Corps of Engineers, Environmental Protection Agency, and other state and federal agencies to minimize, to the greatest extent possible, the impact upon prime farmland and the economic impact to merchants located along and near the Route 1 corridor, the City's downtown area, and City in general.
- That any by-pass be fully evaluated by the City Council and Planning Board to insure that, to the greatest extent possible, future development in the City's designated growth areas is not adversely impacted.
- That roadways which support traffic to a by-pass are adequately upgraded to maximize safety and enhance traffic flow.

3.3.2 Farmed Land and Farmland Soils

Agricultural land is defined as land suitable for use in farming. Agriculture is one of the major economic sectors of the Presque Isle Bypass Reference Area, and cultivated land and farms are the dominant landscape elements along most of the Reference Area highways (Figure 3-4). Agricultural land occupies approximately 21,200 acres of the 43,700-acre Reference Area. The major crops in the area are potatoes, broccoli, barley, and canola.

Farms and farmlands are important factors in evaluating the benefits and impacts of transportation corridors, since these are directly connected to economics, communities, and visual character. This section describes active farms and regulated farmland soils. Potential impacts on agricultural land from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are included in Chapter 4, (Section 4.3.2, Page 4-14).

3.3.2.1 Regulatory Context

The Farmland Protection Policy Act (FPPA) of 1981⁷ was enacted by the U.S. Department of Agriculture (USDA) to ensure that significant agricultural lands be protected from conversion to non-agricultural uses. For highway projects receiving federal aid, the regulations promulgated under the FPPA require MaineDOT to coordinate with the USDA Natural Resources Conservation Service (NRCS).

3.3.2.2 Active Farms

Aroostook County is one of the largest potato growing regions in the United States. As shown in Figure 3-4, actively farmed lands are abundant within Presque Isle. Farm fields are the dominant landscape feature throughout the Reference Area. The cool climate and moist soils of this region are also ideal for cultivating broccoli. Other commercially grown crops include seed potatoes, barley, and canola. Crops are rotated making acreages of each crop within the Reference Area variable from year to year.

Actively farmed land is defined as agricultural land currently in use for farming. Actively farmed land in the Reference Area was identified through meetings with local farmers, site reconnaissance, and review of aerial photography. Active farms generally occupy designated farmland soils, but may also occur in less productive soils. Meetings with the agricultural community helped identify highly productive farmed land as well as less productive fields. Site reconnaissance confirmed the locations of active fields, key field access points, storage facilities, and locations where farm equipment crosses highways.

3.3.2.3 Prime and Unique Farmland Soils

The FPPA regulates four types of farmland soils: prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance. Farmland subject to FPPA requirements is based on soil type and does not have to be actively used for agriculture. It can be pastureland, forested, or other land types, but not open water or developed urban or transportation areas. The FPPA requirements apply if a

⁷ United States Department of Agriculture. Final rule effective August 6, 1984. *Section 2 [7 United States Code 4201] of the Farmland Protection Policy Act of 1981.*

project completed by a federal agency or with assistance from a federal agency would irreversibly convert farmland to non-agricultural use.

Prime farmland, unique farmland, farmland of state wide importance, and farmland of local importance within the Reference Area were digitized from USDA soils maps into a GIS-compatible format. Prime farmland and farmland of statewide importance were the only regulated soil types found in the Reference Area (Figure 3-4b).

Prime farmland and farmland of statewide importance have been mapped by NRCS for the Reference Area. Overall there is slightly more prime farmland (14,127 acres) than farmland of statewide importance (12,202 acres) within the Reference Area. Table 3-2 (Page 3-12) describes the Prime Farmland Soils and Farmland of Statewide Importance that occur within the Reference Area.

**Table 3-2
 Prime Farmland Soils and Farmland of Statewide Importance within the Reference Area**

Series	Series Symbol	Textures	Slope Class ¹		Parent Material	Drainage Class
			Prime	Statewide Importance		
Allagash	Ag	Fine sandy loam	A, B	C	Outwash	Well drained
Benson ²	Be	Silt loam	A, B	—	Calcareous till	Well drained
Canandaigua	Cd	Silt loam	B	—	Outwash	Poorly drained
Caribou	Cg	Gravelly loam	A, B	C	Calcareous till	Well drained
Colton	Cn	Gravelly sandy loam	A, B	—	Outwash	Somewhat poorly drained
Conant	Co	Silt loam	A, B	—	Calcareous till	Moderately well drained
Daigle ³	Da	Silt loam	A, B	—	Calcareous till	Somewhat poorly drained
Fredon and Halsey ³	Fh	Silt loam	A, B	—	Outwash	Very poorly drained
Hadley	Ha	Silt loam	A, B	—	Recent alluvium	Moderately well drained
Howland	Ho	Gravelly loam	A, B	C	Acid till	Moderately well drained
Linneus	Ln	Silt loam	B	C	Calcareous till	Well drained
Machias	Ma	Gravelly loam	A, B	—	Outwash	Moderately well drained
Madawaska	Mb	Fine sandy loam	A, B	C	Outwash	Moderately well drained
Mapleton	Mh	Shaly silt loam	B	C	Calcareous till	Well drained
Nicholville	Nc	Silt loam, very fine sandy loam	A	B	Outwash	Moderately well drained
Perham	Pe	Gravelly silt loam	A, B	C	Calcareous till	Well drained
Plaisted	Pg	Gravelly loam	A, B	C	Acid till	Well drained
Red Hook and Atherton ³	Ra	Silt loam	A, B	—	Outwash	Poorly/very poorly drained
Salmon	Sa	Silt loam	A	C	Outwash	Well drained
Stetson	Sg	Gravelly loam	A, B	—	Outwash	Well drained
Thorndike ²	Th	Shaly silt loam	B	—	Acid till	Well drained
Winooski	Wn	Silt loam	—	—	Recent alluvium	Moderately well drained

Source: Soil Conservation Service, 1964. *Soil Surveys Aroostook County Northeastern Part and Southern Part*, and correspondence from the USDA field offices in Presque Isle and Houlton, Maine, 2000 and with Wayne Hoar, Maine State Soil Scientist 2001.

- 1 Slope Classes: A = 0-2 percent slope; B = 2-8 percent slope; C = 8-15 percent slope; no slope designation = soil is only found at 0 percent slope
- 2 Prime only if irrigated
- 3 Prime only if drained

3.3.3 Social and Economic Environment

This section provides baseline socioeconomic data for the Reference Area. Potential impacts on the socioeconomic environment from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are included in Chapter 4 (Section 4.3.3, Page 4-17).

The Reference Area is comprised of the City of Presque Isle. Although some of the information is presented for Presque Isle, the variety of geographies used by different data sources require that certain subjects be discussed at a more regional level. Some information is presented for all of Aroostook County or for the Reference Area's labor market area (LMA), Presque Isle-Caribou.⁸

The data presented here represent an update of the socioeconomic information contained in the SDEIS. The SDEIS utilized the best available data at the time, which included 1990 Census population and income estimates, as well as employment and economic estimates and/or forecasts provided by other sources. The updated socioeconomic data includes population and demographic trends as well as economic, municipal tax base, housing, and real estate conditions from the most recent year the data was available.

Due to the elimination of the census long form in 2010 by the U.S. Census Bureau, certain demographics such as median household income are not determined in the decennial census. However, the American Community Survey (ACS) is a nationwide survey form that produces these missing demographics and statistics in the form of 1, 3 or 5 year estimates depending on an area's population. The data presented here are from the most recent Census information, either from U.S. Census 2010 data or available ACS estimates.

3.3.3.1 Population, Employment and Income

Presque Isle contains approximately 13 percent of the total Aroostook County population, based on 2010 U.S. Census Bureau data. The population, labor force, and income levels in the Reference Area have fluctuated modestly since the publication of the SDEIS in June 2006, based on information from the U.S. Census, Maine State Planning Office, Maine Department of Labor, Claritas, Inc., and RKG Associates, Inc.

⁸ Labor Market Areas, as defined by the Bureau of Labor Statistics, U.S. Department of Labor, "consists of an economically integrated geographical area within which workers can reside and find employment within a reasonable distance or can readily change employment without changing their place of residence." LMA's are utilized by the Maine Department of Labor (MeDOL) for statistical reporting purposes. In 2004, subsequent to the analysis undertaken for this report, the MeDOL revised its LMA definitions statewide. This resulted in the combination of the Patten-Island Falls LMA with the Houlton LMA and the Fort Kent LMA into the Presque Isle LMA.

Population Trends

The dominant characteristic of Presque Isle’s population has been its steady decline in recent decades. Between 1990 and 2000, the population in Presque Isle declined from 10,548 to 9,511 persons. This trend in population decline has been experienced in all of Aroostook County. The population in Presque Isle experienced a more positive population trend in the past decade, from 2000 to 2010. Within these years, the population in Presque Isle increased by 1.9 percent to 9,692 (Table 3-3, Page 3-14).

**Table 3-3
 Population Trends and Projections: 1990-2010**

	1990	2000	2010
Presque Isle Population	10,548	9,511	9,692
% Change over Prior	--	-9.8%	1.9%

Source: US Census 2010, *DemographicsNOW* and RKG Associates, Inc.

Population Age Distribution

Between 1990 and 2010, Presque Isle’s population experienced a shift of population base from younger aged cohorts into older ones. This is shown in Table 3-4 (Page 3-14). In 1990, 13.3 percent of Presque Isle’s population was age 65 and over, compared to 15.8 percent in 2000. In 2010, 16.2 percent of Presque Isle’s population was age 65 and over, showing a continuation of this trend. Substantial reductions in population were experienced in the under five (pre-school age) and five to nineteen (school-age) age cohorts. The late middle-age group (55-64) and over 75 age groups did however show a population increase between 2000 and 2010 of 45.0 percent, 10.4 percent, and 27.8 percent, respectively.

**Table 3-4
 Population Change by Age: 1990-2010**

Age Cohort	1990 (%)	2000 (%)	2010 (%)	% Change (1990-2000)	% Change (2000-2010)
Under 5	767 (7.3)	519 (5.5)	481 (5.0)	-32.3%	-7.3%
5 to 19	2,230 (21.1)	1,945 (20.5)	1,789 (18.4)	-12.8%	-8.0%
20 to 24	944 (8.9)	838 (8.8)	834 (8.6)	-11.2%	-0.5%
25 to 34	1,775 (16.8)	1,137 (12)	1,170 (12.1)	-35.9%	2.9%
35 to 54	2,488 (23.6)	2,704 (28.4)	2,598 (26.9)	8.7%	-3.9%
55 to 64	946 (9.0)	859 (9.0)	1,246 (12.9)	-9.1%	45.0%
65 to 74	786 (7.5)	774 (8.1)	727 (7.5)	-1.5%	-6.1%
75 to 84	469 (4.4)	522 (5.5)	576 (5.9)	11.3%	10.4%
85 and Over	<u>143 (1.4)</u>	<u>212 (2.2)</u>	<u>271 (2.8)</u>	<u>48.2%</u>	<u>27.8%</u>
Total	10,548 (100.0)	9,510 (100.0)	9,692 (100.0)	-9.8%	1.9%

Source: US Census 2010 and RKG Associates, Inc.

Labor Force, Employment, and Unemployment Rate Trends

Table 3-5 (Page 3-15) shows recent changes in the size of the labor force, the number of persons employed, and the unemployment rates within Aroostook County, the Presque Isle-Caribou LMA, and Maine in general.

**Table 3-5
 Labor Force, Employment, and Unemployment Rate Trends**

	2000	2010	Change (Number)	Change (Percent)
Labor Force				
Maine	685,781	697,251	11,470	1.7%
Aroostook County	37,931	34,176	-3,755	-9.9%
Presque Isle-Caribou LMA	24,050	23,936	-114	-0.5%
Employment				
Maine	662,066	641,978	-20,088	-3.0%
Aroostook County	36,291	30,871	-5,420	-14.9%
Presque Isle-Caribou LMA	23,050	21,675	-1,375	-6.0%
Unemployment Rate				
Maine	3.5%	7.9%	N/A	4.4%
Aroostook County	4.3%	9.7%	N/A	5.4%
Presque Isle-Caribou LMA	4.2%	9.4%	N/A	5.2%

Source: Maine Department of Labor
 N/A = Not Applicable

As shown, the size of the labor force statewide has increased marginally by 1.7 percent over the time period. This increase in the supply of labor is a generally positive economic indicator; however the number of employed workers decreased at the same time in Maine, Aroostook County, and the Presque Isle-Caribou LMA. Aroostook County and the Study Area experienced a decline in labor force. This decline in labor force indicates a reduction in the number of employable residents between the ages of 20 and 64.

The number of employed residents decreased in the State by about 20,088 people (3.0 percent), in Aroostook County by about 5,420 people (14.9 percent), and in the Presque-Isle-Caribou LMA by about 1,375 people (6.0 percent).

As shown, the 2010 average unemployment rates in Aroostook County (9.7 percent) and the Presque Isle-Caribou LMA (9.4 percent) are above the statewide average of 7.9 percent. In terms of unemployment rate trends over the 2000 to 2010 time period, rates generally increased within all three areas by between 4.4 and 5.2 percentage points.

Business Establishments

Although at-place job growth in selected communities within the Reference Area was relatively stagnant between 2001 and 2009, the area experienced a loss of business establishments over the same time period. As shown in Table 3-6 (Page 3-16), according to the Maine Center for Workforce and Research Information, there were 482 business establishments in Presque Isle in 2009, a decrease of 16 firms (3.2 percent) since 2001. On a labor market basis, the Presque-Isle-Caribou LMA also experienced a 3.1-percent decrease in business establishments. Industries that lost the most establishments in Presque Isle from 2001-2009 included Transportation and Warehousing (-26.9 percent), and Information Services (-23.5 percent). The industries that gained the most establishments during this time included Educational Services (60.0 percent) and Construction (57.7 percent).

Table 3-6
Business Establishment Trends: 2001-2009

Presque Isle Industry Sector	2001	2009	Change (Percent)
Agriculture, Forestry, Fishing, Mining	8	9	12.5%
Construction	26	41	57.7%
Manufacturing	23	22	-4.3%
Wholesale Trade	23	23	0.0%
Retail Trade	92	87	-5.4%
Transportation and Warehousing	26	19	-26.9%
Information Services	17	13	-23.5%
Finance and Insurance	24	23	-4.2%
Real Estate	22	22	0.0%
Professional/Technical Services	37	40	8.1%
Management of companies and enterprises	5	5	0.0%
Administration and Waste	15	21	40.0%
Educational Services	5	8	60.0%
Health Care	78	68	-12.8%
Accommodations and Food	33	30	-9.1%
All Other Ex. Public Admin	36	34	-5.6%
Public Admin	18	17	-5.6%
Total	498	482	-3.2%

Data unavailable for Utilities and Arts/Entertainment/Recreation

Source: Maine Center for Workforce and Research Information and RKG Associates, Inc.

Median Household Income

The median household income in Presque Isle in 2010 was \$36,563, which represents an increase of \$7,374, or 25.3 percent, since 2000 as shown in Table 3-7 (Page 3-17).

**Table 3-7
 Median Household Income Trends: 2000-2010**

	2000	2010	Change	Change (Percent)
Presque Isle	\$29,189	\$36,563	\$7,374	25.3%

Source: US Census 2006-2010 American Community Survey 5-Year Estimates, DemographicsNow, and RKG Associates, Inc.

Per capita income levels of Aroostook County residents were close to the State of Maine average during the 1970s. Since then, the rate of per capita income growth in Aroostook County has consistently lagged behind the state as a whole. In 2009, the State of Maine per capita income was \$36,479 while the per capita income in Aroostook County was \$30,961.⁹ As indicated in Table 3-13 (Page 3-23) the increase in median household income in Presque Isle from 2000 to 2010 can be attributed to an increase in the number of households earning greater than \$75,000 per year.

3.3.3.2 Community Characteristics and Conditions

This section describes the housing and commuting patterns within the Reference Area communities.

Housing Units

According to housing unit estimates provided by the U.S. Census and the Northern Maine Development Commission (NMDC), Presque Isle had 4,201 housing units in 2010, a decrease of 202 units (-4.6 percent) since 2000. Within the Presque-Isle-Caribou LMA, the housing unit estimates in 1990 were higher than in 2000 by 1,130 units or 5.6 percent. Table 3-8 (Page 3-17) shows the change in housing units within Presque Isle and the Presque Isle-Caribou LMA.

**Table 3-8
 Housing Unit Trends: 1990-2010**

	1990	2000	2010	%Change 1990-2000	% Change 2000-2010
Presque Isle	4,409	4,403	4,201	-0.1%	-4.6%
Presque Isle-Caribou LMA	20,079	18,949	NA	-5.6%	NA

Source: US Census 2010, Northern Maine Development Commission, and RKG Associates, Inc.

⁹ Maine Department of Labor Employment Info Guide. Accessed 2/8/2012.

3.3.3.3 Municipal Fiscal Conditions

This section describes the municipal fiscal and tax base characteristics for Presque Isle based on information provided by the City of Presque Isle.

Municipal Expenditures

As shown in Table 3-9 (Page 3-18), the municipal expenditures for Presque Isle totaled approximately \$21.6 million in 2010. The table also shows the distribution of expenditures by spending category and indicates that education expenditures accounted for 20.0 percent of total municipal spending. Public safety, the second largest spending category in Presque Isle, accounted for 8.9 percent of total spending.

Table 3-9
Total Municipal Expenditures: 2010

	General Admin.	Public Safety	Public Works	Airport	Solid Waste	Parks & Recreation	Education	Other	Total
Presque Isle	\$3,590,133	\$2,415,255	\$2,062,078	\$1,727,426	1,699,742	\$1,367,469	\$5,375,744	\$3,359,824	\$26,874,904

Source: City of Presque Isle

Municipal Revenues

Based on municipal revenue data provided by the City of Presque Isle, Presque Isle received approximately \$21.9 million in revenues in 2010. These revenues were generated through local real estate or personal property taxes (tax revenue), fees and licenses (non-tax revenue), as well as intergovernmental transfers from the state and federal governments. As shown in Table 3-10 (Page 3-18), revenues generated on a local level, taxes and other, constitute 88 percent of the revenue base, with intergovernmental revenue only accounting for 12 percent of the total.

Table 3-10
Total Municipal Revenues: 2010¹

	Taxes	Intergovernmental ²	Other ³	Total
Presque Isle	\$13,460,549	\$2,667,110	\$5,794,583	\$21,922,242

1 Does not include surplus or reserve funds

2 Intergovernmental revenue is a combination of Federal and State sources

3 Other revenue sources include charges for services, licenses, fees, etc.

Source: City of Presque Isle

Municipal Property Tax Base

In 2010, Presque Isle had a total tax base of approximately \$515 million, of which 69 percent (\$355 million) was from building improvements, 21 percent was from land,

and the remaining 10 percent was from personal property. Table 3-11 (Page 3-19) shows the municipal property tax base of Presque Isle in 2010.

**Table 3-11
 Municipal Property Tax Base: 2010**

	Land	Buildings	Personal Property	Total
Presque Isle	\$106,658,100	\$355,442,550	\$52,569,700	\$514,670,350

Source: Maine Revenue Services and RKG, Inc.

3.3.3.4 Economic Development Initiatives and Outlook

This section describes major employers in the area surrounding the Presque Isle Bypass Reference Area, economic development resources, higher education, tourism, and some of the economic issues that the regional economy would be facing over the next few years. This section is focused on Aroostook County as one of the goals of the Presque Isle Bypass is to improve transportation mobility in the region to improve the economy of Aroostook County.

Major Employers

As shown in Table 3-12 (Page 3-19), based on employer information provided by the Maine Department of Labor, the largest employer in Aroostook County is the Army National Guard. The second largest employer is the Aroostook Medical Center in Presque Isle.

**Table 3-12
 Top Ten Major Employers- Aroostook County: 2012**

Company/Organization	Industry	Employees	Location
Army National Guard	Government	5,000+	Houlton
Aroostook Medical Center	Health Care	1,000-4,999	Presque Isle
Cary Medical Center	Health Care	500-999	Caribou
Fraser Paper Company	Paper Manufacturing	500-999	Madawaska
McCain Foods	Food Processing	500-999	Easton
Northern Maine Medical Center	Health Care	500-999	Fort Kent
BurrellesLuce	Information	250-499	Presque Isle
Columbia Forest Products Inc	Plywood Manufacturing	250-499	Presque Isle
Community Living Assn.	Social Services	250-499	Houlton
Northern Maine General	Health care	250-499	Eagle Lake

Source: Maine Department of Labor & RKG Associates

Educational Institutions

Recent reports have shown that there is a strong correlation between job generation, out-migration, and educational opportunities, especially higher education. Relative to the size of the population, the region is well-served by educational institutions and training centers. The Presque Isle Area has many award winning primary and secondary schools and is home to two post-secondary institutions.

The Northern Maine Community College in Presque Isle was established in 1961 and currently serves approximately 2,000 students in more than 30 programs such as automotive technology, information technology, and nursing. The University of Maine at Presque Isle, founded in 1903, is an accredited institution that offers more than 30 four-year baccalaureate and two-year associate degree programs in four divisions.

One of the most serious challenges to the northern Maine economy is the out-migration of youth from the region. A large majority of high school students leave the region in order to attend colleges and universities in southern Maine or outside of the state. Many do not return to northern Maine due to greater employment opportunities that utilize the skills and knowledge acquired from their post-secondary education and greater cultural and urban amenities located outside of the region. A declining youth population depletes the economic and social fabric of a community or region and can have serious long-term effects. For a regional economy that has relied almost exclusively on its natural assets, attention and resources would have to be directed to addressing the youth out-migration challenge. In addition, the cultural amenities provided by colleges enhance the livability of the communities in which they are located.

A 2004 study by the University of Southern Maine Center for Business and Economic Research¹⁰ analyzed out-migration from Aroostook County and found that many of Aroostook County's youth left or intended to leave in order to pursue higher education objectives, and that given the opportunity, many would prefer to stay in Aroostook County.

Tourism

The Aroostook County economy is becoming increasingly dependent on tourism-related activities as a major source of income and employment. As reported in the Draft Environmental Impact Statement ([DEIS] on Page 3-50), visitors to the region impact a wide variety of economic sectors including food and lodging establishments, service businesses, and transportation providers. The region attracts visitors from other parts of Maine, from other states as well as from Canada throughout the year, with a large number of activities and destinations such as hunting, cross-country skiing, camping, snowmobiling, hiking, sightseeing, and

¹⁰ Charles Colgan and Bruce Andrews. October 2004. *Migration and Youth Migration from Aroostook County: Trends, Factors, and Implications*. Center for Business and Economic Research, University of Southern Maine. Prepared for Northern Maine Development Commission.

cultural enhancement. A 2003 report¹¹ highlighted the importance of tourism and indicated that although it is a growing “industry,” the rate of growth of tourism in Aroostook County has lagged that of the State of Maine.

Tourism impacts tend to be spread throughout Aroostook County. Snowmobiling, fishing, and hunting take place everywhere, while overnight lodging and restaurants tends to be located in and around the major population centers.

As the largest city in Aroostook County, Presque Isle provides the greatest concentration of visitor amenities, such as hotels and restaurants, than elsewhere in the county. The Northern Maine Regional Airport at Presque Isle provides visitors airline access to the county. Visitors to Presque Isle participate in many recreational activities including snowmobiling, hiking, and cross-country skiing.

Areas of Traditional Cultural Use

MaineDOT, USACE, and FHWA consulted with the Aroostook Band of MicMac Indians in December 2008 regarding the possible existence and location of areas of traditional cultural use along the alluvial banks of the Aroostook River extending northwest from approximately 0.7 miles east of the Route 1 Bridge over the Aroostook River in Presque Isle to Washburn (see Figure 3-2). Subsequent to December 2008, FHWA and MaineDOT consulted with MHPC Senior Archaeologist regarding these areas. The traditional cultural use is the collection by tribal members of fiddleheads and harvesting of brown ash used in the production of woven baskets and other traditional crafts produced and sold by members of the tribes. These activities are an economic resource for these federally recognized tribes.

Future Economic Issues

Aroostook County’s economic base has historically been rooted in a limited number of industries, including forestry and value-added wood products, agriculture, food processing, and manufacturing. A detailed discussion of these industries was included in the DEIS (beginning on Page 3-49). Although northern Maine’s economy is dependent on many outside influences, it is likely that these core industries would retain their prominent role in the regional economy of the future.

The NMDC established a regional marketing communications program in the mid-1990s to retain existing businesses as well as attract new investment to northern Maine. The program promotes Aroostook County’s regional advantages such as its available labor force and affordable commercial and industrial real estate. Emphasis is placed on marketing to Quebec and the Maritime Provinces of Canada. The NMDC currently targets its marketing efforts to industry sectors which could make the best use of the region’s natural, human, and financial resources and include:

¹¹ Planning Decisions, Inc. September 30, 2003. *Aroostook County Economic Cluster Report – Part 1: Analysis*. Prepared by for Northern Maine Development Commission.

- Value-added wood products;
- Specialty agriculture;
- Precision metals manufacturing; and
- Telecommunications-based industries.

Based on the industry sectors outlined above, it is apparent that the economic future of the region has connections to historical industries and new information-based technology industries. Additionally, with the coordinated efforts of groups like the Maine Winter Sports Center (MWSC) in Caribou and others, tourism could become one of the biggest, if not the biggest, contributors to the northern Maine economy in the future. Similarly, because of their employment growth, education and medical care would continue to be major economic contributors in the future.

3.3.4 Minority and Low Income Populations

This section describes the presence of minority or disadvantaged populations within the Presque Isle Bypass Reference Area (see Figure 3-2), updating the information presented in the SDEIS where updated data was available. The analysis utilizes data at the municipal level when possible; otherwise data at the county level is used due to the suppression of data by the Census Bureau for small populations. The findings at the county level are assumed to be representative of the Reference Area.

The following sections analyze the racial composition of the population, as well as indicators of low income and economically disadvantaged groups in the Reference Area and Aroostook County. Potential impacts to minority and low income populations from construction of the Presque Isle Bypass are included in Chapter 4 (Section 4.3.4, Page 4-25).

3.3.4.1 Regulatory Context

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* (EO 12898), and DOT Order 5610.2, *Environmental Justice in Minority and Low-Income Populations* require agencies to identify and address potential disproportionate high and adverse impacts on minority,¹² and low income populations. Minority and low income populations are identified using 2010 U.S. Census data. The following definitions were used in the analyses:

- **Minority Populations** – A Minority person is defined as an individual who is a member of one of the following population groups: Black or African American;

¹² The United States Census defines a minority as a person who is Black (a person having origins in any of the black racial groups of Africa); Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

American Indian and Alaska Native; Asian; Native Hawaiian, Other Pacific Islander, and some other race alone; and two or more races.¹³

- **Low Income Populations** – The final DOT Order 5610.2 defines Low-Income persons as those whose “median household income is below the United States Department of Health and Human Services poverty guidelines.”¹⁴ The White House Council on Environmental Quality (CEQ) Guidelines state that Low-Income populations should be identified using the annual statistical poverty thresholds developed by the Bureau of the Census. Data for Poverty by Age (P87) at the Block Group Level from the 2010 U.S. Census were used to identify Low-Income populations.

3.3.4.2 Income and Poverty Status

Presque Isle has a relatively higher share of lower income residents than other parts of the state and country. Table 3-13 (Page 3-23) indicates the distribution of household income in Presque Isle.¹⁵ Presque Isle’s income distribution has shifted from 2000 to 2010. The lower income groups have decreased, while the higher income groups have increased substantially. The first three lower income groups making between \$0 and \$50,000 a year have decreased by 12.0, 22.2, and 9.6 percent respectively, while the income groups making greater than \$50,000 a year have increased by 16.0, 94.8 and 125 percent respectively.

Table 3-13
Household Income Distribution, Presque Isle

Income Range	Number of Households (Percent)		Change (Percent)
	2000	2010	
<\$25k	1,684 (42.5)	1,482 (36.9)	-202 (-12.0)
\$25k - \$35k	611 (15.4)	475 (11.8)	-136 (-22.2)
\$35k - \$50k	769 (19.4)	695 (17.3)	-74 (-9.6)
\$50k - \$75k	543 (13.7)	630 (15.7)	87 (16.0)
\$75k - \$100k	212 (5.3)	413 (10.3)	201 (94.8)
>\$100k	144 (3.6)	324 (8.0)	180 (125)
Total	3,963 (100)	4,019 (100)	56 (1.4)

Source: 2006-2010 American Community Survey 5-Year Estimates, DemographicsNow and RKG Associates, Inc.

Poverty thresholds in the U.S. in 2010, by size of family, were \$10,830 (one person), \$14,570 (two people), \$18,310 (three people), and \$22,504 (four people). According to

¹³ United States Census Bureau. 2000. Data (<http://www.census.gov/main/www/cen2000.html>).

¹⁴ United States Department of Transportation. April 1997. *Federal Register 5610.2, Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*, Volume 62, No. 72.15.

¹⁵ United States Census Bureau. 2006-2010. American Community Survey 5-Year Estimates. (http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table)

the 2010 American Community Survey 5-Year Estimate Census data, 12.9 percent of residents in Aroostook County were living below the official poverty level in 2010, compared to 12.9 percent statewide and 15.3 percent nationwide.

3.3.4.3 Racial Composition

The change in racial composition of Presque Isle from 2000 to 2010 is shown on Table 3-14 (Page 3-24). Estimates provided by the U.S. Census Bureau indicate that Presque Isle had a minority (non-white) population of 406 residents in 2010, representing an increase of 58 (or 16.7 percent of the total minority population) since 2000. Presque Isle’s minority population in 2010 represented 4.1 percent of the total population, which is slightly higher than the 2000 minority population level (3.7 percent). In terms of total numbers, the largest racial minority populations living in Presque Isle in 2010 were American Indians (232) and Asians (85). Over the time period, the Black population experienced the most growth of any minority group, increasing by 27 or 79.4 percent.

As shown in Figure 3-2, a few 2000 census block groups in the Reference Area have minority populations above the Maine State Average (3.5 percent). Portions of downtown Presque Isle and the area surrounding the Presque Isle Airport have a minority population above the state average. The census block group in the north east portion of the Presque Isle Bypass Reference Area, east of the Aroostook River, has a minority population above the state average. The northeastern section of Downtown Presque Isle, south of the Aroostook River, contains minority populations above the state average.

**Table 3-14
 Presque Isle Racial Composition¹ Trends: 2000-2010**

	2000	2010	Percent of Total	Change (Number)	Change (Percent)
White	9,046	9,561	95.9%	515	5.7%
Black	34	61	0.6%	27	79.4%
American Indian	215	232	2.3%	17	7.9%
Asian	83	85	0.8%	2	2.4%
Other	16	28	0.3%	12	75%
Non-White Total	<u>348</u>	<u>406</u>	4.1%	<u>58</u>	<u>16.7%</u>
Total	9,394	9,967		573	6.1%
Non-White % of Population	3.7%	4.1%			

¹ In combination with one or more of the other races listed. Due to individuals reporting more than one race, the total population estimates provided in this table are slightly higher than the population estimates for Aroostook County provided in other tables.

Source: United States Census Bureau

3.3.4.4 Food Stamp and Temporary Assistance to Needy Families Recipients

According to information provided by the Maine Department of Health and Human Services, in December 2011, Presque Isle had 2,302 individuals who received Food Stamps (23.8 percent of the Presque Isle population) and Aroostook County had 16,863 individuals who received Food Stamps (23.5 percent of Aroostook County’s population). Participation in the Food Stamps program in both Presque Isle and Aroostook County was higher than the statewide average of 19.2 percent. In December 2011, Presque Isle had 162 cases of Temporary Assistance to Needy Families (TANF) participation and Aroostook County had 856 cases of TANF participation. Table 3-15 (Page 3-25) shows the number of residents in Presque Isle, Aroostook County, and Maine receiving Food Stamp or TANF assistance in December 2011.

**Table 3-15
 Participation in TANF¹ and Food Stamp Programs**

	2010 Population	Food Stamp Program			TANF Program	
		Cases (Number)	Individuals (Number)	Population (Percent)	Cases (Number)	Children (Number)
Presque Isle	9,692	1,275	2,302	23.8%	162	269
Aroostook County	71,870	9,059	16,863	23.5%	856	1,490
Maine	1,328,361	133,273	254,416	19.2%	13,503	23,922

¹ TANF - Temporary Assistance to Needy Families
 Source: Maine Department of Health and Human Services – December 2011

3.3.4.5 Assisted Housing

In addition to individuals receiving Food Stamp or TANF assistance, another indicator of the presence of economically disadvantaged populations is the distribution of federally assisted housing units throughout the region. As there are income eligibility thresholds for occupying federally assisted housing, the presence of subsidized housing units indicates a corresponding presence of low and moderate income households.

As shown in Table 3-16 (Page 3-26), the Presque Isle Labor Market Area (LMA) had 1,615 total subsidized housing units in 2009, representing 7.7 percent of the LMA’s total housing stock. The percent of subsidized housing units in Aroostook County in 2009 was 5.5 percent of the county’s total housing stock.

Table 3-16
Subsidized Housing Units in Presque Isle LMA and Aroostook County: 2009

	Total 2009 Housing Units	Family	Elderly	Disabled	Special Needs	Total Subsidized Units	% of 2009 Units
Presque Isle LMA	21,037	592	938	52	33	1,615	7.7%
Aroostook County	39,572	636	1,420	56	47	2,159	5.5%

Source: U.S. Census and Maine Housing Authority

3.3.5 Uncontrolled Petroleum and Hazardous Materials

This section describes potential and confirmed petroleum and/or hazardous materials sites within the Reference Area.¹⁶ Regional context is not relevant for assessing impacts of hazardous materials on the Presque Isle Bypass (or vice-versa) because hazardous materials are specific to the site where they occur. Potential impacts that petroleum and/or hazardous materials would have on the construction of the Presque Isle Bypass and measures to avoid, minimize, and mitigate the impacts of petroleum and/or hazardous materials are included in Chapter 4 (Section 4.3.5, Page 4-25).

3.3.5.1 Regulatory Context

Subsurface contamination and hazardous waste materials are regulated under several federal and state statutes, including U.S. Environmental Protection Agency (EPA) regulations under the *Clean Water Act* (administered by the Maine Department of Environmental Protection [Maine DEP]), *Resource Conservation and Recovery Act* (RCRA), the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), and regulations concerning Asbestos Containing Materials (ACM). The Occupational Safety and Health Administration (OSHA) regulates the protection of worker safety and health at the workplace. OSHA regulations, including regulations pertaining to Hazardous Waste Operations and Emergency Response (HAZWOPER), asbestos, and lead based paint, may apply to workers involved in construction. The Maine DEP's Bureau of Remediation and Waste Management administers a variety of programs that regulate petroleum and hazardous materials.

3.3.5.2 Study Area

Hazardous materials storage areas, underground storage tanks (UST), reported spills, and other potential sources of contamination were evaluated within

¹⁶ Hiller and Associates. September 2005. *Phase I Environmental Assessment, Aroostook County Transportation Study, Segment 7 – Presque Isle Bypass.*

Presque Isle Bypass Study Area, which was limited to 0.5 miles on either side of each of the Presque Isle Bypass alignment options.

3.3.5.3 Methodology

Multiple sources of information were collected, reviewed, and evaluated to assess the confirmed and potential presence of subsurface contamination and petroleum or hazardous material use and storage areas.

Environmental Database Search

A database search was undertaken to identify properties within the Study Area that have had a release of, or pose a threat of release of petroleum and/or hazardous wastes, and which may impact the environmental quality of the Study Area. The following databases were reviewed:

Federal Databases

- National Priorities List (NPL);
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS);
- RCRA list;
- Transportation, Storage, and Disposal (TSD);
- RCRA Generators; and
- Emergency Response Notification System (ERNS) list.

State Databases

- Maine state site investigation and remediation list (NPL and CERCLIS equivalent);
- Maine state landfill and/or solid waste disposal sites list;
- Maine state leaking UST list; and
- Maine state registered UST list.

Maine Department of Environmental Protection Records Review

Records maintained by Maine DEP were reviewed for information related to storage and accidental releases of petroleum and hazardous materials. The Maine DEP Master Underground Storage Tanks List was reviewed to identify locations of current and historical USTs. The Maine DEP Master Spill Report list was reviewed for the City of Presque Isle to identify historical releases of petroleum and hazardous materials. Spill reports reviewed were limited to those located within the Study Area and to those spills that were greater than 20 gallons of gasoline or fuel oil, or one gallon of petroleum distillates or hazardous material.

Site Reconnaissance

In September 2005 and January 2006, site reconnaissance was performed in the Study Area for evidence of petroleum and/or hazardous materials.

Interviews

Public officials were interviewed regarding petroleum and/or hazardous waste issues within, or in the vicinity of, the Study Area. Interviews were conducted with:

- Tom King, Dispatcher, City of Presque Isle, Police Department;
- Steve Freeman, Superintendent, City of Presque Isle, Sewer and Water District;
- Jim Krysiak, Fire Chief, City of Presque Isle, Fire Department; and
- Jerry McAdvaddey, Code Enforcement Officer, City of Presque Isle, Code Enforcement.

The interviewees were unaware of any unreported major spill events along the Presque Isle Bypass Alignment Options.

3.3.5.4 Existing Conditions

Potential uncontrolled petroleum and/or hazardous materials sites in the Study Area are described below. Figure 3-6 show the locations of registered USTs. Figure 3-6 also shows known petroleum and/or hazardous waste spills that have occurred in the vicinity of the Alignment Options considered for the Presque Isle Bypass.

Hazardous Materials

No Federal NPL, CERCLIS, RCRA, TSD, RCRA Generators, or ERNS sites were identified within the Study Area. Similarly, a review of the Maine state site investigation and remediation list indicates that no generators of hazardous materials are located within 0.5 miles of the alignment options. No sites meeting either the Maine state uncontrolled hazardous waste site or the Maine state landfill and/or solid waste disposal site description are located within 0.5 miles of the Presque Isle Bypass Alignment Options.

Existing and Former Underground Storage Tanks

Nine active USTs are known to be present within the Study Area, as shown on Figure 3-6. The condition of these USTs is unknown.

Known Spills

Six spills at five locations are known to have occurred within the Study Area. The location of these spills is shown in Figure 3-6. Descriptions of these spills are provided in Table 3-17 (Page 3-29).

Table 3-17
Known Spills within One-Half Mile of the Presque Isle Bypass Alignment Options

Location	Date	Details
Mike Grant Farm 280 Conant Road, Presque Isle	05/15/88	Drums of pesticides were dumped into an open ditch. Soil tests found high concentrations of the pesticide dinoseb.
Al Irving 40 Fort Fairfield Road, Presque Isle	11/18/93	Approximately 500 gallons of propane was released. The propane dispersed rapidly, and tests with an explosimeter found no continuing risk.
Parker K. Bailey Facility 85 Houlton Road, Presque Isle	03/08/95	Approximately 0.25 gallons of pesticides were spilled. The pesticides was MOCAP 6EC, an organophosphate which was identified as very toxic. The Maine DEP placed the material in an over pack drum.
Perry's Mini-Mart 398 Houlton Road, Presque Isle	05/17/95	Approximately 128 cubic yards of gasoline-contaminated soils were discovered during removal of two USTs. The soil was subsequently removed. In June 1995, a water test on the Mini-Mart's well water identified gasoline in the well water. The Maine DEP installed a carbon filter on the well plumbing and began water quality monitoring.
Irving Forest Products Truck at Perry's Mini-Mart 398 Houlton Road, Presque Isle	09/07/01	Approximately 15 gallons of hydraulic fluid was discharged from a truck. The fluid was recovered and removed from the site.
Presque Isle Public Works Department 334 Houlton Road, Presque Isle	02/12/03	Approximately 25 gallons of hydraulic fluid was discharged from a snowplow truck. The fluid was recovered and removed from the site.

The former location of a McCain Foods, Inc. potato processing plant, and a complex of agricultural buildings are also in the vicinity of the Alignment Options considered for the Presque Isle Bypass. The McCain Foods, Inc. buildings were demolished over a decade ago. Waste piles and lagoons are still present on the property, but based on information provided by the owner, the material is organic waste. The complex of agricultural buildings located on Conant Road would be evaluated for the presence of hazardous materials during the final design and permitting of the Proposed Action.

3.3.6 Cultural Resources

This section describes cultural resources within the Presque Isle Bypass Study Area that are listed on or eligible for listing on the National Register of Historic Places. The National Register is the nation's official list of cultural resources worthy of preservation. Districts, sites, buildings, structures, objects, and properties of traditional cultural significance may be listed or eligible for listing on the National Register if they are greater than 50 years old, meet one of four evaluation criteria, and possess integrity. The four evaluation criteria are:

- A. Association with events that have made a significant contribution to the broad patterns of our history;
- B. Association with the lives of persons significant in our past;
- C. Embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high

artistic values, or representation of a significant and distinguishable entity whose components may lack individual distinction; and

- D. Yielding or demonstrating the potential to yield information important in prehistory or history.

State Historic Preservation Officers (SHPO) advise and assist federal agencies in carrying out their Section 106 responsibilities and ensuring that historic properties are taken into consideration at all levels of planning and development. In Maine, the Director of the MHPC is the SHPO. Federally recognized Native American tribes may assume the responsibilities of the SHPO on tribal lands and appoint a Tribal Historic Preservation Officer (THPO) subject to National Park Service designation. In the Presque Isle Bypass Reference Area, there is one federally recognized tribe, the Aroostook Band of Micmac Indians.

Potential impacts on cultural resources from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are discussed in Chapter 4 (Section 4.3.6, Page 4-27).

3.3.6.1 Regulatory Context

NEPA requires federal agencies completing Environmental Impact Statements to address impacts to cultural resources under the requirements of the National Historic Preservation Act (NHPA). Section 106 of NHPA (Section 106) requires federal agencies to take into account the effect of their undertakings on properties included or eligible for inclusion in the National Register of Historic Places (National Register) and to afford the Advisory Council on Historic Preservation (ACHP) reasonable opportunity to comment on such undertakings.

Section 4(f) of the Department of Transportation Act of 1966 also protects cultural resources. Section 4(f) stipulates that prior to taking an action that requires the use of land from a significant publicly-owned park, recreation area, wildlife or waterfowl refuge, or from a historic property or archaeological site on or eligible for the National Register, the agency proposing the action must determine that there is no feasible and prudent alternative to the use of the land from that property, and that the Presque Isle Bypass includes all possible planning to minimize harm to the property resulting from the use.

3.3.6.2 Historic Overview

The area that now comprises Aroostook County was populated before European settlement by various Native American tribes belonging to the Wabanaki cultural group. The Aroostook Band of Micmac Indians, the Abenaki, and the Houlton Band of Maliseet Indians were the most prevalent Wabanaki tribes in what is now Aroostook County and other regions along the Atlantic seaboard of the northeastern United States. As in most parts of European-settled North America, the Native

American inhabitants of Aroostook County lost significant population to European diseases and the numerous wars fought between and against French and British colonizers. Small numbers of the Aroostook Band of Micmac and the Houlton Band of the Maliseet remained in Aroostook County throughout the 18th century.

Aroostook County was settled by a range of European ethnicities over the course of the late 18th and 19th centuries. The earliest settlers to the region were French Acadian immigrants expelled from the Maritime Provinces of Canada after the British took control of those areas in the mid 1750s. Acadians primarily settled along the St. John River Valley in the Madawaska region. Settlers of English ancestry from further south in Maine, other New England states, and New Brunswick settled in the southern and central portions of Aroostook County primarily after 1830. In the 1870s, the State of Maine recruited an initial group of 51 immigrants from Sweden to settle in north-central Aroostook County in an area known as the Swedish Colony (now portions of the Towns of Woodland, Westmanland, Perham, New Sweden, Stockholm, and part of the unorganized township of T16R4). Settlement patterns in Aroostook County typically moved from the north and south toward the center, but then shifted to the “Houlton Road” (Route 1), the first and primary north-south road in the region, constructed in stages during the early 1840s between Houlton and Caribou.

The economy of Aroostook County has historically been based on timber resources and agriculture. For much of the 19th century, logging and lumber milling along with commercial agriculture centered on potatoes, potato byproducts such as starch, and grains were the chief economic pursuits in Aroostook County. The arrival of the first railroads in the region in the 1890s, particularly the construction of the Bangor and Aroostook Railroad between 1891 and 1894, accelerated the regional economy to a level of prosperity not seen before or since. The ability to transport potatoes outside the region and the coinciding rise in national popularity of the vegetable started a “potato boom” that lasted until the mid 20th century. In the first decades of the 20th century, Aroostook County was the largest concentrated area of potato production in the United States. The timber and papermaking industries also flourished during this period, logging the timber rich regions in the western portion of Aroostook County and hauling logs to pulp plants in Madawaska and Edmundston, New Brunswick, Canada. In the mid 20th century, the invention of techniques for flash freezing fresh produce and pre-made food products resulted in a number of large frozen food plants, including Birdseye Food plants in Houlton and Caribou.

International politics have also had a strong influence on the history and development of Aroostook County. In the 18th and early 19th centuries, the region was a remote border land between British and French North American colonies. After the Treaty of Paris in 1783, the Madawaska region remained part of the Canadian Province of New Brunswick, while the rest of Aroostook County remained part of the State of Massachusetts. Maine became a state in 1820, but the Madawaska region did not join the United States until the Webster-Ashburton Treaty of 1842. This treaty ended the bloodless “Aroostook War” between Maine and New Brunswick governments over land claims in the disputed region. The

Webster-Ashburton Treaty finally established the St. John River as the regional border between the U.S. and Canada. Aroostook County's location as the most extreme northeastern point in the U.S. made it strategically important to the U.S. Military during the 20th century. The military established air bases at Presque Isle and Limestone (Loring Air Force Base) which were used to supply troops in the European theater during World War II, and as an air and missile base during the Cold War.

3.3.6.3 Historic Buildings, Structures, and Districts

Preparation of the ACTS DEIS included consultation with the MHPC regarding known properties within the ACTS Study Area included on or eligible for inclusion on the National Register. Section 3.3.6.1 (Page 3-30) and Table 3-29 (Page 3-60) in the DEIS described 21 properties included on the National Register in the DEIS Study Area. The MHPC reported that the research done to date on properties eligible for inclusion on the National Register in Aroostook County was preliminary in nature, and that additional studies would be required during subsequent phases of the ACTS to identify such properties.

Subsequent to the DEIS, in June and July 2003, the MaineDOT conducted a reconnaissance-level cultural resource survey according to MHPC and ACHP survey standards to record all buildings and structures over 50 years old within or adjacent to the Area of Potential Effect (APE) for the SDEIS Corridors and Segments (refer to Chapter 2, Section 2.2 [Page 2-3] of the SDEIS, for a description of the SDEIS Corridors and Segments). The APE for cultural resources is defined as those properties and parcels that directly abut the ROW or are within the overall ACTS SDEIS Corridors. In areas where new roadway alignments are proposed, the APE also includes properties adjacent to the SDEIS Corridor ROW.

The survey for the overall ACTS SDEIS corridors identified 718 properties containing 1,040 buildings and structures greater than 50 years old within the APE for the SDEIS Corridors. More information on the surveyed properties and their locations is provided in the Cultural Resource Field Survey reports¹⁷ for this study. After the initial survey, intensive-level investigations were conducted for properties that appeared eligible for the National Register of Historic Places. Based on these investigations, the FHWA, MaineDOT, and MHPC identified 12 individual properties (including 23 structures) and one district within the APE for the Presque Isle Bypass that are eligible for listing on the National Register.

MaineDOT conducted an additional historic resource survey in 2009 to identify properties, parcels, and structures adjacent to Route 1 within downtown Presque Isle that may be eligible for listing in the National Register. The APE for this survey was defined as all properties within visual range of Route 1 (Main Street/Houlton Road

¹⁷ Vanasse Hangen Brustlin, Inc. (VHB). April – July, 2004. *Cultural Resource Field Survey, Aroostook County Transportation Study, Segments 1-11.*

from the Aroostook River south to the Presque Isle-Westfield municipal boundary. This survey was undertaken to support, at the request of the USACE and EPA, a more in-depth examination of the Route 1 Upgrade/ Transportation System Management (TSM) Alternative. Site file research and reconnaissance-level fieldwork was conducted to identify all National Register-listed properties within the APE of the Route 1 Upgrade/TSM Alternative and record and evaluate all buildings and structures (over 45 years old) that may be eligible for listing in the National Register. Ninety-seven buildings and one landscape were recorded and evaluated for eligibility for the National Register. Approximately half of the buildings were of late-twentieth century architecture (*i.e.*, less than 45 years old) and were not recorded on MHPC survey forms. The remaining historic buildings and landscape included 41 businesses, 32 residences, three farmsteads, five buildings associated with the University of Maine at Presque Isle, six garages, nine barns, one church, one park, and one cemetery. The majority of these historic resources date to the period from 1860 to 1960, with examples of Federal, Italianate, Queen Anne, Craftsman, Art Deco, Colonial Revival, and Tudor Revival styles.

In 2010, MaineDOT, at the request of FHWA, examined specific properties within the APE of the three Presque Isle Bypass FEIS Alignment Options to provide National Register eligibility and boundary recommendations to MHPC for these properties. In 2011, MaineDOT reassessed the potential effects to historic properties in the Presque Isle Bypass APE due to the revised or new National Register eligibility or boundary determinations resulting from the 2010 study.

FHWA and MaineDOT, in consultation with the Aroostook Band of Micmac Indians, USACE, and the MHPC Senior Archaeologist determined the areas of traditional use previously described in Section 3.3.3.4 are important economic resources. These sites are determined to be non-historic areas.

Properties Listed on the National Register of Historic Places

According to the National Register Information System (NRIS), one property within or adjacent to the APE for the Presque Isle Bypass is listed on the National Register. This property is the Presque Isle National Bank at 422 Main Street.

Properties within the APE Determined Eligible for Inclusion on the National Register of Historic Places

MaineDOT and FHWA identified historic properties within the Presque Isle Bypass APE that are eligible for inclusion on the National Register in accordance with 36 CFR 800.4 (d)(1), *Identification of Historic Properties*. These properties include residential, commercial, agricultural, and educational buildings. A total of 22 historic properties or districts were identified within the APE for the Presque Isle Bypass. These properties are shown on Figure 3-7 and listed on Table 3-18 (Page 3-34).

MaineDOT and FHWA identified three areas which appear to be eligible for listing in the National Register as historic districts. These areas include a section of downtown

Presque Isle roughly bounded by Church Street to the north and Academy Street to the south (375 through 527 Main Street), three buildings within the campus of the University of Maine at Presque Isle (Normal Hall, Preble Hall, and Smith Hall), and the Northern Maine State Sanitarium on Reach Road.

3.3.6.4 Archaeological Resources

This section describes known prehistoric and historic archaeological sites within the Presque Isle Bypass APE reported by the MHPC as being included in or eligible for inclusion on the National Register. This section also describes lands within the Presque Isle Bypass APE identified by the MHPC as being archaeologically sensitive (Figure 3-8). There are three known prehistoric archaeological sites located along the Aroostook River in Presque Isle, and areas of prehistoric and historic archaeological sensitivity areas throughout the Presque Isle Bypass APE (Figure 3-8).

Subsequent to the SDEIS, FHWA, ACHP, MaineDOT, and the MHPC entered into an agreement to conduct a Phase 1 Archaeological Survey for the Proposed Action (Alignment Option 7). Archaeological resources have been surveyed and evaluated to determine their eligibility and for potential Section 106 impacts, as described in Chapter 4.

Table 3-18
Historic Properties Within the Area of Potential Effects (APE) for the Presque Isle Bypass

MHPC No.	Name or Address ¹	Town	Description	National Register Criteria	Date ^(1,2)
678	Maysville School/ Maysville Ctr. Grange Corner of Caribou Rd. and Brewer Rd.	Presque Isle	Colonial Revival-style school building/grange hall	A - Association with the educational and civic life of the former Town of Maysville and the City of Presque Isle	Early 20 th c.
670	39 Brewer Road (East side of Caribou Rd.)	Presque Isle	T-shaped potato barn	C – Well-preserved example of T-shaped potato barn form	Early 20 th c.
674-677	83 Brewer Road	Presque Isle	Greek Revival house with large barn and 3 out buildings	C - Well-preserved farmstead complex	Unknown
689-690, 692, 694- 695	Parkhurst Farm Brewer Road	Presque Isle	Farmstead with dwelling and 8 agricultural structures	C - Well-preserved farmstead complex	Unknown
683, 684, 686, 688	90 Brewer Road	Presque Isle	Farmstead with 3 structures associated with farm	C - Well-preserved farmstead complex	Unknown
667	137 Caribou Road (East side of Caribou Rd.)	Presque Isle	Acadian-influenced English barn	C – Well-preserved example of Acadian-influenced, English barn	19 th c.
697-700	Clover Leaf Farms, 208 Caribou Road	Presque Isle	Farmstead with dwelling and 3 agricultural structures	C - Well-preserved example of an early 20 th century farmstead	Early 20 th c.
N/A (composed of 635--644)	Northern Maine State Sanitarium Historic District, Reach Road	Presque Isle	Hospital complex comprised of 8 buildings and 3 structures	A - Association with the history of health care in Aroostook County	Various

**Table 3-18
 Historic Properties Within the Area of Potential Effects (APE) for the Presque Isle Bypass (continued)**

MHPC No.	Name or Address ¹	Town	Description	National Register Criteria	Date ^(1,2)
630F-633	138 Reach Road	Presque Isle	Farmstead: Italianate house, connected barn, privy or shed	C – Italianate-style architecture and well-preserved connected farmstead form	Late 19th c.
590F-593	204 Easton Road (Hemphill Farms, 204 Egypt Road)	Presque Isle	Farmstead: Greek Revival-style house, connected N.E. barn, Potato barn	C – Well-preserved farmstead complex and connected farmstead form	Late 19th or early 20th c.
586	219 Easton Road (West side of Egypt Road)	Presque Isle	Agricultural outbuilding of unknown use	C – Well-preserved agricultural outbuilding of unknown use	Early-mid 20th c.
597F-599	175 Easton Road	Presque Isle	Farmstead: Queen Anne-style dwelling, New England barn	C - Well-preserved farmstead complex	Late 19th c.
569F-573	49 Egypt Road (West side of Egypt Rd.)	Presque Isle	Farmstead: Greek Revival and Italianate-style house, N.E. barn, Potato barn	C – Well-preserved farmstead complex	Late 19th or early 20th c.
N/A	Main Street Historic District – Encompasses 375-527 Main Street	Presque Isle	29 buildings on both the east and west sides of 3 downtown commercial blocks	C - Architecture	Unknown
N/A	6 Roberts Street	Presque Isle	Saint Mary's Catholic Church	C - Architecture	Unknown
N/A	University of Maine at Presque Isle Historic District - 183 Main Street	Presque Isle	Recommended district includes 3 buildings: Normal Hall, Preble Hall, and Smith Hall	A, C - Events/Architecture	Unknown
360-0057	59 Houlton Road	Presque Isle	Aroostook Farm	C - Architecture	Unknown
N/A	105 Houlton Road	Presque Isle	Farmstead	C - Architecture	Unknown
N/A	257 Houlton Road	Presque Isle	Aroostook Union Grange No. 143	A, C - Events/Architecture	Unknown
N/A	1 Centerline Road	Presque Isle	Farmstead	C - Architecture	Unknown
554-557	27 Centerline Road	Presque Isle	Farmstead with dwelling, carriage barn, potato barn, shed	A – Association with potato farming / C - Well-preserved farmstead complex	Late 19th c.
602-607	33 Easton Road (33 Cleaves Road, King Farm)*	Presque Isle	Farmstead with dwelling, N.E. barn, potato barn, two wagon sheds	A – Association with potato farming / C - Well-preserved farmstead complex	Late 19th c.

1 Most recent Assessor's Office address is noted first, with former designations in parentheses.

2 c. = century

3.3.7 Public Parks, Recreation Areas, Wildlife Refuges, Trails and Publicly-Used Facilities

This section identifies the public parks, recreation areas, wildlife refuges, trails and publicly-used facilities that are within the Presque Isle Bypass Reference Area. Potential impacts to public parks and recreation land from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are described in Section 4.3.7 (Page 4-31).

3.3.7.1 Regulatory Context

Public parks, recreation areas, wildlife refuges, trails, and publicly-used facilities are subject to protection under the Department of Transportation Act of 1966 (Section 4(f)) and may be subject to the Land and Water Conservation Fund Act (Section 6(f)) (16 U.S.C. § 4601-4 *et seq.*).

3.3.7.2 Public Parks and Recreation Areas

Data used to identify public parks, recreation areas, and wildlife refuges were obtained from sources including the U.S. Fish and Wildlife Service (USFWS), the Maine State Planning Office (SPO), the Maine State Office of GIS, the Maine Department of Conservation (MDOC), the Maine Department of Inland Fisheries and Wildlife (IF&W), the Aroostook County Resource Conservation Service, the Maine Bureau of Parks and Lands (MBPL), NMDC, and City Office and Recreation Departments of Presque Isle. Publicly-owned parks and recreational facilities within the Reference Area are listed on Table 3-19 (Page 3-37) and are identified on Figure 3-2 as “Potential Section 4(f)/6(f) parcels.” The Presque Isle Bike Path is shown on Figure 3-5. There are no wildlife refuges in the Presque Isle Reference Area.

**Table 3-19
 Public Recreational Facilities**

Name of Facility	Address	Owner	Features	Section 6(f) ¹	Size (acres)
Arnold Brook Lake Park	38 Niles Road /Spragueville Road	City of Presque Isle	Picnic facilities, a boat launch and nature trails	No	400
Bike Path	Follows the old C.P. Railroad track bed (North Main Street to Riverside Drive.)	City of Presque Isle	Year round biking, walking and jogging	Yes	4
Bishop's Island Ball Field	77 Chapman Road	City of Presque Isle	Softball athletic field	Yes	1
Double Eagle II Park	140 Spragueville Road	City of Presque Isle	Annual Crown of Maine Balloon Festival	No	2
Mantle Lake Park	110 Pine Street	City of Presque Isle	Tennis courts, playground equipment, a large play area, small picnic shelters, plus a large group shelter	Yes	50
East Milton Grant Memorial Pool & Playground	221 Main Street	City of Presque Isle	Baseball/softball field, outdoor swimming pool, and a playground area and basketball court	Yes	10
Peace Park	87 Parsons Street	City of Presque Isle	Playground equipment and a basketball court	Yes	30
Presque Isle Bike Path	Riverside Park at Riverside Drive	City of Presque Isle	Year round biking, walking and jogging	No	6.5
Riverside Bi-Centennial Park	36 Riverside Drive	City of Presque Isle	Boat ramp, picnic area, playground, and a multi-purpose field and building	No	13
Veteran's Memorial Park	703 Main Street	City of Presque Isle	Roadside Monument and flag memorial	No	< 1
Aroostook State Park	87 State Park Rd	State of Maine	Trails for cross-country skiing and snowshoeing, lakeside picnic area and boat launch	Yes	500+

¹ Partially purchased with Land and Water Conservation Funds and may be subject to the Land and Water Conservation Fund Act (Section 6(f)). Source: City of Presque Isle Recreation and Parks Department web site: <http://www.pirec.org/facilities&parks.htm>, web site accessed 4/2011

3.4 Physical and Biological Environment

The physical geography, geology, and other physical and biological resources of the Reference Area may constrain or be affected by transportation improvements. Figures 3-9 through 3-13 provide a composite view of the physical and biological environment that may affect the evaluation of the Presque Isle Bypass. Physical geography, geology, and soils create the foundation of the natural characteristics of the area, and are fundamental to the distribution of vegetation and aquatic habitats in the Reference Area.

Analysis of impacts to certain physical and biological resources are required by FHWA's NEPA regulations, are subject to state or federal regulations, or are of economic importance within the Reference Area. This section, and the corresponding sub-sections, examine these critical resources: forests (Section 3.4.1, Page 3-38); aquatic resources and wetlands (Section 3.4.2, Page 3-38); wildlife and fisheries (Section 3.4.3, Page 3-45); and endangered, threatened, and other protected species (Section 3.4.4, Page 3-54). The following sections provide a summary of each of these resources. These resources were described in the SDEIS for the entire ACTS Study Area.

3.4.1 Forests

This section describes forested areas within the Reference Area. Potential impacts on forests from construction of the Presque Isle Bypass are described in Chapter 4 (Section 4.4.1, Page 4-34).

While there are no federal or state regulations that specifically regulate upland natural communities, NEPA guidelines require consideration of environmental impacts on biodiversity. Furthermore, forestry plays a vital role in the economy of Presque Isle by providing a major source of employment.

A large portion of the Presque Isle Bypass Reference Area (20,200 acres) consists of forest typical of northern New England, which have been altered and fragmented by previous and current human use. Historically, much of the forested land within the region and throughout New England was cleared for agriculture or timber production, and few tracts of land have remained unaffected. The use of rivers for transportation corridors for timber has ceased, and have been replaced by a more extensive road system throughout the forest to transport timber. Figure 3-3 illustrates the distribution of forested land in the Reference Area.

Aroostook County lies within the broad transition zone between the boreal forest to the north and the northern hardwoods regions to the south and east. Boreal forest, spruce-northern hardwood forest, and deciduous forest are represented in the Reference Area. For more detail on forest types, type coverage, and the primary species associated with forest types, see DEIS Section 3.4.3.2 (Page 3-77), Natural Upland Communities.

3.4.2 Aquatic Resources and Wetlands

Water is a fundamental component of the natural landscape. Surface water and groundwater are resources that are important to the public drinking water supply, wildlife habitat, agriculture, industry and recreation, and are protected by federal, state, and local regulatory programs. Sections 3.4.2.1 (Page 3-39) to 3.4.2.6 (Page 3-45) describe aquatic resources and wetlands in the Reference Area. Potential impacts on aquatic resources and wetlands from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are included in Chapter 4 (Section 4.4.2, Page 4-36).

Major rivers and streams in the Presque Isle Bypass Reference Area (Figure 3-9) include the Aroostook River, Presque Isle Stream, Knights Brook, Prestile Stream, Kennedy Brook, Williams Brook, Birch Brook, Merritt Brook, Arnold Brook, and Lamson Brook.

3.4.2.1 Water Resources

The water resources mapping for the Presque Isle Bypass Reference Area included surface public drinking water sources, public drinking water wells and wellhead protection areas, and at-risk watersheds within 0.5 mile of the Presque Isle Bypass Alignment Options. This section describes the public drinking water sources and at-risk watersheds in the Presque Isle Bypass Reference Area.

Regulatory Context

Water resource regulations include provisions relating to public drinking water suppliers, public drinking water sources, development, and water quality. Regulations include federal laws, state laws, and local zoning laws.

The federal Safe Drinking Water Act (42 USC 300f) (SDWA) is the primary law regulating drinking water quality in the United States. The Maine Drinking Water Program (DWP) administers the SDWA in the state of Maine under the Maine Drinking Water Rules. The SDWA primarily functions by requiring drinking water providers to test and treat drinking water to ensure that contaminants are below levels determined by the EPA. The SDWA categorizes providers based on the number of users and frequency of their use. User categories help determine the size of source water protection areas.

Public Drinking Water Sources

The City of Presque Isle uses a combination of surface water and groundwater as a source of public drinking water. The main groundwater well for the City of Presque Isle is at 73 Reach Road (Route 210). Surface drinking water is drawn from the Presque Isle Stream. The surface water intake and water filtration plant is at 187 Chapman Road, west of Route 1 and north of Arnold Brook Lake, shown on Figure 3-9.

The Presque Isle Stream is classified as a Category 4a Class B river according to the 2010 Integrated Water Quality Monitoring and Assessment Report. As of January 2010, Presque Isle no longer uses surface water from Presque Isle Stream as a public drinking water source. Water from Presque Isle Stream is only used as an emergency water source. Public water supply wells and Wellhead Protection Areas (WPAs) are shown on Figure 3-9. The WPAs for the majority of wells are based on a fixed radius of between 300 and 2,500 feet.

Commercial Water Supplies

McCain Foods, Inc., one of the largest employers in Aroostook County, has several water supply wells on their property that supply water to their Easton factory. These wells are within a sand and gravel aquifer on McCain Foods property adjacent to the Aroostook River south of Higgins Road in Presque Isle (Figure 3-9). McCain Foods has also indicated that they intend to install additional water supply wells on their property and that they have requested that the City of Presque Isle include their property in their WPA.

At-risk Watersheds

The Presque Isle Bypass Alignment Options are in the proximity of four watersheds that are included on the list of “at-risk” waterbodies under the Maine Stormwater Management Law or the Non-Point Source Pollution Priority Watersheds List (Table 3-20, Page 3-40). The Non-Point Source Pollution Priority Watersheds List identifies those watersheds where state and federal agencies would coordinate activities and seek to provide assistance to local groups for the purpose of developing or implementing watershed management plans. The receiving waters of these watersheds have been determined to be water quality limited or at risk of water quality degradation. No water quality limited water bodies occur within the Reference Area.

Table 3-20
Watersheds Designated as “At-Risk” by Maine Stormwater Management Law and Non-Point Source Pollution Priorities in the Presque Isle Bypass Reference Area

Water Body	At-Risk	NPS Priority
Prestile Stream		X
Aroostook River	X	
Presque Isle Stream		X
Echo Lake	X	X

Source: Maine Watershed Management Committee and Maine DEP Bureau of Land and Water. NPS Pollution Priority Watershed List and UWA. <http://www.state.me.us/dep/blwq/watersh.htm>

Note: Bold entries are high priority.

Classification as an “at risk” waterbody may not include additional regulation but requires planning and consideration in final design, including measures to reduce the impact of highway stormwater runoff and/or non-point source pollution. The surface waters on the Maine Stormwater Management Law list include the Presque Isle Stream, a former source of public drinking water in the Reference Area.

According to the 2010 Integrated Water Quality Monitoring and Assessment Report, five water bodies within the Reference Area are included on the 303d List of

Impaired Waters.¹⁸ These water bodies are: Echo Lake, Category 4a; Arnold Brook Lake, Category 4a; Presque Isle Stream; Category 4a; Hanson Brook; Category 5a; and Prestile Stream; Category 4a. Echo Lake and Arnold Brook Lake were listed as Category 5a in the 2006 report. Since 2006, Total Maximum Daily Loads (TMDL) for these two lakes have been developed and the lakes have been listed as Category 4a water bodies. Each lake is listed as having a stable condition in the 2010 List of Integrated Waters. The Presque Isle Stream in Presque Isle is listed as Category 4a. TMDLs for ammonia, biochemical oxygen demand, and phosphorus have been developed for Presque Isle Stream. Prestile Stream, above the dam in Mars Hill, is listed as a Category 4a water body. A TMDL has been developed for this stream for dissolved oxygen, eutrophication biological indicators, and benthic macroinvertebrate bioassessments. Hanson Brook, a tributary to Presque Isle Stream draining from the airport, is listed as a Class 5a water body. A TMDL is under development for this stream for benthic macroinvertebrate assessments.

3.4.2.2 Aquatic Habitats

There are several lakes in the Reference Area. Large lakes in the Reference Area include Arnold Brook Lake and Echo Lake, both west of Route 1 in Presque Isle. These water bodies provide important waterfowl migratory areas and habitat for endangered and threatened plants and wildlife. Most include fringing emergent wetlands.

Major rivers and streams in the Presque Isle Bypass Reference Area include the Aroostook River, Presque Isle Stream, Prestile Stream, Arnold Brook, Merritt Brook, Williams Brook, Clark Brook, and Kennedy Brook (Figure 3-9). The Aroostook River flows from west to east in the central portion of the ACTS Study Area through Washburn, Presque Isle, Caribou, and Fort Fairfield. Presque Isle Stream (and its tributaries) flow north, joining the Aroostook River in Presque Isle immediately west of the Route 1 Bridge crossing of the river. Prestile Stream flows southeast through Mars Hill and ultimately joins the St. John River in New Brunswick, Canada. Within the Presque Isle Bypass Study Area, the Aroostook river flows from west to east, turning sharply northward in Presque Isle toward Caribou. At Caribou, the Aroostook River turns southeastward toward Fort Fairfield before ultimately joining the St. John River in New Brunswick, Canada.

3.4.2.3 Wetlands

Wetlands cover about 7,813 square miles of Maine, or approximately one-fourth of the state.¹⁹ Wetlands comprise approximately 6,240 acres of the total the Presque Isle Bypass Reference Area (Figure 3-10). Wetlands are a substantial portion of Maine's

¹⁸ Maine Department of Environmental Protection 2010 Integrated Water Quality Monitoring and Assessment Report. <http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm>

¹⁹ Fretwell, JD, JS Wouldiams, and PJ Redman. 1996. National Water Summary on Wetland Resources. Water-Supply Paper 2425. US Geological Survey, Reston, VA.

natural resource base and provide a wide-range of functions and values, including providing essential habitat for a variety of wetland-dependent plants and animals, flood control, sediment retention, water filtration, hunting, fishing, recreational opportunities, and opportunities for timber harvesting and peat mining.

Five principal wetland types have been identified in the Reference Area. These include palustrine forested wetlands (PFO), palustrine scrub-shrub wetlands (PSS), palustrine emergent wetlands (PEM), lacustrine wetlands, and riverine wetlands. A detailed description of each of these wetland types is provided in Section 3.4.2.4 (Page 3-72) of the ACTS DEIS.

Regulatory Context

Wetlands in the Reference Area are regulated and protected under state and federal regulatory programs because of the important functions they provide to the public. The State of Maine Natural Resources Protection Act (38 M.R.S.A, Protection of Natural Resources., § 480-A to 480-GG) (NRPA) establishes regulations to protect Maine’s natural resources, including rivers, streams, great ponds, and freshwater wetlands in organized territories. Section 404 of the federal Clean Water Act regulates discharges of fill to wetlands. Executive Order 11990 also protects wetlands by directing federal agencies to avoid new construction in wetlands where there is a practicable alternative.

Wetland Identification

The National Wetland Inventory (NWI) maps use the Cowardin Classification System²⁰ to classify wetlands by “systems” according to plants, soils, and frequency of flooding. The systems are then further subdivided into subsystems, classes, and subclasses based on substrate material, flooding regime, and vegetative life form.

Wetlands in the Presque Isle Bypass Study Area have been classified based on the information contained on the NWI and United States Geological Survey (USGS) maps and field verification. A more detailed analysis of the wetlands in the Presque Isle Bypass Reference Area was undertaken during the preparation of the SDEIS in 2006 to better understand potential wetland impacts within the Presque Isle Bypass Study Area.

Aerial photos were uploaded to a computer application, to which NWI-mapped wetland boundaries were added. The NWI wetlands were verified and modified based on aerial stereoscopic interpretation. Wetland boundaries were ground-truthed and adjusted as necessary. Wetland plant communities were classified according to the wetland classification scheme developed by the USFWS.²¹

²⁰ Cowardin, L.M. et al. 1979. *Classification of Wetlands and Deepwater Habitat of the United States*, FWS/OBS 79/31. Washington DC. United States Government Printing Office.

²¹ Ibid.

Wetlands in the Presque Isle Bypass Reference Area are pocketed within a highly developed agricultural landscape and the roadway network of Presque Isle. Most wetlands are in a narrow band beginning near Cambridge Road in Westfield, and extending north to Conant Road in Presque Isle. North of the Aroostook River, there is a linear wetland system west of Higgins Road.

For analysis purposes, individual wetlands within the Presque Isle Bypass Reference Area were grouped and numbered into wetland systems based on proximity and connectivity. These numbered wetland systems are not “systems” (*i.e.* habitat types) in the sense of the Cowardin Classification. Figure 3-10 shows the distribution of these wetlands within the Study Area.

As described below, the three principal wetland types identified in the Presque Isle Bypass Reference Area are forested wetlands, shrub wetlands, and emergent wetlands.

Forested Wetlands

Wetlands identified as PFO on the NWI maps are grouped into the forested wetland category. Forested wetlands in the Reference Area include forested bogs, forested fens, deciduous forested swamps, and coniferous forested swamps. This wetland type is the most abundant wetland type within the Presque Isle Bypass Reference Area (Figure 3-9).

Shrub Wetlands

Wetlands identified as PSS on the NWI maps are grouped into the shrub wetland category. Shrub wetlands include shrub bogs and shrub swamps (Figure 3-9).

Emergent Wetlands

Wetlands identified as PEM on the NWI maps are grouped into the emergent wetland category. Freshwater marshes are usually seasonally-flooded wetlands that are frequently saturated at or near the surface when not flooded and are dominated by grasses or grass-like plants. Freshwater wet meadows are seldom-flooded wetlands that are saturated throughout the growing season and are dominated by herbaceous vegetation that is adapted to these saturated conditions (Figure 3-9).

Wetland Functions and Values

Wetland functions and values include wildlife habitat, fisheries habitat, educational potential, visual/aesthetic quality, water-based recreation, flood flow desynchronization, groundwater and surface water use potential, nutrient retention, sediment trapping, shoreline stabilization and dissipation of erosive forces, forestry potential, and archaeological potential.

Wetlands in the Presque Isle Bypass Reference Area were evaluated in terms of the functions and values they provide. The functions and values of the wetlands within

the Presque Isle Bypass Study Area were determined using the methodology outlined in the USACE Highway Methodology Workbook Supplement (November 1995). For example, information collected during stereoscopic photo interpretation, such as type of wetland class present in the wetland, presence or absence of waterways or waterbodies, and adjacency to farm fields, was used to assess the ability of wetland systems to provide functions and values.

The functions and values assessed for wetlands in the Presque Isle Bypass Reference Area:

- Groundwater Recharge/Discharge;
- Floodflow Alteration (Storage/Desynchronization);
- Fish and Shellfish Habitat (Aquatic Diversity/Abundance);
- Sediment/Toxicant/Pollutant Retention;
- Nutrient Removal/Retention/Transformation;
- Production Export (Nutrient);
- Sediment/Shoreline Stabilization;
- Wildlife Habitat;
- Recreation (Consumptive/Non-Consumptive);
- Educational/Scientific Value;
- Uniqueness/Heritage;
- Visual Quality/Aesthetics; and
- Endangered Species Habitat.

Most of the wetlands in the Presque Isle Bypass Reference Area provide many of these functions. Some of these wetlands also provide important waterfowl migratory areas and are important water supplies to the surrounding communities. The forested wetlands may also provide fuelwood and timber.

3.4.2.4 Floodplains

Floodplains are low-lying areas adjacent to streams, rivers, and coastlines that are inundated and that store water during flooding events. Flood storage capacity can reduce flooding impacts on downstream land by reducing peak flows. Executive Order 11988, *Floodplain Management* recognizes that floodplains provide natural and beneficial values, and that development in floodplains (defined as the area subject to a one percent or greater chance of flooding in any given year, the statistical “100-year floodplain”) may have adverse impacts.

Regulatory Context

Floodplains are regulated by the Federal Emergency Management Agency (FEMA) and administered by local floodplain management ordinances within individual communities. Floodplains are also federally regulated by Executive Order 11988, which requires federal agencies to avoid, to the extent possible, impacts to

floodplains. Maine DEP also regulates floodplains as they are considered Wetlands of Special Significance.

The City of Presque Isle has adopted a floodplain ordinance modeled after the standards issued by FEMA's National Flood Insurance Program (NFIP). The ordinance regulates activities within the 100-year floodplain and is intended to ensure that work within the 100-year floodplain would not increase downstream flooding.

Floodplains in the Reference Area

The limits of the floodplains in the Reference Area were determined through available FEMA NFIP mapping. The FEMA Flood Insurance Rate Maps (FIRM) focus on developed areas that have flood damage potential.

Mapped 100-year floodplains are generally associated with larger rivers and streams and their tributaries. The Presque Isle Bypass Reference Area was assessed by FEMA for flood damage potential. Within the Presque Isle Bypass Reference Area, floodplains are associated with the Aroostook River, particularly west of Route 1, the Presque Isle Stream and Arnold Brook area, also west of Route 1. East of Route 1 (within areas traversed by the Presque Isle Bypass alignment options), floodplain areas are associated with Clark Brook, Williams Brook, Kennedy Brook, Prestile Stream and the minor tributaries to the Aroostook River (Figure 3-9).

3.4.2.5 Wild and Scenic Rivers

Wild and Scenic Rivers are those rivers protected under the National Wild and Scenic Rivers Act which hold certain restrictions for development. There are no Nationally-listed Wild and Scenic Rivers within the Presque Isle Bypass Reference Area.

3.4.2.6 Outstanding River Segments

Because of "special resource values of the flowing waters and shorelands," some rivers and streams are classified as Outstanding River Segments under the Maine NRPA (12 M.R.S.A. § 403). Segments of the Aroostook River have been designated as an Outstanding River Segment, including the section of the Aroostook River that passes through the Presque Isle Bypass Reference Area.

3.4.3 Wildlife Habitat, Significant Wildlife Habitat, and Essential Fish Habitat

This section presents a description of wildlife habitat, regulated significant wildlife habitat, and Essential Fish Habitat in the Reference Area. This section also provides

an explanation of the regulatory context for the evaluation of impacts to wildlife habitat. A discussion of the endangered, threatened, and species of special concern within the Presque Isle Bypass Reference Area is provided in Section 3.4.4 (Page 3-54). Potential impacts on wildlife habitat, significant wildlife habitat, and EFH from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are discussed in Chapter 4 (Section 4.4.3, Page 4-62).

3.4.3.1 Regulatory Context

There are no regulatory programs for the protection of wildlife habitats other than the specific types described below. However, wildlife is an important component of biological diversity.

Essential Fish Habitat

The National Marine Fisheries Service (NMFS) protects EFH, as authorized under the 2006 Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (50 CFR Part 600). Section 305(b)(2)-(4) of the Magnuson-Stevens Act outlines a process for NMFS to provide recommendations on projects during the NEPA review process. Federally-assisted State actions that may adversely affect EFH require consultation under the Magnuson-Stevens Act, and NMFS must provide conservation recommendations if an adverse effect to EFH is anticipated.

In addition to the protection of EFH by the NMFS, the Bureau of Sea-Run Fisheries and Habitat, part of the Maine Department of Marine Resources (MDMR), has been authorized (by Maine statute) to protect Atlantic salmon in the State of Maine.

Significant Wildlife Habitat

The State of Maine protects “significant wildlife habitat” under its NRPA (38 M.R.S.A. § 480), under authority of the Maine DEP. Significant wildlife habitat includes habitat for species on the state or federal list of endangered species, high- and moderate-value deer wintering yards and travel corridors, high- and moderate-value waterfowl and wading bird habitat, critical spawning and nursery areas for Atlantic salmon, shorebird nesting, feeding, and staging areas, seabird nesting islands, and significant vernal pools.

Significant vernal pools are a Significant Wildlife Habitat designated by NRPA. The scientific criteria for designating “significant” vernal pools include: a) presence of a state Endangered or Threatened species, or b) evidence of exceptional breeding abundance by one or more pool-breeding amphibians. The definition includes a 250-foot “critical terrestrial habitat” area around the pool.

Except for critical spawning areas for Atlantic salmon, which are designated by the MDMR, for a habitat to meet the definition of Significant Wildlife Habitat, it must be identified as such by the IF&W.

A permit is required in accordance with the NRPA for projects that involve work within a mapped significant wildlife habitat, or within 100 feet of a mapped significant wildlife habitat. NRPA allows for mitigation to offset impacts when determining if a project would have unreasonable harm to significant wildlife habitat.

The IF&W and the Maine Natural Areas Program (MNAP) have jointly prepared GIS mapping of several natural resources statewide. The maps outline “consultation areas” which contain information on rare features in the state and key wildlife resources. The consultation areas that contain information on state-regulated rare resources (including state-listed threatened and endangered species) are described in the *SDEIS EVTR* dated August 2005.

USACE Vernal Pool Critical Terrestrial Habitat

The New England District of the USACE, within the Department of the Army General Permit for the State of Maine, identifies a Vernal Pool Management Area which is defined as an area within a 750-foot radius of a vernal pool’s depressional area. The USACE recommends that any work within a Vernal Pool Management Area must be minimized to the maximum extent practicable. The area outside of a vernal pool depressional area but within a 750-foot radius of a vernal pool is defined as a Critical Terrestrial Habitat.

3.4.3.2 Wildlife Habitat

Wildlife are identified and discussed in relation to habitat types that occur within the Study Area. Characteristic wildlife species found in the Reference Area are described in this section.

The Gap Analysis Program (GAP) is a nation-wide effort that addresses land cover mapping, vertebrate habitat characterization, assessment, and biodiversity conservation at the state, regional, and national levels. The Maine Gap Analysis Program (ME-GAP) provides an overview of the distribution and conservation status of several components of biodiversity in Maine. Specific components of biodiversity include amphibians, reptiles, birds, mammals, and woody plants. The ME-GAP has determined that the highest diversity of terrestrial vertebrate species occurs in the southern and coastal portion of Maine. These areas are also where the highest number of rare plants and animals occur. The Aroostook State Park in the Presque Isle Bypass Reference Area was identified by the ME-GAP as an area with adequate protection in terms of biodiversity conservation and, therefore, is not of regional importance for wildlife protection.

The Maine Wildlife Action Plan has identified areas where there are rich concentrations of at-risk species, natural communities, significant wildlife habitats, and undeveloped habitat. An area within the Presque Isle Bypass Reference Area is mapped in the Maine Wildlife Action Plan as a Beginning with Habitat (BwH) Focus Area. The BwH is in the northern part of the Reference Area, along the Aroostook River, west of Route 1 (Figure 3-11). This area contains inland waterfowl and wading bird habitat and is the habitat for a state-listed dragonfly species, the pygmy snaketail (*Omphiogomphus howei*). The BwH Focus Area is a non-regulatory area intended to be used as a planning tool to increase awareness and encourage conservation in that area.

Forests are also found in the Presque Isle Bypass Reference Area, with shrub and upland herbaceous communities interspersed throughout (see Figure 3-3). Much of this forested area is in commercial forestry and is harvested for timber on a rotational basis. These large forested areas provide habitat for species that prefer interior forest habitat, while the interspersed forest, shrub, and open habitats provides niches for species that prefer edge and early-successional habitats. Farmlands with pastures, meadows, and hayfields provide habitat for species that inhabit open areas. Numerous and, in some cases, extensive wetland communities within each of the cover types enhances the ecosystem diversity. Wetlands within the forest enhance wildlife habitat and diversity, partly because water provides a required resource for all wildlife, and partly because wetlands provide habitat for wetland-dependent wildlife.

The following paragraphs describe the dominant types of wildlife habitats that occur in the Presque Isle Bypass Reference Area, and summarize the wildlife communities likely to be associated with these habitats. Wildlife and wildlife habitats although not specifically regulated under state or federal laws, are important considerations in evaluating potential impacts to biodiversity (with the exception of Significant Wildlife Habitats and EFH described in Section 4.4.3.3 and 4.4.3.4 on Pages 4-63 and 4-64, respectively).

Boreal Forest

Boreal forests, because of the low floristic diversity and low structural complexity, support a characteristic fauna of relatively low diversity in comparison to deciduous or mixed forests. Boreal forest is found in large and small patches throughout the Presque Isle Bypass Reference Area, particularly in the southern portions (Figure 3-3).

Boreal forests provide habitat for spruce grouse (*Falciennis canadensis*), black-backed woodpecker (*Picoides arcticus*), red squirrel (*Tamiasciurus hudsonicus*), masked shrew (*Sorex cinereus*), redback salamander (*Plethodon cinereus*), pine grosbeak (*Pinicola enucleator*), magnolia warbler (*Dendroica magnolia*), Cape May warbler (*Dendroica tigrinas*), Northern parula (*Parula americana*), palm warbler (*Dendroica palmorum*), blackpoll warbler (*Dendroica striata*), Canada lynx (*Lynx Canadensis*) and snowshoe

hare (*Lontra canadensis*). White-tail deer (*Odocoileus virginianus*) are found in the boreal forest during the winter, particularly on low, south-facing slopes or along watercourses. Moose (*Alces alces*) prefer second-growth boreal forest interspersed with swamps or large ponds, but habitat use by moose varies seasonally.

Spruce-Northern Hardwood Forest

Because of the mixture of evergreen and deciduous trees, this community provides the most diverse cover type in the Presque Isle Bypass Reference Area in both species diversity and structural complexity. Where spruce-northern hardwood forest occurs near streams, ponds, and other waterways and waterbodies, wildlife habitat values are increased.

Characteristic species of this forest type include common raven (*Corvus corax*), porcupine (*Erethizon dorsatum*), fisher (*Martes pennanti*), marten (*Martes americana*) yellow-bellied sapsucker (*Sphyrapicus varicus*), spotted salamander (*Ambystoma maculatum*), and short-tailed shrew (*Sorex brevicauda*). Northern goshawk (*Accipiter gentilis*) may hunt in forest interiors, and Cooper's hawk (*Accipiter cooperi*) may hunt in more open woods broken with small openings and edges. Typical migratory songbirds include the black-and-white warbler (*Mniotilta varia*) and Canada warbler (*Wilsonia canadensis*).

Deciduous Forest

Habitats and wildlife species represented in deciduous forest are generally similar to those in the mixed (spruce-northern hardwood) forest type. Typical species include ruffed grouse (*Bonasa umbellus*), pileated woodpecker (*Dendrocopus pileatus*), American redstart (*Setophaga ruticilla*), rose-breasted grosbeak (*Pheucticus ludovicianus*), and Northern dusky salamander (*Desmoganthus fuscus*). Forests containing stands of American beech and beaked hazelnut, interspersed with wetlands, are important to black bears (*Ursus americanus*) in the fall. Black bear habitat is provided in old forests dominated by hardwoods containing a variety of mast-producing species such as beech, oaks, and beaked hazelnut (mast is the crop of seeds produced by trees and shrubs and consumed by wildlife). Bears typically occupy large tracts of land with dense thickets, swamps, or rock outcrops.

Shrub Communities

Relative to the forested land in the Presque Isle Bypass Reference Area, shrub communities exhibit less wildlife diversity, except in areas where they form patches within a forest. Although diversity in shrub and herbaceous communities may be lower than in forested habitats, these areas are important to the preservation of some wildlife species that are dependent on open and early successional habitats.

Reptiles such as red-bellied snake (*Storeria occipitomaculata*) and garter snake (*Thamnophis sirtalis*) occur in upland meadows and abandoned fields. Characteristic

bird species include alder flycatcher (*Empidonax aldorum*), yellow warbler (*Dendroica petechia*), swamp sparrow (*Melospiza georgiana*), chestnut-sided warbler (*Dendroica pensylvanica*), Nashville warbler (*Vermivora ruficapilla*), American goldfinch (*Carduelis tristis*), and cedar waxwing (*Bombycilla cedrorum*). Northern shrike (*Lanius excubitor*) often frequent old fields in the Study Area during the winter, particularly where there are trees or utility poles that can be used as hunting perches. Snowshoe hares inhabit dense second-growth shrub cover types and forest openings. Bobcat (*Lynx rufus*) may also be present in these areas, particularly where snow cover does not accumulate too deeply.

Upland Herbaceous Communities

Upland herbaceous communities support bird species such as Eastern meadowlark (*Sturnella magna*), bobolink (*Dolichonyx oryzivorus*), savannah sparrow (*Passerculus sandwichensis*), killdeer (*Charadrius vociferous*), and horned larks (*Eremphila alpestris*). Snow bunting (*Plectrophenax nivalis*) and Lapland longspur (*Calcarius lapponicus*) often form gregarious flocks in the winter. Avian predators such as red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) often hunt over pastures and fields from the air or from vantage points in the tops of nearby trees. Numerous small mammals, particularly meadow voles (*Microtus pennsylvanicus*) and meadow jumping mice (*Napaeozapus insignis*), are common and provide food for mammalian predators such as weasel (*Mustela* spp.), red fox (*Vulpes vulpes*), and coyote (*Canis latrans*).

Wetland Habitats

Wetland types that occur in the Reference Area are described in Section 3.4.2.3 (Page 3-41). Forested wetlands generally provide similar habitat values as forested upland areas. Unique wildlife habitats found in wetlands include vernal pools and open water wetlands, as described below. Vernal pools are discussed in Section 3.4.3.4 (Page 3-52).

Small ponds created by beaver dams occur throughout the Presque Isle Bypass Reference Area. These ponds provide habitat for several species in addition to beavers (*Castor canadensis*). Muskrats (*Ondatra zibethicus*), river otters (*Lontra canadensis*), and raccoons (*Procyon lotor*) hunt for fish and aquatic invertebrates in beaver pond wetlands. Big brown bats (*Eptesicus fuscus*) frequently hunt the numerous insects found over these, and other, wetland areas.

Open water habitats provided by the man-made impoundments, beaver ponds, and larger streams occur within the Presque Isle Bypass Reference Area and provide habitat for a variety of species. Common amphibians associated with open water habitats include spring peepers (*Hyla crucifer*), green frogs (*Rana clamitans*), and bullfrogs (*Rana catesbiana*). Great blue herons (*Ardea herodias*) and belted kingfishers (*Ceryle alcyon*) forage along large wetlands such as the Aroostook River.

Moose Habitat

Moose habitat, although not regulated under state or federal laws, is an important consideration in the evaluation of transportation corridors because of the high incidence of moose-vehicle collisions. The moose population has risen substantially from the turn of the century to approximately 29,000 in the state of Maine. Approximately 7,000 moose are estimated to inhabit Aroostook County.

Moose habitat is found throughout the Reference Area, typically in undeveloped areas interspersed with clear cuts, abandoned farms, wetlands, and stream corridors. Habitat usage varies seasonally. In general, warm season habitat consists of boreal second-growth forests with a matrix of wooded and open water wetlands. In spring, moose use habitat areas with mature aspen, white birch, and balsam fir. As summer approaches, moose move to areas near lentic waters for access to nutritional requirements, to reduce heat stress, and for relief from biting insects. During the cold seasons, moose commonly seek lower elevations. Yarding behavior is common among males.

Developed Areas

Residential neighborhoods and agricultural areas also provide wildlife habitat. Mammals include raccoon, striped skunk (*Mephites mephites*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*). Little brown bat (*Myotis lucifagus*) roost during the day in barns, attics, church steeples, and under bridges. Birds such as barn swallow (*Hirundo rustica*) feed on insects during the summer near water, often near human habitation. Birds such as blue jay (*Cyanocitta cristata*), house sparrow (*Passer domesticus*), and downy woodpecker (*Picoides pubescens*) are frequently observed in shade trees and at feeders. White-tailed deer may venture from forest edges to browse on shrubs, grasses, and apple trees in residential neighborhoods in the Reference Area. Moose may also be found in neighborhoods and towns, particularly in the winter, when they seek lower elevations.

3.4.3.3 Fisheries

The waterbodies in the Reference Area support several coldwater species (salmonids) and several warmwater species (yellow perch [*Perca flavescens*], longnose suckers [*Catostomus catostomus*], and white suckers [*C. commersoni*]). However, most warm-water sportfish (white perch [*Morone Americana*], smallmouth bass [*Micropterus dolomieu*], largemouth bass [*M. salmoides*], and pickerel [*Esox niger*]) are limited to the southern portions of Aroostook County, outside the Presque Isle Bypass Reference Area, in part because man-made and natural barriers on major river drainages prevent their movement northward.

The Aroostook River is the major waterway in the Reference Area, and supports fish such as brook trout (*Salvelinus fontinalis*), arctic char (*Salvelinus alpinus*), rainbow

smelt (*Osmerus mordax*), and wild landlocked salmon (*Salmo salar*). The Aroostook River has an active Atlantic salmon restoration effort. Brook trout are the predominant sport fish in Aroostook County and can be found in Arnold Brook Lake, Echo Lake, Williams Brook, Kennedy Brook, Merritt Brook, Clark Brook, and potentially other lakes and streams throughout the Presque Isle Bypass Reference Area.

3.4.3.4 Significant Wildlife Habitat

State-regulated wildlife resources under NRPA, defined as “Significant Wildlife Habitat,” includes habitat for state- and federally-listed species, high- and moderate-value deer wintering areas and travel corridors, high- and moderate-value waterfowl and wading bird habitat, critical spawning and nursery areas for Atlantic salmon, shorebird nesting, feeding, and staging areas, seabird nesting islands, and significant vernal pools. Two regulated resources are known to occur within the Presque Isle Bypass Reference Area; Inland Waterfowl and Wading Bird Habitat (IWWH) and significant vernal pools. Descriptions of the resources found in the Study Area are provided below and shown on Figure 3-11. Habitat for federal- and state-listed endangered, threatened and species of special concern are described in Section 3.4.4 (Page 3-54).

Deer Wintering Areas

Areas designated by the IF&W as high- and moderate-value Deer Wintering Yards are protected as Significant Wildlife Habitat. Maine supports approximately 300,000 wintering white-tailed deer, nearly a 50-percent increase since 1985. Deer populations have increased at different rates throughout the state, with the highest increases observed in the central and southern parts of the state. State biologists believe this increase was influenced by generally moderate winters, productive habitat, and management strategies. In the northern and western parts of the state, deer populations have remained relatively constant. As shown in Figure 3-11, one Deer Wintering Area occurs in the Presque Isle Bypass Reference Area, on the southern shores of Arnold Brook Lake.

Inland Waterfowl and Wading Bird Habitat

Mapped IWWH is regulated by the IF&W as Significant Wildlife Habitat. Certain ecological systems, particularly palustrine, riverine, and littoral systems, provide valuable conditions for foraging for waterfowl and wading birds. High nutrient availability contributes to production of prey such as fish, tadpoles, amphipods, and crustaceans. Foraging and nesting areas that are relatively undisturbed increase the habitat value for waterfowl and wading birds.

High- and moderate-value IWWH (jointly defined) are described by IF&W as:

“An inland wetland complex meeting the Department delineation guidelines, dated December 22, 1993, and a 250-foot wide zone surrounding the wetland complex that through a combination of dominant wetland type, wetland diversity, wetland size, wetland type interspersions, and percent open water is rated as high or moderate using the Department’s Rating Procedure dated December 22, 1993 or has documented outstanding use of the wetland by waterfowl and wading birds.”

In 2003, the IF&W implemented a process to identify high and moderate value IWWHs throughout Maine that incorporated data from NWI mapping (Figure 3-11). Using this process, IF&W has identified seven IWWHs within the Reference Area.

IWWHs occur in Wetland System No. 5846 (Figure 3-11), west of the intersection of Easton Road and Egypt Road; along Arnold Brook, north of Arnold Brook Lake; along Hanson Brook north of Presque Isle Stream; along Presque Isle Stream; along Clark Brook, west of Route 1 at the Presque Isle-Westfield municipal boundary; and two WWHs along the Aroostook River.

Significant Vernal Pools

Vernal pools provide critical breeding habitat for ambystomid salamanders (*Ambystoma* spp.), wood frogs (*Rana sylvatica*), and fairy shrimp (*Eubranchipus* spp.). A vernal pool inventory for the Presque Isle Bypass was conducted in May 2007 by Kleinschmidt Associates.²² One significant and 11 non-significant vernal pools were found to occur within the Presque Isle Bypass Reference Area (Figure 3-11).

3.4.3.5 Essential Fish Habitat

The Aroostook River and its tributaries are considered EFH for Atlantic salmon because of its historical importance to Atlantic salmon populations. According to MaineGIS data, no Atlantic salmon spawning or rearing locations have been mapped in the Presque Isle Bypass Reference Area. However, according to the Maine Department of Marine Resources (MDMR) (O Cox, 2012 email), MDMR has actively managed Atlantic salmon in the Aroostook River. Atlantic salmon fry have been stocked in the Aroostook River upstream and downstream of Presque Isle. In the Spring of 2012 MDMR stocked thousands of Atlantic salmon fry in the West Branch of Salmon Brook. Some adult return data has been collected at the Tinker Dam (Tinker, NB). To date it has passed 22 Atlantic salmon. MDMR expects Atlantic salmon juveniles and adults to be in the project area that crosses the Aroostook River. As far as small tributaries crossed by the project, Merritt Brook has historically had Atlantic salmon in it, but the current status is unknown. The southern end of the project will cross Williams Brook at tributary to Prestile Stream. There is no data on

²² Maine Department of Transportation and Kleinschmidt Associates. June 2007. *Vernal Pool Study; Presque Isle Bypass, Presque Isle, ME.*

Atlantic salmon in that stream. MDMR has documented Atlantic salmon rearing habitat downstream of Bugbee (6 mile upstream). The Aroostook River in the area of the project is a migratory corridor. The Canadian province of New Brunswick has also contributed to the restoration of Atlantic salmon in the Aroostook River by constructing a fish ladder at the Tinker Dam Generating Station.

3.4.4 Endangered, Threatened, and Species of Special Concern

This section describes federal- and state-listed endangered and threatened species, and species of special concern in the Reference Area. Potential impacts on endangered, threatened, and species of special concern from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are discussed in Chapter 4 (Section 4.4.4, Page 4-68).

3.4.4.1 Regulatory Context

Rare species are protected by both state and federal legislation. The federal Endangered Species Act (16 USC §1531.43) requires federal agencies to conserve listed species of plants and animals. This means that all methods and procedures that would return a species from the possibility of extinction should be implemented, including habitat conservation, habitat acquisition, and research. Maine's Endangered Species Act (12 M.S.R.A. §7751 *et seq.*) requires state agencies to conserve all endangered or threatened fish and wildlife species, as well as their essential habitat. Rare plants and botanical communities are not protected under state regulations unless they are identified as essential to providing state-listed wildlife species with physical or biological features that are critical to the species' survival, or are within another protected natural resource such as wetlands or Significant Wildlife Habitat. However, the MDOC has developed and maintains an Official List of Endangered and Threatened Plants (E and T List) in Maine, which is used as an informational planning tool.

3.4.4.2 Federal Endangered and Threatened Species

Although federally listed species occur in Aroostook County, none are known to occur within the Presque Isle Bypass Reference Area. Furbish's lousewort (*Pedicularis furbishae*) is a state- and federally-listed endangered herbaceous plant, however, its only habitat worldwide occurs along the calcareous scoured banks of the St. John River, well north of the Presque Isle Bypass Reference Area.

The federally threatened Canada lynx (*Lynx canadensis*) is associated with dense boreal and subalpine conifer forests, thickets, and swamps. Canada lynx occur, at the southern extent of its range, in the western and eastern United States and Canada. Lynx are nocturnal and usually solitary except during the breeding season. Habitat

characteristics include remote forests, rugged terrain, and a dense thicket understory, preferring mixed forest-coniferous forest vegetation dominated by red spruce, balsam fir, sugar maple, birch and beech. The USFWS has stated that in the eastern United States, lynx occur in northwestern Maine and northern New Hampshire, Vermont, and New York State²³. The Canada lynx species and critical habitat for Canada lynx are mapped within the Presque Isle Bypass Reference Area in the Town of Westfield, west of Route 1 (Figure 3-12). The February 25, 2009 volume of the Federal Register designated the critical habitat for Canada lynx²⁴

Within the November 17, 2000 volume of the Federal Register²⁵, Atlantic salmon (*Salmo salar*) was jointly listed as endangered by the NMFS and the USFWS. The June 19, 2009 volume of the Federal Register designated a Distinct Population Segment (DPS) for Atlantic salmon in the Gulf of Maine²⁶. The DPS specifically identified naturally reproducing populations from the Kennebec River downstream to the former Edwards Dam site, northward to the mouth of the St. Croix River. Atlantic Salmon were known to be present in eight rivers (Dennys, Machias, East Machias, Pleasant, Ducktrap, Narraguagus, Sheepscot River, and Cove Brook). Within the August 10, 2009 volume of the Federal Register²⁷, NOAA and the USFWS revised the Gulf of Maine DPS for Atlantic salmon by extending the DPS to include three additional rivers in Maine: the Penobscot (above the former Bangor Dam); the Kennebec (above the former Edwards Dam); and the Androscoggin. The rivers containing the DPS for Atlantic salmon, including the three rivers added in 2009, do not occur in the Presque Isle Bypass Reference Area.

3.4.4.3 State Endangered and Threatened Species

One state-listed species occurs in the Presque Isle Bypass Reference Area: the upland sandpiper (*Bartramia longicauda*) (Figure 3-11).

Upland Sandpiper

The upland sandpiper (*Bartramia longicauda*) is state-listed as threatened based on population estimates of less than 200 breeding pairs statewide. In Aroostook County, upland sandpipers are loosely colonial nesters found in dry, open grassland areas such as airports and grassy pastures during the breeding season. Nests are simple, consisting of little more than a sparsely lined scrape. Upland sandpipers' diet is composed primarily of grain and seeds, though it occasionally eats terrestrial invertebrates. In the Reference Area, the upland sandpiper has been observed at the Northern Maine Regional Airport in Presque Isle and in Westfield, west of Route 1 in the southern part of the Reference Area.

²³ Federal Register, Page 16051, March 24, 2000
²⁴ Federal Register, Page 8616, February 25, 2009
²⁵ Federal Register, Page 69459, November 17, 2000
²⁶ Federal Register, Page 29344, June 19, 2009
²⁷ Federal Register, Page 39903, August 10, 2009

Essential Habitat

Essential Habitats are areas that currently or historically provide physical or biological features that are critical to conserving an endangered or threatened species, such as nesting or feeding areas. The state designates essential habitat for a rare species only if habitat loss has been determined to be a cause in the species' decline. Before an area can be designated Essential Habitat, it must be mapped by the IF&W and adopted through formal public procedures.

No Essential Habitats occur in the Presque Isle Bypass Reference Area.

State-listed Plants

Correspondence with the MNAP indicates that 62 rare plant species are known to occur in Aroostook County (as documented in the DEIS, Page 3-91), but that no rare plants occur within the Presque Isle Bypass Reference Area.

Species of Special Concern

Species of Special Concern (Figure 3-11) contribute to the biodiversity of the area, but are not regulated by the state of Maine. Species of Special Concern are believed to be vulnerable and could easily become threatened or endangered because of low or declining populations, specialized habitat needs, or restricted distribution.

Two Species of Special Concern are in the Presque Isle Bypass Reference Area. The pygmy snaketail (*Omphiogomphus howei*) is a dragonfly listed as a Species of Special Concern found along the Aroostook River, west of Route 1 in the Reference Area. The wood turtle (*Glyptemys insculpta*), listed as a Species of Special Concern is reported from the Chapman/Presque Isle city line, west of Arnold Brook Lake.

3.5 Atmospheric Environment

This section describes air quality and the noise environment in the Presque Isle Bypass Reference Area.

3.5.1 Air Quality

The 1990 Clean Air Act Amendments (CAAA) require that a proposed project not cause any new violation of the National Ambient Air Quality Standards (NAAQS), or increase the frequency or severity of any existing violations, or delay attainment of any NAAQS.

This section describes existing air quality conditions for the Presque Isle Bypass Reference Area in terms of their conformance with the NAAQS. This air quality analysis evaluates the pollutants that are relevant to the transportation improvements

proposed in the Reference Area. This information would be used to assess any regional or local air quality impacts. Potential impacts on air quality from construction of the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are discussed in Chapter 4, Section 4.5.1 (Page 4-69).

3.5.1.1 Regulatory Context

The EPA has established NAAQS that set limits on air pollutants considered harmful to public health. The State of Maine has adopted the same standards as those set by the EPA. The predominant sources of air pollution from the Presque Isle Bypass would be emissions of volatile organic compounds (VOCs), oxides of nitrogen (NO_x), particulate matter (PM₁₀), and carbon monoxide (CO). Ozone is a pollutant of regional concern and is evaluated based upon the change in the precursor emissions of VOC and NO_x. CO and PM₁₀ are of local concern and are evaluated based upon their concentrations at congested intersections.

VOCs and NO_x are important pollutants because of their role in forming ozone, which is also referred to as photochemical smog. Both of these pollutants are emitted from transportation sources. VOCs are a subset of the emissions from unburned fuel. NO_x, a product of high temperature combustion, is a brownish gas with a pungent odor. It is a pulmonary irritant and short exposure may increase susceptibility to acute respiratory disease. NO_x are emitted in the form of nitrogen dioxide (NO₂) and nitrogen monoxide (NO). The amount of NO₂ present in exhaust is dependent on the source type. Typically, NO₂ emissions are not modeled for highway projects but NO_x is, and NO_x levels are compared to the NAAQS for NO₂ on Table 3-21 (Page 3-60). Further conversion of the emitted NO to NO₂ occurs in the outside air by reacting with ozone in a complex photochemical process. The highest levels of ozone typically occur during the summer months. CO and NO_x are emitted primarily by motor vehicles, and highest concentrations of CO typically occur near congested intersections during the winter, when cold temperatures cause inefficient engine operation.

Particulate matter is a term referring to particles found in the air. Some particles are large enough to be seen as dust, soot, or smoke, while others are too small to be visible. Particulate matter comes from a variety of sources. In general, emissions from highway and non-road vehicles, including railroads, compose approximately one percent of total PM₁₀ emissions. Fuel combustion in power plants and industrial processes accounts for another 5 percent of PM₁₀. The largest direct source of PM₁₀ is fugitive dust from paved and unpaved roads, agricultural and forestry activities, wind erosion, wildfires, and managed burning. PM₁₀ in the study area is due to dust caused by agricultural operations, winter road sanding, and vehicle emissions. Typically, PM₁₀ concentrations are highest during the winter due to particles from the sanding of roadways. PM₁₀ is also formed indirectly in the atmosphere by the reaction of gaseous pollutants, such as NO_x. Standards for particulate matter are set for particles smaller than a certain size (for PM₁₀, this is 10 microns). Small particles can have adverse health effects because of their ability to reach the lower regions of

the respiratory tract. The NAAQS also regulates emissions of smaller (2.5 micron) particles, known as PM_{2.5}.

Carbon monoxide is a product of incomplete combustion. Over 95 percent of CO emissions come from mobile sources. It is a colorless and odorless gas that prevents the lungs from passing oxygen to the blood stream. Brief exposure to high levels of CO can also impair vision, physical coordination, and the perception of time.

The EPA has set the NAAQS to protect the public health and welfare. Table 3-21 (Page 3-60) presents the NAAQS for the major pollutants including both primary and secondary pollutants. The 1990 CAAA divided states into attainment and non-attainment areas with classifications based upon the severity of the air quality problem. The Study Area is currently designated as attainment for ozone, CO, and PM_{2.5}. This means that existing levels of ozone, CO, and PM_{2.5} do not exceed the NAAQS. The City of Presque Isle is designated as a Maintenance area for PM₁₀ and is classified as "Moderate." A Maintenance area is defined as an area that had previously been designated a non-attainment area, but after submitting a maintenance plan now meets applicable air quality standards and is redesignated to attainment.

3.5.1.2 Methodology

The air quality study includes microscale and mesoscale analyses that evaluate the local and regional emissions, respectively. These analyses were conducted following EPA modeling procedures using traffic and emissions data for existing and future (No-Action and Build) conditions. These data were incorporated into EPA air quality models and Maine DEP-specific emission programs to generate emissions estimates.

Microscale

The microscale analysis evaluated CO concentrations at one of the most congested intersections in the Presque Isle Bypass Reference Area during the peak CO season (winter).²⁸ The intersections in the Presque Isle Bypass Reference Area were ranked based on traffic volumes and level of service. The intersection of Route 1 (Main Street), Route 163 (Maysville Street), and the Parsons Street Connector was selected for analysis as being the most congested.

The microscale analysis calculates maximum 1-hour and 8-hour CO concentrations, using the computer model CAL3QHC. The CAL3QHC model calculates the air quality impacts from vehicles in both free-flow and idle operation by creating a 3-dimensional model that represents the highway and receptor geometry. Traffic, emission, and meteorological data were entered into the model to predict maximum 1-hour and 8-hour CO concentrations.

28 Draft *Environmental Assessment for the Easton Industrial Access Road Study*, 2003.

**Table 3-21
 National Ambient Air Quality Standards**

Pollutant	Averaging Time	Level
Carbon Monoxide	8-hour	9 ppm
	1-hour	35 ppm
Lead	Rolling 3 month average	0.15 µg/m ³ ¹
Nitrogen Dioxide	1-hour	100 ppb
	Annual	53 ppb ²
Ozone	8-hour	0.075 ppm ³
Particle Matter		
PM _{2.5}	Annual	15 µg/m ³
	24-hour	35 µg/m ³
PM ₁₀	24-hour	150 µg/m ³
Sulfur Dioxide	1-hour	75 ppb ⁴
	3-hour	0.5 ppm

- 1 Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- 2 The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
- 3 Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
- 4 Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

The vehicle emission factors used in the microscale analysis were obtained using the EPA's MOBILE6.2²⁹ computer model. MOBILE6.2 calculates CO emission factors for motor vehicles in grams per vehicle-mile. The emission factors calculated in this study were adjusted to reflect Maine-specific conditions such as temperature representative of the winter CO season and do not include an Inspection and Maintenance program.

The microscale analysis also evaluated PM₁₀ concentrations at the Maine DEP monitoring site in Presque Isle with the highest value.

Mesoscale

The purpose of the mesoscale analysis is to estimate the area-wide emissions of VOC and NOx during a typical day in the peak ozone season (summer) and PM₁₀ during a typical day in the peak PM₁₀ season (winter). PM_{2.5} was not evaluated, as the area is in attainment. The mesoscale analysis evaluates the change in VOC, NOx, and PM₁₀ emissions from the average daily traffic volumes, highway lengths, and vehicle emission rates. Using EPA-recommended air quality modeling techniques, total pollutant emissions were calculated for the SDEIS Corridors, including the Presque Isle Bypass Study Area.

The mesoscale Study Area includes all highways identified in the ACTS transportation analysis. The specific highways included in this air quality analysis are Route 1, Route 1A, Route 11, Route 161, Route 163, and Canadian Route 2.

The mesoscale analysis calculated the VOC, NOx, and PM₁₀ emissions for the existing conditions within the ACTS Study Area. The vehicle emission factors used in the mesoscale analysis were obtained using the EPA's MOBILE6.2 emissions model. The emission rates calculated in this air quality study were adjusted to reflect Maine's specific conditions. Emission factors for the mesoscale analysis were determined using the Maine DEP-recommended temperatures for the summer (ozone) season and winter (PM₁₀) season.

3.5.1.3 Results – Existing Conditions

The microscale analysis calculated the 2005 concentrations for CO and PM₁₀. The CO analysis evaluated the most congested intersection based on traffic volumes and level of service. The PM₁₀ concentrations were evaluated based on existing PM₁₀ monitoring data. The results for the microscale analysis are as follows:

- The maximum 2005 Existing CO concentration for the 1-hour analysis was calculated to be 5.1 ppm.
- The corresponding maximum 8-hour concentration was calculated to be 3.57 ppm.

29 MOBILE6.2 (Mobile Source Emission Factor Model).

- This CO concentration is substantially below the NAAQS of 35 ppm (1-hour) and 9 ppm (8-hour).
- The maximum existing PM₁₀ concentrations are 73 µg/m³ for the 24-hour period and 16 µg/m³ for the annual. These concentrations are below the NAAQS of 150 µg/m³ (24-hour) and 50 (annual) µg/m³, respectively.

The mesoscale analysis calculated the 2005 VOC, NO_x, and PM₁₀ emissions from the major highways in the ACTS Study Area. These emissions, estimated to be 2,530.6 kilograms per day (kg/day) of VOCs, 5,000.9 kg/day of NO_x, and 127.2 kilograms per day of PM₁₀, establish a baseline to which future emissions can be compared.

3.5.2 Noise Environment

This section describes the existing noise environment of the Reference Area. The noise analysis was conducted following MaineDOT's³⁰ and FHWA's³¹ noise evaluation and abatement procedures for a Type I project. A Type I project is a highway project that results in the construction of a new highway or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through travel lanes. All of the FEIS alignments under consideration conform to this definition.

Potential impacts on the noise environment from the Presque Isle Bypass and measures to avoid, minimize, or mitigate these potential impacts are discussed in Chapter 4 (Section 4.5.2, Page 4-75).

3.5.2.1 Noise Terminology

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, or recreation. The individual human response to noise is subject to considerable variability, since there are many emotional and physical factors that contribute to the differences in reaction to noise.

Sound (noise) is described in terms of loudness, frequency, and duration. Loudness is the sound pressure level measured on a logarithmic scale in units of decibels (dB). For community noise impact assessment, sound level frequency characteristics are based upon human hearing, using an A-weighted (dBA) frequency filter. The A-weighted filter is used because it approximates the way humans hear sound. Table 3-22 (Page 3-62) presents a list of typical sound levels at distances measured in feet from the source.

³⁰ Maine Department of Transportation. July 2011. *Highway Traffic Noise Policy*.

³¹ Title 23 Code of Federal Regulations, Part 772. *Procedures for Abatement of Highway Traffic Noise and Construction Noise*.

**Table 3-22
 Typical Sound Levels**

Outdoor Sound Levels	Sound Pressure (μPa) ¹	Sound Level (dBA) ²	Indoor Sound Levels
	6,324,555	- 110	Rock Band at 15 feet
Jet Over-Flight at 1000 feet		- 105	
	2,000,000	- 100	Inside New York Subway Train
Gas Lawn Mower at 3 feet		- 95	
	632,456	- 90	Food Blender at 3 feet
Diesel Truck at 50 feet		- 85	
Noisy Urban Area—Daytime	200,000	- 80	Garbage Disposal at 3 feet
		- 75	Shouting at 3 feet
Gas Lawn Mower at 100 feet	63,246	- 70	Vacuum Cleaner at 10 feet
Suburban Commercial Area		- 65	Normal Speech at 3 feet
	20,000	- 60	
Quiet Urban Area—Daytime		- 55	Quiet Conversation at 3 feet
	6,325	- 50	Dishwasher Next Room
Quiet Urban Area—Nighttime		- 45	
	2,000	- 40	Empty Theater or Library
Quiet Suburb—Nighttime		- 35	
	632	- 30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		- 25	Empty Concert Hall
Rustling Leaves	200	- 20	
		- 15	Broadcast and Recording Studios
	63	- 10	
		- 5	
Reference Pressure Level	20	- 0	Threshold of Hearing

1 μPa MicroPascals describe pressure. The pressure level is what sound level monitors measure.

2 dBA A-weighted decibels describe pressure logarithmically with respect to 20 μPa (the reference pressure level).

Source: Highway Noise Fundamentals, Federal Highway Administration, September 1980.

This noise analysis uses a common sound measurement, known as Leq. The Leq averages the background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time. The time period used for highway noise analysis is typically one hour. The Leq represents the loudest hour of the day and usually occurs during the peak periods of automobile and truck traffic volumes and when vehicle speeds are high. The FHWA guidelines and criteria require the use of the one-hour Leq for assessing highway noise impacts on different land uses. The following general relationships exist between hourly traffic noise levels and human perception:

- A 1- or 2-dBA increase is not perceptible to the average person.
- A 3-dBA increase, although a doubling of acoustic energy, is just barely perceptible to the human ear.
- A 10-dBA increase is a tenfold increase in acoustic energy, but is perceived as a doubling in loudness to the average person.

3.5.2.2 Methodology

To provide a conservative analysis of existing noise levels in the Presque Isle Bypass Reference Area, the noise analysis evaluated noise levels along Route 1 in downtown Presque Isle. The highest noise levels were found to occur during the evening peak hour traffic commuting period. The sound levels were calculated using the FHWA's approved noise modeling methodology.³² The current FHWA's noise prediction model is titled *Traffic Noise Model (TNM) 2.5*.³³ The modeling input data included peak hour traffic volumes, vehicle mix, vehicle speeds, and roadway and receptor geometry. The existing modeled sound levels were based on the evening peak hour traffic commuting period.

3.5.2.3 Existing Noise Levels

Noise monitoring was conducted along Route 1 in downtown Presque Isle. Noise levels were found to be 68 dBA Leq. The existing sound levels are not considered representative of the entire Presque Isle Bypass Reference Area sound levels. Route 1 in downtown Presque Isle is highly developed with relatively high traffic volumes, while the majority of the Presque Isle Bypass Study Area is very rural with low traffic volumes. Noise monitoring was also conducted along Route 164 in Caribou to establish the existing sound levels for the Route 1 corridor. These sound levels were found to be 57 dBA (Leq) 50 feet from Route 1. This noise monitoring was conducted along Route 1 north of Caribou to establish existing sound levels for rural areas. As Caribou and Presque Isle are adjacent communities with similar levels of development and topography, the noise monitoring in Caribou is representative of sound levels found in the Presque Isle area. In areas outside of the Route 1 corridor, the average existing sound levels for the Presque Isle Bypass Reference Area are assumed to be typical of rural residential areas at approximately 45 dBA.

32 US Department of Transportation. December 1978. *FHWA Highway Traffic Noise Prediction Noise Model*. FHWA - RD-77-108.

33 Federal Highway Administration's Traffic Noise Model Version 2.5, February 2004

This Page Intentionally Left Blank

4

Environmental Consequences and Mitigation

How to Read This Chapter: This chapter identifies potential impacts to the transportation, social and economic, physical and biological, and atmospheric environment that may result from construction of a new highway facility within the Presque Isle Bypass Reference Area. Potential natural and social environmental impacts from Alignment Options 4B, 6, and 7 are analyzed in this chapter in comparison to the No-Action Alternative. This chapter is intended to provide sufficient information on the environmental consequences – both benefits and impacts – associated with each alignment option to support federal, state, and local decisions.

Based on the natural and social environmental impacts associated with each alignment option, Alignment Option 7 has been identified as the Preferred Alternative. Through the Highway Methodology Process, the U.S. Army Corps of Engineers (USACE) identified Alignment Option 7 as the Least Environmentally Damaging Practicable Alternative (LEDPA) on June 27, 2012. As such, Alignment Option 7 is the Proposed Action of this FEIS.

All accompanying figures are bound separately in Volume 2 of this FEIS, with the exception of Figures 2-6 and 4-14 which are embedded within the Volume 1 text.

4.1 Introduction

This chapter summarizes effects to the highway transportation environment; the land use, economic, social and cultural environment; the physical and biological environment; and the atmospheric environment that are expected to result from construction of the Proposed Action (Alignment Option 7), and other alignment options evaluated in this FEIS.

The USACE Highway Methodology Phase I and Phase II¹ technical memoranda describe the Presque Isle Bypass Alternatives Analysis and the corresponding environmental impacts from each alternative.

The impact evaluation presented in this chapter for wetlands, stream crossings, and Inland Waterfowl and Wading Bird Habitat (IWWH) is based on the calculated slope limits for a two-lane facility, while impacts to farmed land, historic properties, and Section 4(f) properties were based on a 300-foot right-of-way (ROW) width (four-lane facility) as these are related to land acquisition rather than physical disturbance. Impact to vernal pool habitat is based on a 750-foot offset from the depressional edge of the vernal pool to the centerline of the proposed two-lane roadway. This analysis is intended to contrast the direct impacts of the alignment option based on quantifiable data available at the conceptual design stage.

The air quality analysis was completed for the entire ACTS Study Area. The economic analysis was a combination of analysis for Aroostook County, the Presque Isle-Caribou Labor Market Area (LMA), or the City of Presque Isle depending on availability and appropriateness of the data. Analyses were conducted for land use, cultural, and ecological impacts for Alignment Options 4B, 6, and 7 within the Presque Isle Bypass Reference Area.

In addition to the direct impacts that would result from the Presque Isle Bypass, Chapter 4 also discusses potential indirect and cumulative impacts (Section 4.7, Page 4-82). Mitigation measures to lessen unavoidable adverse impacts are presented and summarized in Section 4.8 (Page 4-99).

4.2 Transportation Environment

This section of the FEIS presents the environmental consequences for the Presque Isle Bypass relative to the transportation system. This section discusses the methodology and findings for the transportation infrastructure assessment for this FEIS associated with the Presque Isle Bypass Alignment Options. For each alternative or alignment option, this analysis quantifies potential effects on demand, travel time savings, vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT), geometric deficiencies, safety, system continuity, compatibility, and mobility.

4.2.1 Evaluation Criteria

The Aroostook County Travel Demand Model² was used to evaluate how the Presque Isle Bypass Alignment Options performed using the USACE Basic Project Purpose

¹ Vanasse Hangen Brustlin, Inc. June 2007 USACE Highway Methodology Phase I Avoidance - Presque Isle Bypass and June 2008 USACE Highway Methodology Phase II Permit Application – Presque Isle Bypass. Prepared for the Maine Department of Transportation

(BPP) and the National Environmental Policy Act (NEPA) Purpose and Need as benchmarks. The transportation performance measures included:

- Travel Time Savings - Comparing No-Action Alternative travel times through the Study Area to the travel times anticipated for the Presque Isle Bypass Alignment Options provides an important measure of effectiveness.
- Vehicle-Miles Traveled (VMT) - VMT is a measure of vehicle use and trip length. One vehicle traveling one mile constitutes one vehicle-mile. Over time, VMT is affected by factors such as population, employment rates, land development, infrastructure changes, and housing density. For the Presque Isle Bypass Alignment Options and the No-Action Alternative, the VMT for the Study Area has been quantified using model forecasts. Comparing changes in VMT provides a direct measure of how the demand shifts from each corridor affect transportation efficiency within the Study Area in terms of trip distances. An alignment that provides a shorter route will reduce VMT.
- Vehicle-Hours Traveled (VHT) - VHT is a measure of vehicle use and trip time. One vehicle traveling one hour constitutes one vehicle-hour. Similar to VMT, VHT is affected by population, employment, land development, infrastructure changes, and housing density. VHT has been quantified for the Presque Isle Bypass Alignment Options and the No-Action Alternative. Comparing changes in VHT provides a direct measure of how the demand shifts affect transportation efficiency in terms of trip times. An alternative or alignment option that provides a faster route will reduce VHT.
- Mobility - How well an alternative or alignment option improves mobility and how compatible it is with the existing transportation system are qualitative measures that address how well the alternative fits into the existing transportation network. One measure of system mobility is how each Presque Isle Bypass Alignment Option shifts demands from highways with a low functional classification (such as local roads and minor arterials) to roads with a higher functional classification (such as freeways and principal arterials) that historically have a lower crash occurrence. A highway's effect on mobility is directly related to its functional classification.
- Downtown Shifts - Changes in average daily traffic (ADT) on Route 1 through downtown Presque Isle compared to the No-Action Alternative is a measure that tells how effectively the Presque Isle Bypass Alignment Options separate regional through traffic that is passing through downtown from the mix of local downtown traffic.

These measures help ensure that each alternative and alignment option improves system continuity, compatibility and mobility. Continuity can be characterized by how often existing highways transition between wide, higher speed segments in rural areas to narrow, lower speed segments through downtown areas or city/town

2 The Aroostook County Travel Demand Model consists of a link-based highway network for key regional highways that uses forecasted population growth and employment growth for the year 2035 to predict the future number of trips traveling within or through the Segment 7 Study Area.

centers. These speed transitions reduce mobility and result in poor system reliability. The lack of system continuity contributes to a decrease in mobility for residents and businesses in the Presque Isle area. The improvement in mobility provided by each alignment option has been evaluated by how each would improve local downtown conflicts by removing regional through traffic from the local downtown traffic mix.

Compatibility refers to how well each alignment option supports the statewide transportation plans, specifically, the Maine Department of Transportation (MaineDOT) *Multimodal Six-Year Transportation Capital Improvement Plan for State Fiscal Years 2010-2015 (Six-Year Plan)*. The *Six-Year Plan* is a planning document that identifies projects statewide that are planned for construction in the near term. The improvements included in the *Six-Year Plan* are assumed to have occurred under the No-Action Alternative. Compatibility with these planned improvements is important to ensure system continuity.

Local conflicts occur when regional traffic (motorists that desire the shortest travel time with minimal interruption in traffic flow) passes through local cities/towns on highways that also provide a high degree of local access. Highways through city/town centers have more points of conflict than regional highways outside city/town centers. These conflicts include frequent access and egress points to adjacent land uses, frequent intersections with side streets, pedestrian movements, narrow lane widths and narrow (or lacking) shoulders, on-street parking, and frequent speed limit transitions.

Local conflicts are reduced and mobility increased when regional through traffic is reduced. Benefits are improved mobility (travel times) and improved access to local businesses, City/Town Halls, and improved pedestrian access (reduced congestion in city/town centers).

4.2.2 Projected Transportation Impacts

This section provides the results of transportation evaluation for the No-Action Alternative and each alignment option considered for the Presque Isle Bypass. Table 4-1 (Page 4-5) presents the 2035³ estimated ADT for each of the Presque Isle Bypass Alignment Options and the corresponding change in ADT along Route 1 in downtown Presque Isle (Figure 4-1).

The effect of each alignment option on system continuity, compatibility, and mobility is summarized in Table 4-2 (Page 4-6). Traffic impacts resulting from each of the Presque Isle Bypass Alignment Options are described below.

³ The 20-year design year for the Presque Isle Bypass Project was extended from 2030 to 2035 based on a traffic analysis that concluded that traffic volumes projected for 2030 in Presque Isle accurately represent conditions in 2035 (See Appendix E).

**Table 4-1
 Projected Demands vs. No-Action Alternative (2035)**

	Presque Isle Bypass ADT	Downtown Presque Isle (Route 1) Total ADT
No-Action Alternative	N/A	13,840 vehicles
Alignment Option 4B	4,330 vehicles	10,510 vehicles (-3,330 vehicles)
Alignment Option 6	5,680 vehicles	9,450 vehicles (-4,390 vehicles)
Alignment Option 7	5,550 vehicles	9,520 vehicles (-4,320 vehicles)

ADT – Average Daily Traffic in vehicles per day
 N/A – Not applicable

Section 3.2.3 (Page 3-5) summarizes the geometric and safety deficiencies in the Reference Area. Sites identified as high crash locations (HCL) are shown on Figure 3-1. An HCL is defined as a location with eight or more crashes in a three year period.

The Presque Isle Bypass Alignment Options would mitigate all of the HCLs in the Reference Area (all within downtown Presque Isle) by diverting traffic away from the downtown area. The No-Action Alternative would not address any of the HCLs or the geometric deficiencies.

**Table 4-2
 Summary of Transportation Benefits vs. No-Action Alternative (2035)**

	Truck VHT	Total VHT	Total VMT	Travel Time	Mobility	Downtown PI Truck ADT	Downtown PI Total ADT
No-Action Alternative				15 min.	39%	990 trucks	13,840 vehicles
<u>Change vs. No-Action Alternative:</u>							
Alignment Option 4B	-50 vehicle-hours	-310 vehicle-hours	-770 vehicle-miles	-4.1 min.	45% (+6 %)	-420 trucks (-42%)	-3,330 vehicles (-24%)
Alignment Option 6	-80 vehicle-hours	-560 vehicle-hours	-2,090 vehicle-miles	-5.4 min.	46% (+7 %)	-550 trucks (-55%)	-4,390 vehicles (-32%)
Alignment Option 7	-80 vehicle-hours	-540 vehicle-hours	-1,320 vehicle-miles	-5.3 min.	46% (+7 %)	-540 trucks (-55%)	-4,320 vehicles (-31%)

VHT – Vehicle-hours traveled
 VMT – Vehicle-miles traveled
 Travel Time - travel time for through trips on Route 1 between points north and south of Presque Isle
 Mobility is the percent of daily traffic through the Segment 7 Study Area that travels on freeways and principal arterial roads.
 ADT – Average daily traffic
 Shaded cells denote the optimal value for each measure.

4.2.2.1 Alignment Option 4B

Traffic demands for Alignment Option 4B are shown in Table 4-1 (Page 4-5) and Figure 4-1. Alignment Option 4B would carry 4,330 vehicles per day, which is the lowest of the alignment options, because it is closer to downtown Presque Isle and Centerline Road compared to the other alignment options.

Alignment Option 4B would reduce travel times and VHT through downtown Presque Isle when compared to the No-Action Alternative (Table 4-2, Page 4-6). Travel times would decrease by 4.1 minutes and total daily VHT would decrease by 310 vehicle-hours (truck VHT would decrease by 50 vehicle-hours). Total daily VMT would decrease by 770 vehicle-miles. The VMT decrease is due to the shorter distance vehicles travel on the bypass.

The travel time, VMT, and VHT reductions demonstrate that Alignment Option 4B provides a faster and more efficient travel path for regional traffic than the No-Action Alternative. The travel time, VMT, and VHT reductions for Alignment Option 4B are not as low as the other alignment options because it is closer to downtown Presque Isle and Centerline Road and thus attracts slightly less traffic away from Presque Isle.

Alignment Option 4B would enhance regional mobility in the Presque Isle area when compared to the No-Action Alternative, and would distribute 45 percent of the ADT on freeways or principal arterial roads, an improvement of six percent over the No-Action Alternative.

Alignment Option 4B would divert a portion of the regional north-south through traffic away from downtown Presque Isle when compared to the No-Action Alternative. Approximately 3,330 vehicles per day, including 420 trucks per day, would divert to the Alignment Option 4B bypass, removing these vehicles from downtown Presque Isle, which amounts to a 24-percent reduction in traffic. This traffic shift away from downtown Presque Isle is the lowest of the alignment options.

Reductions in travel times, VHT, and VMT for Alignment Option 4B are the lowest of the options considered, due to its circuitous alignment and horizontal curvature:

- Travel times would decrease by 4.1 minutes;
- VHT would decrease by 310 vehicle-hours (truck VHT would decrease by 50 vehicle-hours); and
- VMT would decrease by 770 vehicle-miles.

4.2.2.2 Alignment Option 6

Traffic demands for Alignment Option 6 are shown in Table 4-1 (Page 4-5) and Figure 4-1. Alignment Option 6 would carry 5,680 vehicles per day, which is the highest of the options considered due to its more direct alignment. Alignment Option 6 is projected to carry more traffic than Alignment Option 4B because it is a more direct bypass alignment and would therefore intercept more regional traffic.

Reductions in travel times, VHT, and VMT for Alignment Option 6 are the highest of the options considered (Table 4-2, Page 4-6), due to its direct alignment and minimal horizontal curvature:

- Travel times would decrease by 5.4 minutes;
- VHT would decrease by 560 vehicle-hours (truck VHT would decrease by 80 vehicle-hours); and
- VMT would decrease by 2,090 vehicle-miles.

The travel time, VHT, and VMT reductions demonstrate that Alignment Option 6 provides a faster and more efficient travel path for regional traffic than the No-Action Alternative.

Alignment Option 6 would enhance regional mobility in the Presque Isle area when compared to the No-Action Alternative, and would distribute 46 percent of the ADT

on freeways or principal arterial roads, an improvement of seven percent over the No-Action Alternative.

Alignment Option 6 would divert a portion of the regional north-south through traffic away from downtown Presque Isle when compared to the No-Action Alternative. Approximately 4,390 vehicles per day, including 550 trucks per day, would divert to the Alignment Option 6 bypass, removing these vehicles from downtown Presque Isle, a 32-percent reduction in traffic. This shift is the highest of the alignment options evaluated.

4.2.2.3 Alignment Option 7

Traffic demands for Alignment Option 7 are shown in Table 4-1 (Page 4-5) and Figure 4-1. Alignment Option 7 would carry 5,550 vehicles per day, which is similar to the traffic demand projected for Alignment Option 6 – the result of the proximity of this alignment. Alignment Option 7 is projected to carry more traffic than Alignment Option 4B because it is a more direct bypass alignment and would therefore intercept more regional traffic.

Reductions in travel times and VHT for Alignment Option 7 (Table 4-2, Page 4-6) are similar to those under Alignment Option 6:

- Travel times would decrease by 5.3 minutes;
- VHT would decrease by 540 vehicle-hours (truck VHT would decrease by 80 vehicle-hours); and
- VMT would decrease by 1,320 vehicle-miles.

The VMT reduction under Alignment Option 7 is not as low as Alignment Option 6 because there are several additional horizontal curves in the alignment which minimize environmental impacts but add to the trip distances. Regardless of the magnitude, the travel time, VHT, and VMT reductions demonstrate that Alignment Option 7 provides a faster and more efficient travel path for regional traffic than the No-Action Alternative and Alignment Option 4B.

Alignment Option 7 would enhance regional mobility in the Presque Isle area when compared to the No-Action Alternative, and would distribute 46 percent of the ADT on freeways or principal arterial roads, an improvement of seven percent over the No-Action Alternative.

Alignment Option 7 would divert a portion of the regional north-south through traffic away from downtown Presque Isle when compared to the No-Action Alternative. Approximately 4,320 vehicles per day, including 540 trucks per day,

would divert to the Alignment Option 7 bypass, removing these vehicles from downtown Presque Isle, a 31-percent reduction in traffic.

4.2.2.4 Summary

This section presented the detailed transportation evaluation for the No-Action Alternative and each alignment option considered for the Presque Isle Bypass. Transportation performance measures including travel time savings, VMT, VHT, mobility, and downtown Presque Isle shifts were forecasted for each Presque Isle Bypass Alignment Option. There were no options considered that degraded transportation conditions – all measures were either unchanged or improved.

Comparing each of the Presque Isle Bypass Alignment Options against each other using the transportation performance measures demonstrates that Alignment Options 6 and 7 outperform Alignment Option 4B because they are each more direct bypasses of Presque Isle for Route 1 through traffic. To illustrate this, Figure 2-6 (Page 2-23) presents a transportation performance index which assigns equal weight to all measures presented in this section.

As illustrated in Figure 2-6 (Page 2-23), the more “direct” the alignment option, the better it performs from a transportation perspective. For example, Alignment Option 6 is the most direct regional bypass of Presque Isle for Route 1 through traffic and thus outperforms all other options considered. Alignment Option 7 has a similar alignment as Alignment Option 6 and therefore yields similar results. Alignment Option 7 is slightly less direct with more horizontal curves to minimize impacts to natural and social environmental resources. Alignment Option 4B did not perform as well as the alignment options that are further east of downtown Presque Isle and Centerline Road.

4.3 Land Use, Economic, Social, and Cultural Environment

This section describes the potential impacts and proposed mitigation of the Presque Isle Bypass Alignment Options on land uses including, structures within the potential ROW, tribal lands, snowmobile recreational trails, public parks and recreational land and compatibility with local comprehensive plans and zoning, agricultural land, and cultural resources (historic resources, archaeological resources, and traditional cultural properties). The key social and cultural restraints in the Presque Isle Bypass Reference Area are shown on Figure 4-2. This section also describes potential impacts related to land containing uncontrolled petroleum and hazardous wastes.

4.3.1 Land Use

Constructing a new alignment highway segment would require the acquisition of land, which converts that land from its prior use to a transportation ROW. The total amount of land affected is determined by the amount of new ROW acquisition that is required for construction of new highway facilities and upgrades. Loss of forested land and agricultural land could have substantial economic effects, and the loss of developed land could adversely affect communities from both an economic and social perspective.

MaineDOT has identified the specific property requirements for the ROW of the Proposed Action (Alignment Option 7), (Table 4-3, Page 4-11). Property owners would be notified of MaineDOT's interest in acquiring the property as well as the acquisition process. The acquisition process is guided by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act). The Uniform Act provides for fair and equitable treatment of persons whose property would be acquired or who would be displaced because of programs or projects financed with federal funds. Congress amended and updated the Uniform Act in 1987. The rules for the Uniform Act were first published in the Federal Register of March 2, 1989. The process is described in detail in Maine DOT's (Federal Highway Administration approved) ROW manual.

4.3.1.1 Land Use Impacts

Potential land use impacts for the Presque Isle Bypass were assessed by overlaying the various alignment options onto the land use types found within the Presque Isle Bypass Reference Area (as described in Section 3.3, Page 3-7). Land use types were determined from parcel data obtained from the City of Presque Isle's Assessors' office. Because the agricultural land discussed in this section is based on City Assessor's records rather than aerial photography, the impacts to active farmed land, discussed in Section 4.3.2 (Page 4-14), are a more precise estimate of impacts to agriculture. Community land is defined as publicly-owned land. Table 4-3 (Page 4-11) summarizes these impacts for the purpose of comparing the alignment options. Table 4-4 (Page 4-12) lists impacts to structures by type for each alignment option.

The alignment options for the Presque Isle Bypass (Figure 2-3) would impact between 340 and 486 acres of land. Impacts were based upon a ROW width of 300 feet for the new alignment. Property acquisitions would include both full and partial parcel acquisitions. Minor strip takings would also be required, particularly at the northern and southern ends of the Presque Isle Bypass as it transitions back into Route 1. Strip takings from 26 properties are required. These takings include 13 farmland properties, 12 unimproved forest properties and 1 property which is a combination of farmland and unimproved forest.

As shown in Table 4-3 (Page 4-11), the greatest use of land is farmed land, followed by use of residential and commercial property. Impacts to forest and farmed land are shown on Figures 4-3 and 4-4, respectively. None of the alignment options would have a substantial impact on forest land. The No-Action Alternative would not result in any impacts to land.

Table 4-3
Impacts to Land (Acres)^{1,2}

Alignment Option	Agriculture	Commercial	Community	Government	Residential	Undeveloped	Total Land
						Forest	(acres) ³
Option 4B	225	32.7	0	0	63.9	19.1	340.6
Option 6	376	28.1	0.6	0	62.8	18.7	486.6
Option 7	329	55.1	0.1	0	55.3	21.0	461.4

1 Impacts for these land uses were based upon a right-of-way width of 300 feet for the new alignment.

2 Based on City Assessor's Parcel Data.

3 Individual columns do not add up to Total Land because of unreported land uses, such as existing roadways and wetlands.

As discussed in the *SDEIS ECTR*, land use in the Presque Isle Bypass Reference Area is not expected to change substantially in the No-Action Alternative and there would be no substantial increase in demand for land.

At approximately 340.6 acres, Alignment Option 4B would impact the least amount of land of the alignment options considered as it is the shortest. Alignment Option 4B would impact 225 acres of agriculture land, 32.7 acres of commercial property, and 63.9 acres of residential property.

Alignment Option 6 would impact approximately 486.6 acres of land, the most land out of the 3 alignment options. Agricultural land would be impacted the most as a result of Alignment Option 6, with 376 acres. Alignment Option 6 would impact approximately 28.1 acres of commercial property and 62.8 acres of residential property.

Alignment Option 7 would impact approximately 461 acres of land, including 329 acres of agriculture land and approximately 55 acres each of commercial and residential property.

4.3.1.2 Structure Impacts

The Presque Isle Bypass Alignment Options would affect between 12 and 27 structures, including residential, commercial, industrial, agricultural, and government. The required takings are shown in Table 4-4 (Page 4-12) and on Figures 4-5a through Figure 4-5d. A structure was considered impacted if the proposed ROW for the specific alignment option passed through or immediately adjacent to the structure.

Alignment Option 4B would require 12 structure takings: ten residential, one commercial, and one agricultural.

Alignment Option 6 would require 18 structure takings: fifteen residential, one commercial, one agricultural, and one government. The government building is the old school house at 165 Caribou Road in Presque Isle.

Alignment Option 7 would require 27 structure takings: nineteen residential, two commercial, two industrial, and four agricultural. MaineDOT would continue to strive to minimize impacts to structures and would contact individual property owners concerning unavoidable structure takings.

**Table 4-4
Impacts to Structures (Buildings)**

Alignment Option	Total	Residential	Commercial	Industrial	Agricultural	Government
Option 4B	12	10	1	0	1	0
Option 6	18	15	1	0	1	1
Option 7	27	19 ¹	2	2	4	0

¹One residential property is also used as commercial

4.3.1.3 Impact to Tribal Lands

None of the alignment options for the Presque Isle Bypass would affect any lands owned or held in trust by the Aroostook Band of Micmac Indians.

4.3.1.4 Impacts to Snowmobile Trails, Public and Private Recreational Land

This section describes the effects of the Presque Isle Bypass on snowmobile trails and other publicly- and privately-owned recreational properties.

Each of the Presque Isle Bypass Alignment Options (Alignment Options 4B, 6, and 7) cross multiple snowmobile trails that are part of the Interconnected Trail System (ITS) network and connecting club trails (Figure 3-5). These trails are all on privately-owned land.

In Presque Isle, ITS 88 and 83 follow the southern bank of the Aroostook River northward toward Caribou. These multi-use recreational trails are on former railroad property owned by the Canadian-Pacific Railway. The bridge over the Aroostook River, proposed as part of each of the alignment options, would span ITS 83, allowing continued trail access under the bridge.

MaineDOT, in consultation with the City of Presque Isle, would develop a permanent plan to provide an appropriate crossing of the proposed highway for all existing trails to ensure adequate sight distances, trail continuity, and highway safety.

No publicly-owned recreational facilities (listed on Table 3-19, Page 3-37 and shown on Figure 4-2) would be affected by the alignment options under consideration.

4.3.1.5 Compatibility with Local Comprehensive Plans and Zoning

The Presque Isle Bypass was reviewed to evaluate its compatibility with the local comprehensive plan of the City of Presque Isle. The Presque Isle Bypass is almost entirely within the City of Presque Isle (the southern-most portion of Alignment Options 6 and 7 extends into the Town of Westfield) and would support the City's transportation and economic goals. The City of Presque Isle's Comprehensive Plan (2007) lists five transportation goals. Goals that are relevant to the Presque Isle Bypass include:

- ▶ That the location and alignment of any by-pass be fully evaluated by the City Council, City Planning Board, Maine Department of Transportation, Army Corps of Engineers, Environmental Protection Agency, and other state and federal agencies to minimize, to the greatest extent possible, the impact upon prime farmland and the economic impact to merchants located along and near the Route 1 corridor, the City's downtown area, and City in general;
- ▶ That any by-pass be fully evaluated by the City Council and Planning Board to insure that, to the greatest extent possible, that future development in the City's designated growth areas is not adversely impacted; and
- ▶ That roadways which support traffic to a by-pass are adequately upgraded to maximize safety and enhance traffic flow.

The Presque Isle Bypass would support these policies in several ways. The Presque Isle Bypass has been evaluated by federal, state, and local stakeholders. The USACE, through the Highway Methodology process, selected Alignment Option 7 as the LEDPA on June 27, 2012. This alignment option (and all other alternatives and alignment options) have been fully evaluated by MaineDOT, the City of Presque Isle, the USACE, the U.S. Environmental Protection Agency (EPA), and other state and federal agencies in order to select an alternative that minimizes, to the greatest extent practicable, impact to social and environmental resources. Specific information on coordination and consultation with all stakeholders is provided in Chapter 6 of this FEIS.

The Presque Isle Bypass would help to support Presque Isle's economic development goals by ensuring that future development in Presque Isle's designated growth areas

are not adversely impacted. Economic development and business effects of the Presque Isle Bypass are discussed in Section 4.3.3.3 (Page 4-21).

Improving transportation mobility within Aroostook County is a large part of the Purpose and Need for the Presque Isle Bypass. A summary of the transportation benefits of each alignment option evaluated is shown in Table 4-2 (Page 4-6). The roadway would be designed to maximize safety for all users.

4.3.2 Farmed Land and Farmland Soils

Agriculture is an integral part of the economy of Aroostook County (Section 3.3.2, Page 3-9), and influences the land use and transportation needs in Presque Isle. Section 4.3.1 (Page 4-10) evaluated impacts to mapped agricultural land based on parcel and state GIS data. This section provides a more detailed assessment of impacts based on active farmed lands and farmland soils. This section discusses the potential impacts to farmed land and agricultural soils from the three Presque Isle Bypass Alignment Options.

A discussion of impacts to farmed land is included because of the importance of farming in the Presque Isle Bypass Reference Area. Farmed land was identified using aerial photographs. Farmed land includes historically cleared and tilled farm fields, although not all farm fields are in production in a given year. Fields in production are referred to as active farmed land. The potential impacts to farmed land from transportation improvements include both direct and indirect impacts. Direct impacts result from the construction of new roads across existing farms or by expansion of existing roads into adjacent farms. Direct impacts include a loss of active farmed land and may also include impacts to buildings, impacts to irrigation systems, and other farm infrastructure. Loss of farmed land that shortens a field may also affect the length of rows and affect efficiency and productivity. Impact within new location corridors may result in direct impacts to active farmed land by isolating farm fields and facilities and by subdividing fields into land-locked or unusable fragments. Impacts associated with upgrading highways may be limited to the loss of portions of fields close to the existing road.

The direct impacts are presented as the number of acres of active farmed land that would be incorporated into a new highway facility. Highways may also indirectly impact agricultural production due to highway-generated stormwater pollutants. The Prime Farmland Soils and Farmland of Statewide Importance data are based on the available soil survey information in the Reference Area and include unregulated developed areas within areas of farmland soil. The impacts presented, therefore, may be an overestimate.

NEPA documents prepared for transportation studies are required to discuss the Farmland Protection Policy Act (FPPA) and farmland soil impacts, as directed by the FHWA Technical Advisory.⁴

4.3.2.1 Impacts

Based on aerial photographs, there are approximately 21,200 acres of farmed land in the Presque Isle Bypass Reference Area. The impacts to farmed land are discussed below and shown in Table 4-5 (Page 4-15). Impacts to farmed land are shown in Figure 4-4a.

The No-Action Alternative would result in no impact to farmed land. Alignment Option 4B would impact 264 acres of farmed land, 154 acres of Prime Farmland Soils, and 109 acres of Farmland of Statewide Importance (Figures 4-4a and 4-4b).

Alignment Option 6 would result in the greatest amount of farmland impacts among the three alignment options. Alignment Option 6 would impact 289 acres of farmed land, 136 acres of Prime Farmland Soils, and 115 acres of Farmland of Statewide Importance.

Alignment Option 7 (the Proposed Action) was designed, in part, to minimize large impacts to farmed land by moving the alignment to the edges of farms and avoiding bisecting farms, resulting in unusable areas of the farms. Alignment Option 7 would impact 218 acres of farmed land, 97 acres of Prime Farmland soils and 87 acres of Farmland of Statewide Importance.

**Table 4-5
 Impacts to Farmed Land and Agricultural Soils (Acres)¹**

Alignment Option	Active Farmed land	Prime and Unique Farmland Soils²	Farmland of Statewide Importance²
Option 4B	264	154	109
Option 6	289	136	115
Option 7	218	97	87
Total Within Reference Area	21,200	14,130	12,200

¹ Impacts were based upon a right-of-way width of 300 feet for the new alignment.

² Data provided by the U.S. Department of Agriculture in the NRCS Form AD 1006 completed in April 2012.

Note: Impacts to farmed lands are not the sum of the columns because Prime Farmland Soils and Farmland of Statewide Importance are not necessarily actively farmed and may remain undeveloped.

⁴ Federal Highway Administration Technical Advisory T6640.8a. October 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Evaluations

Each of the FEIS Alignment Options would also result in indirect impact to farmed land, including areas of farmed land not acquired for the Proposed Action but whose remaining size, shape, or access to them would render them less useful for farming.

Impacts to farmed land are considered relatively minor, given the amount of farmed land in the Reference Area (21,200 acres). MaineDOT would continue to strive to minimize impact to farmed land and would contact individual property owners concerning land takings.

MaineDOT, in accordance with the FPPA, has completed U.S. Department of Agriculture (USDA) Natural Resource Conservation Service's (NRCS) Farmland Conversion Impact Rating (NRCS Form AD 1006). These Forms (provided in Appendix B) were submitted to NRCS on March 9, 2012, and were completed by NRCS and returned to MaineDOT on April 5, 2012. In completing the AD 1006 Form, NRCS completed a two-part evaluation of each Alignment Option consisting of an assessment of the relative value of the potentially affected farmland and an overall site assessment. An overall score is calculated (out of 260 points) of the relative value of farmland to be converted. Sites most suitable for protection under these criteria receive the highest total scores, and sites least suitable, the lowest scores. According to the instructions contained within NRCS AD 1006 Form, project sites where the total points equal or exceed 160, must consider alternative actions, *i.e.*, alternative sites, modifications, or mitigation. According to the results of the NRCS evaluation, none of the Alignment Options exceed the 160 point threshold; Alignment Option 4B received a total of 158 points; Alignment Option 6 received 146 points; and Alignment Option 7 received 154 points.

4.3.2.2 Mitigation

MaineDOT has quantified the regulated and farmed land that would be converted, identified means to preserve farmed land, considered alignment options to minimize impacts, and assured that the preliminary design is compatible with all applicable legislation and programs to protect farmland.

Further mitigation for farmed land impacts would be completed during final design of the Presque Isle Bypass. MaineDOT would work with land owners and farm operators to further refine the preferred alignment such that it avoids impacting productive fields to the greatest extent practicable. In general, the alignment would attempt to avoid bisecting large fields and instead would follow the edges of fields to minimize the disruption to farming operations where ever possible. MaineDOT would also work with farmers to ensure that the new highway does not cut off access to their fields. MaineDOT would consider providing underpasses for farm equipment where needed and practicable to do so. MaineDOT would provide compensation for any property that is taken according to the procedures discussed in Section 4.3.1 (Page 4-10).

4.3.3 Social and Economic Impacts

This section describes the potential economic and social impacts associated with the Presque Isle Bypass. Direct economic impacts include acquiring property required for the construction of the improvements as well as the actual costs to build and maintain the highways. Direct economic impacts may also include increased economic activity as a result of increased mobility and a reduction in travel times in the Presque Isle area, particularly for access to the Easton Industrial area in the east side of Presque Isle. Economic activity may also increase in downtown Presque Isle as a result of increased public safety through a reduction in vehicular conflicts caused by an undesirable mix of local/through traffic and car/truck traffic.

Direct social impacts include changes in neighborhood cohesion due to the property acquisitions and required relocation of people and businesses associated with the Presque Isle Bypass. Indirect economic impacts include the “spin-off” or “multiplier” effects that occur when an economic activity leads to subsequent spending within the regional economy (for example, when wages paid to construction workers are used to purchase goods and services locally, these in turn support the wages of other workers in different industry sectors), or which result in actions by others in response to the initial investment (for example, subsequent new development along or adjacent to the corridor). In addition, the cost and travel time savings resulting from usage of the highway improvement also result in indirect economic impacts.

This section summarizes the findings of the economic and social impact forecasts and assessments for the Presque Isle Bypass. This section builds upon the existing conditions, survey research, screening methodology and analysis conducted for this FEIS as well as on the research and analysis conducted for the SDEIS and documented in the *SDEIS ECTR*. It provides insight into the implications of projected corridor traffic conditions on the economy of Presque Isle, Aroostook County, and the state of Maine, measured in terms of future job creation, output, and income levels.

The economic impact analysis focuses on the broader direct, indirect, and induced impacts of the different Presque Isle Bypass Alignment Options. The economic effects associated with construction of the Presque Isle Bypass Alignment Options were examined using a process similar to that undertaken in the SDEIS. This process included:

- Quantifying measurable economic impacts such as changes in population, employment, income, retail sales, and gross regional product resulting from changes in transportation costs for all industries;
- Quantifying the economic value of shortened commuting times for workers traveling between employment and population centers;
- Quantifying the economic impacts resulting from estimates of increased tourism in the region; and

- ▶ Quantifying the economic impacts resulting from construction and maintenance of the highways.

Details on the assumptions and methods used are found in Appendix C of the *SDEIS ECTR*.

The social impact analysis for the Presque Isle Bypass considered future changes in community cohesion, impacts on businesses, schools, religious centers, and recreation areas, and impacts on overall public safety. Additional social impacts, specifically impacts on minority and low income populations can be found in Section 4.3.4 (Page 4-25).

4.3.3.1 Real Estate Impacts

This section presents the cost of acquiring property for the Presque Isle Bypass, based on the real estate values of land, residential properties, and commercial/industrial properties within the Presque Isle Bypass Reference Area. The estimated cost of acquisition is considered a direct impact of the Presque Isle Bypass. The values indicated do not include incidental expenses associated with takings, such as relocation costs, adjustments typically included in the land acquisition process, or other potential costs associated with property acquisition under state and federal law.

To determine the type and value of properties that are anticipated to be acquired for each alignment option, recent (2009) data were obtained from the City of Presque Isle's Assessor's office and the Town of Westfield's Assessor's office. The following property types were considered:

- ▶ Residential: single and multi-family dwellings, which may also include various outbuildings including garages;
- ▶ Commercial: commercial, retail, warehouse, office, and industrial buildings as well as farmstead land;
- ▶ Farmed land: land currently in farm production; and
- ▶ Undeveloped Land: vacant or forested land.

An average land value of \$700 per acre (based on tax assessment) was assigned to farmed land. Undeveloped or forested land was calculated to have an average land value of \$275 per acre.

Table 4-6 (Page 4-19) gives the estimated total value of the land and buildings affected by the Presque Isle Bypass Alignment Options. The development of Alignment Options 4B, 6, or 7 would result in the City of Presque Isle experiencing a loss of tax revenue as a result of MaineDOT's acquisition of land and buildings. This loss of tax revenue ranges from \$38,343 to \$92,592. However, even at the high end of this range,

this loss of revenue represents only a 0.3-percent loss of Presque Isle’s approximately \$21,900,000 annual revenue.

The No-Action Alternative would result in no land or structure acquisitions and no loss of tax revenue.

Alignment Option 4B is estimated to cost \$1,551,162 for land acquisition; \$1,366,233 of this cost would be for acquiring structures. The cost of land acquisition for Alignment Option 6 is estimated to be \$1,672,242, of which \$1,464,800 would be for acquiring structures. The cost of land acquisition for Alignment Option 7 is estimated to be \$3,879,608, of which \$3,721,233 would be for acquiring structures. The high cost for Alignment Option 7 is due to the required taking of high value properties such as the McCain Foods property and the Cavendish Farms structures.

Costs are expressed in 2009 dollars and do not include any additional costs for relocation.

**Table 4-6
 Total Estimated Land and Structure Acquisition Values and Economic Impacts¹**

Alignment Option	Property/Structures Number	Property/Structures		Farmed land			Undeveloped or Forest Land			Total	
		Total Value	City Tax Obligation ²	Acres	Total Value	City Tax Obligation ³	Acres	Total Value	City Tax Obligation ⁴	Acquisition	City Tax Obligation
Option 4B	12	\$ 1,366,233	\$ 33,682	264	\$184,800	\$ 4,532	19.1	\$ 5,252	\$ 129	\$1,551,162	\$38,343
Option 6	18	\$ 1,464,800	\$ 34,547	289	\$202,300	\$ 4,962	18.7	\$ 5,142	\$ 126	\$1,672,242	\$39,635
Option 7	27	\$ 3,721,233	\$ 88,707	218	\$ 152,600	\$ 3,743	21.0	\$ 5,775	\$ 142	\$3,879,608	\$92,592

1 These values represent the calculated total land and structures value for 2009 data from the Presque Isle and Town of Westfield Assessor’s offices and average land values for undeveloped forest and agricultural land.
 2 Based on a City of Presque Isle 2009 tax rate of \$24.52 per \$1,000 of assessed value and the Town of Westfield 2009 tax rate of \$19.75 per \$1,000 of assessed value
 3 Value of farmed land estimated using an average of \$700 per acre
 4 Value of undeveloped or forest land estimated using an average of \$275 per acre
 Source: Vanasse Hangen Brustlin, Inc./City of Presque Isle’s Assessor’s Office/Town of Westfield’s Assessor’s Office

4.3.3.2 Local and Community Economic and Social Impacts

Construction of the proposed highway improvements would result in some potential social and economic impacts to the local community that are difficult to quantify. The impacts on housing and relocations, commuting patterns, community tax revenues, and community facilities and services are discussed below for the Presque Isle Bypass Alignment Options.

Relocations

As discussed in Section 4.3.1 (Page 4-10), the acquisition of land and structures would result in the loss of homes and businesses. Under state and federal law, owners of property are entitled to due process and just compensation for the value of their property, as well as financial assistance with relocation, including costs associated with purchasing similar replacement property and moving costs. Appendix B of the *SDEIS ECTR* contains a detailed explanation of the process involved with the acquisition of private property for public uses.

The Proposed Action would require the acquisition and relocation of 19 single-family households. Two commercial and two industrial business properties would also be acquired and those businesses relocated, along with four agricultural businesses. The residential properties range in value from \$22,000 to \$195,000. The commercial properties range in value from \$60,000 to \$185,000. Based on a site visit by MaineDOT staff in December 2012, none of the affected residential structures are multi-family homes.

The market data that were analyzed⁵ indicated that a sufficient inventory of potentially available homes, land, and commercial property exists within Presque Isle so that relocation to sites in reasonable proximity to the original property included in the acquisitions would be considered reasonably feasible. Specifically, on October 18, 2012 there were a total of 69 residential properties for sale in Presque Isle including 65 single-family homes and four mobile homes. These properties ranged in price from those under \$100,000 (29 properties) to those between \$100,000 to \$200,000 (31 properties), \$200,000 to \$300,000 (seven properties), and \$300,000 to \$400,000 (two properties). A total of seven commercial properties were for sale in Presque Isle ranging in price from \$67,000 to \$700,000.

The market data indicates that there are 60 residential and seven commercial properties for sale in Presque Isle within the price range (less than \$200,000) of the 19 residential and two commercial properties that would be acquired for the Proposed Action. Based on the value of properties to be acquired and the number of homes and commercial properties within that price range now available in Presque Isle, it appears that finding a suitable replacement property that meets characteristics, needs, income, preferences, and other factors pertinent for successful relocation of the affected households and businesses should be achievable. However, based on their recent experience with other projects, MaineDOT acknowledges that locating suitable (safe, decent, and sanitary) replacement housing within the financial capability of affected property owners may not be possible in all cases and providing last resort housing may be required. Last resort housing is a procedure in which MaineDOT (under the Federal Relocation Assistance Program) provides financial assistance to a displaced person when comparable decent, safe, and sanitary housing is not available that is within the financial means of the displaced person.

⁵ www.realtor.com/realestateandhomes-search/Presque-Isle_ME, October 18, 2012

Further, as the Proposed Action is anticipated to be constructed in phases due to financial constraints, the demand for available housing and commercial property stock in the Presque Isle area would be spread out over a period of years.

The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources are available to all residential and business relocates without discrimination.

Community Facilities and Services

No economic impacts to community facilities and services are anticipated as a result of the proposed highway improvements associated with the Presque Isle Bypass. No sudden or substantial changes in service levels are expected as a result of the Presque Isle Bypass. Because MaineDOT would maintain the new road, no new investment would likely be required locally for this activity.

The No-Action Alternative and Alignment Options 6 and 7 would have no impact to community cohesion. While these alignment options would result in new intersections with existing roads, this would not result in community disruption. These alignment options would not result in splitting of neighborhoods, isolating a portion of a neighborhood, or separating residents from community facilities. Access to residences and community facilities (including the Northern Maine Regional Airport in Presque Isle and public educational, recreational, fire and police departments) would remain unchanged.

Alignment Option 4B crosses Centerline Road at two locations. As a proposed limited access highway, Alignment Option 4B would impact the residential and religious properties along Centerline Road. New points of access would be needed for residences between Henderson Road and Conant Road in Presque Isle. Further, the Alignment Option 4B would pass immediately to the east of the Presque Isle Wesleyan Church at 387 Centerline Road, potentially increasing noise levels at this church.

4.3.3.3 Economic Development and Business Effects

This section examines the potential effects of the Presque Isle Bypass (either Alignment Option 4B, 6 or 7) on local and regional development and businesses. Potential effects due to a bypass are considered, as well as potential adverse and beneficial effects on new commercial development, local economic development, agriculture and forestry, and tourism.

Bypass Effects

The bypass of downtown Presque Isle could potentially result in economic and social impacts to Presque Isle as a result of the diversion of traffic from the existing street system. Such impacts could include the loss of business activity/sales revenue for certain businesses and/or possible diminution of property values. On the other hand, the reduction of traffic may enhance the “livability” of downtown Presque Isle, thereby enhancing the attractiveness and value of residential units and commercial properties that are not as dependent on through traffic.

Surveys of businesses were conducted as part of the DEIS (Page 4-58) and by RKG Associates in October 2007. Although some businesses were concerned about the impacts of removing through traffic from certain locations, the surveyed businesses indicated that the overall impacts would be offset by the improved regional mobility resulting from the Presque Isle Bypass. The RKG Report⁶ indicates that many businesses located in the downtown core of Presque Isle do not depend on drive-by business and are not concerned about a reduction in traffic through downtown Presque Isle. Businesses outside downtown Presque Isle are more dependent on drive-by traffic; however, these businesses are also more dependent on regional traffic. Nearly half of business activity in the city comes from residents throughout Aroostook County.

Presque Isle, together with neighboring Caribou, is the economic center in the region. However, any impact to businesses in downtown Presque Isle related to the construction of the Presque Isle Bypass is expected to be minimal. An indirect impact of the construction of a bypass is the resulting development of highway-related commercial uses at interchanges/intersections or at the termini of the bypass segment. This, however, is dependent on local zoning and land use regulations and may or may not occur in the future.

Removing traffic from downtown Presque Isle to a bypass could affect revenues of some businesses that depend on drive-by traffic. Accurately quantifying the economic impacts of the diversion of traffic from the downtown center due to a bypass is difficult without having detailed property-specific data on revenues, customers, and activity levels.

Removing traffic from downtown Presque Isle could have positive social impacts on Presque Isle. The construction of the Presque Isle Bypass would mitigate for five HCLs in Presque Isle and improve the overall traffic safety in the area. Public health would also be improved upon in downtown Presque Isle as it would be safer for pedestrians and bicyclists and result in a small improvement in air quality.

The No-Action Alternative would have no impact on existing travel patterns, maintaining the same level of traffic through downtown Presque Isle. However,

⁶ RKG Associates, Inc. November 2007. Presque Isle Bypass Economic Impact Study

potential benefits related to the enhanced “livability” in the downtown area would not be realized.

New Commercial Development Locations

The Presque Isle Bypass may result in the opening of new land that could potentially be available for commercial development. This would be dependent on local zoning and land use regulations. Commercial uses typically are developed in or near population centers or along heavily traveled highways. These uses would likely consist of travel-related services, such as gas stations, convenience stores, or fast food outlets. The most likely area for new commercial development is likely to be where each alignment option intersects Route 163/167 (Fort Fairfield Road) and Route 10 (Conant Road) east of downtown Presque Isle. There are already numerous commercial properties along Route 163, including the Aroostook Centre Mall and several fast food restaurants, such that additional commercial development would not be out of character for this section of Presque Isle. Access would still be provided via Route 1 to the densely-developed retail and commercial area along Route 163 south of the Aroostook River. A bypass of downtown Presque Isle would provide an additional point of access to this area.

Land use along each of the Presque Isle Bypass Alignment Options is predominately agricultural land and undeveloped wetlands and forest. Therefore, new developments at the intersection of the proposed alignment option and the intersecting roadways (such as Henderson Road, Easton Road, Conant Road, State Street, and Higgins Road) are not anticipated.

Overall, the extent of new commercial development in Presque Isle as a result of the construction of a bypass is difficult to quantify and cannot be reasonably foreseen under current economic conditions. Any new development would represent an incremental change in overall development patterns and economic activity in the Reference Area. In some cases, new development might represent a localized shift as existing businesses that are highly dependent on through traffic move to the new location to take advantage of the change in traffic patterns. In other cases, new businesses might be started. In addition to local zoning, commercial development is also dependent on the availability of suitable land free of environmental and other development constraints and that is owned by parties willing to sell or develop their property.

The No-Action Alternative would maintain the existing pattern and distribution of commercial development in the Presque Isle Study Area.

Local Economic Development Effects

Communities and organizations throughout Aroostook County actively promote and encourage economic development, including operating several existing industrial parks. By improving access and reducing travel times, the proposed highway

improvements would enhance local economic development efforts to attract and retain businesses, making the region more competitive. The extent of this impact cannot be specifically quantified, other than in a general sense. Alignment Option 4B would result in the displacement of one commercial business in Presque Isle. Alignment Option 6 would result in the displacement of one commercial business in Westfield. Alignment Option 7 would result in the displacement of two commercial businesses and two industrial businesses.

The No-Action Alternative would result in no displacement of existing commercial or industrial businesses.

Agricultural and Forestry Impacts

The primary impact of the Presque Isle Bypass on the agricultural and forestry industries is to reduce truck travel times and costs, thus reducing costs to producers and making the region more economically competitive. As described in Section 4.3.2 (Page 4-14), the Proposed Action (Alignment Option 7) has been designed to minimize the impacts to farms by moving the alignment to the edges of farms and avoiding bisecting farms. Several farms fields north of the Aroostook River would be bisected by Alignment Option 7. Alignment Options 4B and 6 would have greater impacts to farms as these alignment options bisect numerous farms north and south of the Aroostook River. Bisecting farms could lead to reduced production, increased cost of production, and logistical problems related to maneuvering machinery.

The No-Action Alternative would result in no impact on agricultural and forestry businesses. Existing travel patterns for agricultural and forestry businesses would be maintained.

Areas of Traditional Cultural Use

An area of traditional cultural use was evaluated during the Section 106 consultation. The traditional cultural use is the collection by tribal members of fiddleheads and harvesting areas for brown ash along the alluvial banks of the Aroostook River extending northwest from approximately 0.7 miles east of the Route 1 Bridge over the Aroostook River in Presque Isle to Washburn (see Figure 4-2). These materials are used in the production of woven baskets and other traditional crafts produced and sold by members of this tribe. These activities are an economic resource for this federally recognized tribe. As seen on Figure 4-2, the Proposed Action (Alignment Option 7) does not intersect this area of traditional cultural use. Therefore, the Proposed Action would not affect tribal economic resources.

4.3.3.4 Other Economic and Social Impacts

The construction of the Presque Isle Bypass would have other, less tangible social and economic impacts on the residents within the Reference Area. These types of

impacts would be the result of a combination of the proposed highway project with other reasonably foreseeable actions within Aroostook County that, in combination, would provide additional social and economic benefits.

A 2004 study on migration patterns of youth from Aroostook County⁷ indicated that the lack of “urban amenities,” such as restaurants, cultural activities, and other features was also a factor, along with limited educational opportunities, and the decision by younger people to leave. The enhancement of Presque Isle’s downtown as a place to live and work, perhaps resulting from the reduction in heavy truck traffic on the main streets as a result of the Presque Isle Bypass, along with continued growth of the region’s higher education institutions, could make Presque Isle more attractive, thereby helping to stem the outflow of young people as well as attract more permanent residents to Aroostook County.

The Presque Isle Bypass, in combination with revisions to Presque Isle’s zoning ordinance that focus mixed-use growth in the downtown and directs residential growth, could serve as an effective “urban boundary,” helping to enhance the image and “livability” of downtown. This, in turn, might affect the out-migration rate of the region’s youth and serve to attract additional employers to the community.

The No-Action Alternative would have no impact on existing economic and social patterns.

4.3.4 Impacts on Minority and Low Income Populations

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, requires agencies to identify and address potential disproportionate high and adverse impacts on minority⁸ and low income populations. By determining if minority or low-income populations exceed the state mean average within the project area, considering the future condition on these populations with and without the Presque Isle Bypass, and determining whether impacts of this project would disproportionately affect these populations, it can be determined whether the Presque Isle Bypass would have a disproportionately high and adverse impact on minority and low-income populations.

The Presque Isle Bypass would have a minor positive impact on Presque Isle’s disadvantaged populations by providing additional short term employment opportunities and reducing the costs of commuting. The distribution of low income and minorities in Aroostook County is widespread among the individual

⁷ Colgan, Charles and Bruce Andrews. October 2004. *Migration and Youth Migration from Aroostook County: Trends, Factors, and Implications*. Center for Business and Economic Research, University of Southern Maine. Prepared for Northern Maine Development Commission.

⁸ The U.S. Census defines a minority as a person who is Black (a person having origins in any of the black racial groups of Africa); Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

communities and rural areas; therefore, there would be no neighborhood disruption or other action that would specifically impact these groups.

Census data for income and poverty status at the block group level were analyzed for each of the three FEIS Alignment Options (Figure 4-2). Each alignment option would travel through a census block group with minority populations above the state average. This census block group is south of the Aroostook River, where each alignment option crosses the river. The majority of structure impacts, however, do not occur within the minority population census block groups. No impacts, including noise or air quality impacts, to these populations are anticipated (see Section 4.5, Page 4-69).

The No-Action Alternative would have no impact on minority or low-income populations.

4.3.5 Uncontrolled Petroleum and Hazardous Materials

This section discusses the potential impacts that previous releases of subsurface petroleum and/or hazardous materials would have on construction of the Proposed Action. Measures to mitigate impacts from subsurface contamination are also provided.

The presence of contaminated soils and/or groundwater contamination poses a potential liability for MaineDOT. Purchasing contaminated properties may result in clean-up costs as well as other liabilities including compensation to surrounding property owners that were impacted by the hazardous waste.

Impacts

Construction of the Presque Isle Bypass may encounter contaminated soils, and/or groundwater, in some locations. The project would not generate any hazardous materials.

All alignment options considered for the Presque Isle Bypass traverse relatively undeveloped woodland and agricultural fields, except along the banks of the Aroostook River which traverse a more developed area. There is no evidence for the generation of hazardous materials within areas that would be impacted by the Presque Isle Bypass.

There is, however, evidence of uncontrolled releases of hazardous materials (petroleum spills) in the Study Area, as shown on Figure 4-6. Contamination could be encountered during construction. The documented volume of hazardous material (propane) released in one of these incidents exceeded 500 gallons, however the majority of the incidents did not exceed 25 gallons. Given that these releases were relatively minor, the likelihood of encountering significant contamination along any of the Presque Isle Bypass Alignment Options is very low.

Alignment Options 4B and 7 cross the Aroostook River at the former location of a McCain Food USA, Inc. potato processing plant. The buildings were demolished over a decade ago, but waste piles and lagoons are still present on the property. Based on information provided by the owner, the material is organic waste. Alignment Option 7 crosses a complex of agricultural buildings on Conant Road. This property would be evaluated for the presence of hazardous materials during the final design process.

MaineDOT would include the appropriate provisions in the construction contract to protect worker safety and the environment in case hazardous materials are encountered during demolition of existing structures and the construction of the new highway. The procedures for construction contractors would reduce the likelihood of a spill and ensure worker safety.

If necessary, MaineDOT would perform Phase II subsurface explorations and testing for the Proposed Action during the final design phase to determine if hazardous waste or contamination would be encountered during construction, only if it has been determined that contamination is likely to occur. These explorations would be focused on areas where excavation would be necessary to construct the highway and in areas where drainage structures or utilities may be installed below the existing grade. The type of explorations and testing would be determined based on previous findings concerning the various sites of concern. If waste or contaminants are encountered during explorations, MaineDOT would prepare a Contamination Assessment detailing the exploration's findings. MaineDOT would provide Maine Department of Environmental Protection (Maine DEP) with these assessment and draft specifications for the handling, reuse, and/or disposal of any contaminated materials encountered. The handling, use, and disposal would be proposed based on Maine DEP, EPA, and Occupational Safety and Health Administration (OSHA) rules and guidance documents.

The No-Action alternative would not impact or generate hazardous materials.

4.3.6 Cultural Resources

This section discusses impacts to properties that are listed on, or eligible for listing on, the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act (NHPA, also referred to as Section 106) requires federal agencies to take into account the effect of their undertakings on historic properties and to afford Maine Historic Preservation Commission (MHPC) (the State Historic Preservation Office [SHPO] for the State of Maine) and the Advisory Council on Historic Preservation (ACHP) reasonable opportunity to comment on such undertakings.

4.3.6.1 Impacts to Properties Listed on or Eligible for Listing on the National Register of Historic Places

Historic properties were considered impacted if the proposed ROW of the Presque Isle Bypass intersected the National Register boundary for the property. Evaluation of adverse effects under Section 106 was conducted in accordance with 36 CFR Part 800.5, *Assessment of Adverse Effect*.

Potential adverse effects resulting from the Presque Isle Bypass include demolition of all or part of a historic property, land takings from a historic property resulting in a loss of integrity, and the introduction of visible or audible elements that diminish the integrity of historic property. Impacts resulting in no adverse effect could include minor frontage takings along an existing highway segment, or isolated strip takings on an associated parcel far removed from the eligible resources. Properties listed or eligible for listing on the National Register are also subject to protection under Section 4(f) of the United States Department of Transportation (DOT) Act.

While the No-Action Alternative would not result in the demolition of any structures, without maintenance these historic structures would continue to deteriorate. The Maysville School and Grange in particular is currently in a highly deteriorated condition.

The following sections describe the potential impact for the Alignment Options and the two other alignment options evaluated within this FEIS (Alignment Options 4B, 6, and 7) to properties listed or eligible for listing in the National Register of Historic Places (Figures 4-7a through 4-7d). As described below, Alignment Option 4B and Alignment Option 6 result in an Adverse Effect to Section 106/Section 4(f) properties while Alignment Option 7 does not require the use of any Section 106/Section 4(f) properties. MHPC concurred with MaineDOT's finding in a memorandum dated September 26, 2011 (Appendix B).

Alignment Option 4B

As described below, Alignment Option 4B would result in an Adverse Effect on two Section 106/Section 4(f) properties. The properties are located at 1 Centerline Road and 33 Easton Road (King Farm).

1 Centerline Road

This farmstead is situated on the east side of Caribou Road (Route 1), at the intersection of Centerline Road and Route 1, in the City of Presque Isle. The National Register boundary for the property is the current two-acre parcel associated with the farmstead. This parcel includes a modern dwelling.

The Presque Isle Bypass Alignment Option 4B would impact the farmstead at 1 Centerline Road through a taking of the southwest quadrant (0.3 acres) of the two-acre parcel associated with the structure and would require the complete

demolition of the structure (Figure 4-7a). The required 300-foot ROW for Alignment Option 4B extends to the edge of the structure, requiring the taking of the entire structure. The impact to the farmstead is required to provide a connector road from the bypass alignment to Route 1 North. The land taking required includes the only access to the property from the roadway.

33 Easton Road (King Farm)

This farmstead complex is comprised of a late 19th century dwelling, a New England gambrel roof barn, a potato barn, two wagon sheds, a spring house, and a farm office building. It is currently located on a 132-acre parcel, which fronts both Easton Road and Centerline Road, with the land immediately adjacent to the intersection consisting of a separately owned parcel. The parcel consists of a complex of buildings on Easton Road, with approximately 65 acres of cleared agricultural fields to the south and east of the buildings, and a field to the south along Centerline Road. The National Register boundary includes the entire 132-acre parcel upon which the farmstead is located, even though a large portion of it consists of undeveloped wooded land.

Alignment Option 4B would impact the farmstead through taking approximately 6.75 acres from the extreme west side of the agricultural field fronting Centerline Road for roadway construction (Figure 4-7b).

Alignment Option 6

As described below, Alignment Option 6 would result in an Adverse Effect on three Section 106/Section 4(f) properties and a No Adverse Effect on one Section 106/Section 4(f) property (Figures 4-7c and 4-7d).

Maysville School and Grange, Caribou Road

The Maysville Center Grange is situated on the east side of Route 1/Caribou Road immediately south of the intersection with Brewer Road. The Maysville Grange was determined eligible for the National Register under Criterion A for its significant association with the educational and civic life of the former Town of Maysville and the City of Presque Isle. The National Register boundary for the Maysville School/Maysville Center Grange is the current 0.47-acre tax parcel.

The Maysville Grange would be impacted by Alignment Option 6 by taking the entire 0.47-acre parcel for ROW acquisition. The proposed work would have a direct physical impact on the grange building, and the acquired land would be physically altered (Figure 4-7d). This would constitute an Adverse Effect under Section 106 and a use of a Section 4(f) property.

Potato Barn, 39 Brewer Road

This 1 ½-story, T-shaped Potato Barn is situated on the east side of Caribou Road (Route 1), approximately 0.15 miles south of Brewer Road, in the City of Presque Isle.

The Potato Barn was determined eligible for the National Register under Criterion C as a well-preserved example of the form. The barn displays many of the defining characteristics of the type, such as being banked into a low rise, high concrete foundation with a wood-frame upper story, gambrel roof, and an extended entrance at the lower level. The barn retains integrity of location, setting, materials, design, workmanship, and feeling. The National Register boundary for the property includes the portion of the associated 93-acre tax parcel containing the structure and the portion of the agricultural field visible from the east Potato Barn entrance, approximately 13 acres.

Alignment Option 6 would impact the Potato Barn through taking approximately 10.2 acres from the 13-acres of land constituting the National Register boundary for the property for roadway construction. The area of impact would cut through the center of the property, disrupting the parcel and creating two smaller, disconnected parcels. This taking would not require removal of the Potato Barn situated on Route 1; however, the property would be impacted by the close proximity of the proposed roadway to the structure (Figure 4-7d). This would remove most of the acreage providing the agricultural setting for the barn and would constitute an Adverse Effect and a use of a Section 4(f) property.

Farmstead at 138 Reach Road

The Farmstead at 138 Reach Road is along the north side of Reach Road, north of the Aroostook River in Presque Isle. The property contains an Italianate style house, a connected barn, and a shed or privy. The Farmstead was determined eligible for National Register listing under Criterion C for its Italianate style architecture and well-preserved connected farmstead form. The National Register boundary for the property includes the entire tax parcel containing the structure and the portion of the agricultural field visible from Reach Road, approximately eight acres.

Alignment Option 6 would impact approximately 3.2 acres of the eight-acre parcel and divides the property in two (Figure 4-7c). The impact area would include a portion of the agricultural fields to the east of the structure and would be very close to the structure itself. The close proximity of the proposed ROW to the structure would impact the structure in negative ways. The proposed ROW would bisect the property, disrupting the character of the historic property. This would constitute an Adverse Effect under Section 106 and a use of a Section 4(f) property.

English Barn, Caribou Road

This 19th century Acadian-influenced, English style barn is situated on the east side of Caribou Road (Route 1), approximately 0.25 miles south of Brewer Road, in the City of Presque Isle (Figure 4-7d). The barn was determined eligible for the National Register under Criterion C as a well-preserved example of the English barn form. Acadian farmers in northern Maine utilized the English style of barn, often building shed-roofed stables around the perimeter and a hip roofed shed on the gable end. The modified English arrangement survived in northern Maine long after other barn

forms grew in popularity further south. This single-story, wood-shingled barn has many of the features of a northern Maine English-style barn, including an entry on the long elevation and shed additions on the gable ends. Although this barn retains a high degree of physical integrity, the period dwelling or additional farm buildings that were associated with it are no longer extant. The National Register boundary for the property is the current 3.2-acre parcel associated with the barn. This parcel also includes a modern dwelling.

Alignment 6 requires the use of 0.6 acres of the 3.2-acre parcel along the eastern edge of the property. No buildings would be demolished. This would constitute a Section 106 No Adverse Effect.

Alignment Option 7 (Proposed Action)

Alignment Option 7 would result in no historic properties affected. In a letter dated September 26, 2011, MHPC concurred with this determination (Appendix B).

4.3.6.2 Impacts to Archaeological Resources

This section describes impacts to known prehistoric and historic archaeological sites within the Area of Potential Effect (APE) regulated under Section 106 of the NHPA (Figure 4-8). Subsequent to the SDEIS, FHWA, ACHP, MaineDOT, and the MHPC entered into an agreement to conduct a Phase 1 Archaeological Survey for the Proposed Action (Alignment Option 7).

In the summer of 2011, the MHPC conducted a review of the archaeological records for the APE of Alignment Option 7 and identified two potentially sensitive areas. Archaeological field work was conducted and the sensitive areas were found to be not significant based on background work and field conditions. In a letter dated September 26, 2011, the MHPC concurred with MaineDOT's recommended finding of No Archaeological Properties Affected by the Presque Isle Bypass (Appendix B).

4.3.7 Public Parks, Recreation Areas, Wildlife Refuges, Trails and Publicly-Used Facilities

As described in Section 3.3.7 (Page 3-35), there are numerous publicly-owned recreational facilities in the Reference Area. These areas include small city-owned facilities such as children's playgrounds, softball fields, basketball and tennis courts, and swimming pools to larger facilities such as state parks and a multi-use recreational trail (Table 3-19, Page 3-37). The Presque Isle Bypass would not require acquisition of any publicly-owned public parks, recreational areas, wildlife refuges, trails, or other publicly-owned facilities.

Each of the alignment options considered (Alignment Options 4B, 6, and 7) cross multiple snowmobile trails that are part of the ITS network and connecting club trails. These trails are all on privately-owned land and are not subject to Section 4(f). The bridge over the Aroostook River, proposed as part of each of the alignment options, would span the ITS 83/88, allowing continued trail access under the bridge. MaineDOT would not acquire any land from the trail. MaineDOT, in consultation with the City of Presque Isle, would develop a permanent plan to provide an appropriate crossing of the highway for all existing trails to ensure adequate sight distances and trail continuity and develop a plan to provide only brief interruptions in access to the trails during construction.

4.3.8 Section 4(f) Properties

This section describes properties within the Presque Isle Bypass Reference Area afforded protection under Section 4(f) that could be affected by the Proposed Action. This includes historic and archaeological resources on the NRHP and public parks, recreation areas, and wildlife refuges.

4.3.8.1 Introduction

Section 4(f) of the U.S. DOT Act of 1966, as amended in 1983 and 2008, specifies that the Secretary of the U.S. DOT may approve a transportation program or project requiring the use of publicly owned land (such as a park, recreation area, or wildlife or waterfowl refuge) or land of an historic site of national, state, or local significance (as determined by federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if:

- There is no feasible and prudent alternative to the use of land from the property; and
- The action includes all possible planning to minimize harm to the property resulting from the use.

Use is defined as the permanent incorporation of land from a Section 4(f) property into a transportation facility, temporary occupancy of a Section 4(f) property, or constructive use of a Section 4(f) property. FHWA may determine that a transportation use of a Section 4(f) property, after consideration of any impact avoidance, minimization and mitigation or enhancement measures, results in a *de minimis* impact on that property.⁹ *De minimis* impacts related to historic sites are defined as the determination of either “no adverse effect” or “no historic properties affected” in compliance with Section 106 of the NHPA.¹⁰ Similarly, *de minimis* impacts related to parks, recreation areas, and wildlife and waterfowl refuges are

⁹ Federal Highway Administration Memorandum, Cynthia J. Burbank. December 13, 2005.
¹⁰ 23 CFR 774.17, Definitions.

defined as impacts that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Uses of Section 4(f) property were assessed based on a conceptual design for each alignment option, which provides a preliminary assessment of the location of the limits of new ROW. The limits of existing ROW were obtained from MaineDOT mapping. The limits of each property and existing property lines for historic properties were obtained from municipal tax assessment maps. The National Register property boundaries of historic properties were developed in consultation with the MHPC based on the nature of the property's significance, integrity, setting, landscape features, functions, and research value. National Register property boundaries are used to define the boundaries of historic properties for the purposes of review under Section 4(f) because legal property boundaries do not always coincide with the distribution of buildings, landscape features, or elements of setting that contribute to the significance of an historic property.¹¹ Where the property acquisition for the Proposed Action did not require taking land within the National Register property boundary, a finding of "no effect" was made and there would be no "use" under Section 4(f). Findings of MaineDOT and FHWA regarding properties to which there would be "no adverse effect" were provided to MHPC for concurrence.¹² In a letter dated September 26, 2011, MHPC concurred with this finding (Appendix B).

Archaeological sites are subject to Section 4(f) only if the State Historic Preservation Officer (in Maine, the Director of the MHPC) concurs with FHWA's finding that the site is on the National Register and preservation of archaeological material in place is warranted. This determination has not been made for any known archaeological resource within the project area. In a letter dated September 26, 2011 (Appendix B), MHPC, based on a review of archaeological survey records and maps and historical archaeological field work, concurred with MaineDOT's determination that there would be no archaeological properties affected by the proposed undertaking.

Data used to identify recreational facilities subject to Section 4(f) were obtained from public agencies having jurisdiction over public lands and recreational facilities and the Maine Office of Geographic Information Systems (MEGIS). Review of the data revealed no properties adjacent to or intersected by the Presque Isle Bypass alignment options evaluated as part of this FEIS that are subject to protection under Section 6(f) of the Land and Water Conservation Funds Act.

¹¹ Federal Highway Administration Office of Planning. March 1, 2005. Environment and Realty; Project Development and Environmental Review. *Section 4(f) Policy Paper*. Section 4(f) Applicability. #3 Historic Sites, Question C.

¹² *Aroostook County Transportation Study, Section 106 Determination of Effects Report*, January 2006 and Spiess, A. 2007.

4.3.8.2 Impact on Section 4(f) Resources

The Proposed Action (Alignment Option 7) would not use any properties subject to Section 4(f). As described in Section 4.3.6.1 (Page 4-28), Alignment Options 4B and 6 would require the use of two and four historic properties, respectively, that are eligible for listing on the National Register and subject to Section 4(f). The location of these historic properties in relation to Alignment Options 4B and 6 are depicted on Figures 4-7a through 4-7d.

The Proposed Action (Alignment Option 7) would not require the use of any other type of Section 4(f) properties such as publicly-owned public parks, recreation areas or wildlife and waterfowl refuges. The No-Action Alternative would not require the use of any Section 4(f) properties.

4.4 Physical and Biological Environment

This section examines the potential effects of the Proposed Action on the physical and biological environment within the Presque Isle Bypass Reference Area, including:

- Vegetation (forests);
- Aquatic resources and wetlands;
- Water resources;
 - Aquatic habitats;
 - Wetlands;
 - Floodplains;
 - Outstanding River Segments;
- Wildlife and wildlife habitats;
 - Fisheries;
 - State-regulated wildlife habitats; and
- Endangered, Threatened, and Species of Special Concern.

The Proposed Action would require regulatory review under numerous federal and state programs, including but not limited to review by the USACE under Section 404 of the Clean Water Act and by the Maine DEP under the Natural Resources Protection Act (NRPA). The preliminary impact analyses and proposed mitigation measures presented in this FEIS would be further developed and refined through final design and permitting.

4.4.1 Forests

Forests and other plant communities are regulated under federal, state, and local regulations if they are located in wetlands (Section 4.4.2.3, Page 4-43) or contain rare plants (Section 4.4.4, Page 4-68). While there are no federal or state regulations that

specifically regulate upland natural communities, federal NEPA guidelines require consideration of environmental impacts on biodiversity.

Impacts to forested areas were determined through analysis of MEGIS data (Figure 4-3). Direct impacts to forests were based on the 300-foot conceptual ROW width for each alignment option. The loss of forest land could affect wildlife habitat and could have economic effects on commercial forestry businesses. The loss of forest habitat, particularly within Spruce-Northern Hardwoods forests, may result in the greatest impact to species diversity since this habitat type supports a wide range of mammals, amphibians, and both year-round resident and neotropical migratory bird species. Section 4.4.3.1 (Page 4-62) discusses impacts to wildlife associated with these forested areas.

**Table 4-7
 Forest Impacts by Forest Type (Acres)¹**

Alignment Option	Forest Type			Total ¹ Impact (acres)	Percent of Reference Area Forest
	Boreal Forest	Deciduous Forest	Spruce- Hardwood		
Option 4B	1	19	31	51	0.25
Option 6	11	20	42	73	0.36
Option 7	15	27	60	102	0.50
Total Within Reference Area	3,701	6,014	10,521	20,236	

¹ Based on width of two-lane highway

Table 4-7 (Page 4-35) shows the impacts to forest type from each alignment option. The Proposed Action (Alignment Option 7) would impact 102 acres of forest, 0.50 percent of the 20,236 acres of forest in the Reference Area. By comparison, Alignment Option 4B would impact a total of 51 acres, and Alignment Option 6 would impact a total of 73 acres. The No-Action alternative would have no impact on forested areas.

To provide context for these impacts, consider that according to the Maine Forest Service, Maine has the largest contiguous block of undeveloped forestland east of the Mississippi River (17.7 million acres), approximately 10.5 million acres of which are actively managed for timber production.¹³ There are approximately 20,236 acres of forested land within the Presque Isle Bypass Reference Area, mostly in small tracts. The forestry industry would benefit from the enhanced mobility related to the Proposed Action.

¹³ Department of Conservation, Maine Forest Service. 2005. The 2005 Biennial Report on the State of the Forest and Progress Report on Sustainability Standards. Report to the Joint Standing Committee of the 122nd Legislature on Agriculture, Conservation and Forestry.

4.4.2 Aquatic Resources and Wetlands

Impacts to aquatic resources evaluated in this section include potential direct and secondary/indirect impacts to:

- Water resources;
- Aquatic habitats;
- Wetlands;
- Floodplains; and
- Wild and Scenic Rivers and Outstanding River Segments.

4.4.2.1 Water Resources

Surface water and groundwater are important natural resources that have many uses, from providing drinking water to supporting agricultural and recreational uses. Highways and roads may impact surface and groundwater by increasing pollutant loads and by impacting stormwater runoff. Highways generate non-point source pollution when stormwater runoff collects pollutants and flows to wetlands and waterbodies. The construction of a new location highway may also result in short-term impacts to surface waters, such as increases in turbidity due to sedimentation.

Analysis of existing conditions identified potential receptors in the Reference Area that are sensitive to highway pollution impact. The receptors analyzed include: public drinking water wells, public drinking water Wellhead Protection Areas, mapped aquifer areas, public drinking water surface water intakes, surface water intake buffer zones, and surface water supply watershed protection areas (Figure 4-10). In addition, there are unmapped private wells that may be affected by runoff or changes in hydrology.

Stormwater runoff from highways can contribute metals, hydrocarbons, salts, sediments, and other substances to surface waters and groundwater. The accumulation of pollutants from vehicles on highway surfaces is primarily dependent upon vehicle traffic volumes. During storm events, the substances that have accumulated on the highways are carried in runoff into the drainage system and into receiving waters. Impacts to surface waterbodies from runoff are addressed in Section 4.4.2.2 (Page 4-41).

Due to the harsh winter conditions in the Reference Area, anti-icing materials, such as sand and salt, are used on roadways for safety purposes. While anti-icing materials can impact water quality, no alternatives to these materials have been identified. MaineDOT must ensure the safety of its roadways and therefore would continue to use these anti-icing materials on existing and proposed roadways in the state.

MaineDOT has collaborated with the Margaret Chase Smith Policy Center at the University of Maine to publish a study on MaineDOT's winter maintenance activities entitled: Maine Winter Roads: Salt, Safety, Environment and Cost.

Key findings from the study include:

- Anti-icing practices (preventing the bond of snow and ice to the road surface) are being widely adopted by state agencies across the U.S., using a variety of materials. MaineDOT, MTA, and some municipalities have incorporated anti-icing practices.
- Eighteen percent of the State of Maine's public roads are maintained by MaineDOT, one percent by the Maine Turnpike Authority with the remaining eighty one percent being maintained by 488 municipalities and three Indian reservations.
- Using federal guidelines for the costs of injuries and deaths, Maine accident data show a 10 year average cost of \$1.5 billion dollars annually.
- In winter months between 1989 and 2008, there was a significant reduction in the number of fatalities on state highways. This reduction does not occur on town roads and state-aid highways. This is consistent with the finding of a statistically significant decrease in fatalities on state highways since MaineDOT's anti-icing policy was implemented. It is unknown whether the anti-icing policy is the cause of the decrease.

Goals identified in the study include:

- Maintain safety while reducing salt and sand use.
- Reduce overall salt use through improved practices, new materials and equipment, and changes in levels of service.
- Increase public awareness of winter practices, costs, and environmental impacts.

Like many other northern states, since the mid-1990s MaineDOT has adopted procedures recommended by FHWA for anti-icing. As part of winter maintenance activities, MaineDOT uses anti-icing chemicals to maintain safer roadways for the traveling public. MaineDOT is continually investigating and evaluating snow and ice control methods, and updating its salt priority (MaineDOT anti-icing terminology) program in an effort to balance maintaining water quality with providing safer conditions for the public. Early application of salt brine and rock salt are being used on many roads to prevent snow and ice from bonding to the road surface. This anti-icing application reduces the amounts of anti-icing chemicals used. This approach reduces the amount of chlorides and sodium in highway runoff. MaineDOT snow and ice control operations are guided by a policy which classifies the level of service of roadways by priority corridors. Each level of service has a defined cycle of service time, plow route length, and prescribed amount of time to

return the road to normal winter driving conditions after a storm. The designation of Priority Corridors has reduced the use of salt overall.

- Priority 1 corridors (26 percent of total miles maintained by MaineDOT) will be treated and bare pavement provided following a storm as soon as practicable, at most within 3-6 daylight hours.
- For Priority 2 corridors (36 percent of total miles maintained by MaineDOT) bare pavement will be restored as soon as practicable after Priority 1 corridors, and within 8 daylight hours. Pre-treatment is provided on Priority 1 and 2 corridors to prevent ice from bonding with the road surface.
- Priority 3 corridors (38 percent of total miles maintained by MaineDOT) are treated within 24 hours, providing one-third bare pavement in the middle of the road as soon as practicable. For Priority 3 corridor sand routes, roads will be plowed and sand applied, yet the road surface may be snow covered during and following a storm.

With respect to the Presque Isle Bypass, we note that there are no impaired water bodies that would be affected by storm water runoff from the proposed roadway. As discussed in the FEIS, the project will be designed in compliance with applicable Maine water quality standards and with the requirements of the Section 401 Water Quality Certification.

Precipitation cannot infiltrate a paved highway surface and would either evaporate from the surface or drain to the side of the road, where it enters the soil and contributes to groundwater recharge. Net groundwater recharge volumes may be reduced due to the increase in impervious surfaces, but are not expected to change substantially. Contaminants discharged with runoff from highways have the potential to infiltrate groundwater and impact groundwater quality.

Surface Water Supplies

Prior to January 2010, the City of Presque Isle used surface water from the Presque Isle Stream as a public drinking water source. The surface water intake for the City and the water filtration plant was located at 187 Chapman Road, west of Route 1 and north of Arnold Brook Lake, as shown on Figure 4-10. This surface water intake is currently only in use for emergencies. None of the proposed alignment options cross Presque Isle Stream which approaches the City of Presque Isle from the west, entering the Aroostook River west of the Route 1 Bridge over the river. There would be no increase in impervious surface within the wellhead protection area of this surface water intake and no adverse affect to the water quality in the Aroostook River.

Public Drinking Water Wells / Wellhead Protection Areas

Locations of public drinking wells and wellhead protection areas in the vicinity of the Presque Isle Bypass Reference Area are shown on Figure 4-10. None of the alignment options cross a wellhead protection area of a public drinking water well. The main groundwater well for the City of Presque Isle is at 73 Reach Road (Route 210), just west of where the Proposed Action (Alignment Option 7) crosses the Aroostook River. This well would be unaffected by the Proposed Action.

There are several public drinking wells and their related wellhead protection areas along Route 205 (Parkhurst Siding Road), immediately west of the Presque Isle Country Club. These wells are over 1.5 miles east of Alignment Option 6, the eastern-most alignment option. Another wellhead protection area is adjacent to Route 1 (Houlton Road), immediately north of Jamison Road. Two additional groundwater wells with wellhead protection areas are west of Echo Lake, along Old State Park Road.

The No-Action Alternative would not affect any public drinking water wells or wellhead protection areas.

Commercial Water Supplies

McCain Foods, Inc., has several water supply wells on their property that supply water to their Easton factory. These wells are within a sand and gravel aquifer on McCain Foods property adjacent to the Aroostook River south of Higgins Road in Presque Isle (Figure 4-10). Alignment Option 4B passes over one of these existing water supply wells and the Proposed Action (Alignment Option 7) is within 100 feet of another well. These water supply wells would be unaffected by the Proposed Action. MaineDOT would continue to coordinate with McCain Foods during the final design process. The No-Action Alternative would not affect commercial water supplies.

At-Risk Watersheds

The Presque Isle Bypass would require constructing new highway segments within the Aroostook River watershed, designated as “at-risk”. This waterbody has been determined to be at risk of significant degradation and to be highly sensitive to the discharge of pollutants. Studies of the Aroostook River have identified the primary pollutant of concern to be phosphorus from agricultural operations. Phosphorus is not a major constituent of highway runoff. With the mitigation measures identified in this FEIS and future design stages, the Presque Isle Bypass (all Alignment Options) is not anticipated to contribute to further degradation of water quality.

Measures to Reduce the Impacts of Stormwater Runoff

Specific measures to improve stormwater management systems to reduce discharge velocities, maintain groundwater recharge, and improve water quality would be identified during subsequent design of the Proposed Action. MaineDOT has signed a Memorandum of Agreement (MOA) with Maine DEP in which MaineDOT is required, to the extent practicable, to meet Maine DEP's Stormwater General Standards to achieve stormwater quantity and quality controls that are consistent with Maine DEP's Stormwater Management Rules and the requirements of the Maine Pollutant Discharge Elimination System (MEPDES) General Permit for Construction Activity.

Pursuant to the MOA, MaineDOT agreed to adopt the standards set out in the current version of MaineDOT's *Best Management Practices for Erosion and Sedimentation Control Manual* (the BMP Manual), and Maine DEP has determined that application of those standards would result in substantial environmental benefits in the watersheds that are most at risk from development, namely the threatened and sensitive watersheds.

MaineDOT would ensure that the BMP Manual is followed for construction of the Proposed Action, including that appropriate erosion and sediment control Best Management Practices (BMPs) are used and that stormwater pollution prevention plans are implemented. For areas where it is required under the MOA, MaineDOT would also design ditches, culverts, and outlet areas to be stable and to minimize any increase in peak flow from the project.¹⁴ In any instances in which a peak flow increase would result, MaineDOT would implement measures to avoid adverse impacts to off-site property as a result of drainage increases. BMPs may include minimizing impervious surface within recharge areas and avoiding surface water intakes and wellheads.

Specifically, MassDOT is required to adhere to Chapter 500 of the General Standards for a linear project. The stormwater system would be designed to treat for water quality 75 percent of the impervious area and 50 percent of the overall developed area. To meet the General Standards, the stormwater management system must include treatment measures that would mitigate for the proposed frequency and duration of channel erosive flows due to runoff from smaller storms, provide effective treatment of pollutants in stormwater, and mitigate potential temperature impacts.

¹⁴ In accordance with the Stormwater MOA, MaineDOT would calculate peak flow from the project site if 1) the project combines two or more subwatershed areas, and 2) includes 20,000 square feet of more of new impervious surface or five acres or more of disturbed area in the direct watershed of a waterbody most at risk from new development, or one acre or more of new impervious area or five acres or more of disturbed area elsewhere.

These erosion and sedimentation control BMPs are required for any MaineDOT action, and would be incorporated into the design and specifications for the Proposed Action.

4.4.2.2 Aquatic Habitats

This section discusses the potential direct and secondary/indirect impacts on lakes, ponds, and streams, as well as potential mitigation measures for these impacts.

Impacts

Impacts to intermittent and perennial streams were assessed by overlaying the alignment options onto MEGIS rivers and streams layers and counting the number of individual streams that are crossed by the proposed Presque Isle Bypass Alignment Options. Impacts to wetlands and water resources in the Presque Isle Bypass Reference Area are shown on Figure 4-10. Intermittent and perennial stream crossings for each alignment option are shown in Table 4-8 (Page 4-41)

**Table 4-8
Potential Impacts to Streams (Number of New Crossings)**

Alignment Option	Perennial Streams	Intermittent Streams	Total
Alignment Option 4B	3	5	8
Alignment Option 6	5	5	10
Alignment Option 7	4	6	10

Alignment Options 4B and 6 would cross eight and 10 streams, respectively. Alignment Option 7 would cross 10 streams. Each of the alignment options would require a bridge crossing of the Aroostook River.

If appropriate design features and avoidance and minimization measures are not incorporated into a roadway project, construction may affect river and stream systems. New highway construction or upgrades to existing highways near or over streams may result in these direct and secondary/indirect impacts to aquatic habitats:

- Stream channelization;
- Loss of bank structural complexity;
- Loss of stream flow complexity (riffles/pools);
- Shading from bridges;
- Alteration of water temperature;
- Reduction of water quality from highway runoff impacts; and
- Alteration of stream hydrology.

Direct impact would result from the stream crossings through the placement of bridge structures or new culverts within or adjacent to the channel. Direct impact to stream crossings may include the loss of fisheries habitat, where natural channel substrates and banks are replaced with artificial substrates that do not provide spawning habitat, cover, or support food resources such as mayflies (*Ephemeroptera*), stoneflies (*Plecoptera*), or caddisflies (*Trichoptera*). Direct impacts may also include alteration of upstream and/or downstream hydrology of the system, if stream crossings are not designed in equilibrium with the existing stream system. MaineDOT policy is to minimize impacts to fish passage by appropriate drainage crossing design.

Conceptual design of the bridge crossing over the Aroostook River has not yet been developed. The new bridge, spanning an approximately 330-foot channel, may require piers or pilings in the river or abutments close to the riverbank. Piers or pilings in the river may cause changes in hydrology affecting flow characteristics of the Aroostook River. The river crossing would be designed to meet the MaineDOT Bridge Design Guide standards.

The design and construction of new roadways in the vicinity of rivers and streams may result in decreases in water quality from roadway runoff and increased water temperatures from the loss of streamside vegetation. Where roadway construction encroaches into riverine buffers, the loss of natural vegetation may affect the contribution of non-aquatic insects to lentic systems, may reduce the contribution of vegetation detritus that contributes to the aquatic food chain, and may affect water temperatures by removing overhanging vegetation.

The No-Action Alternative would not result in any new impact to streams. Stream crossings for existing roads would be unchanged.

Mitigation

Potential mitigation measures for impacts to rivers and streams would consist primarily of avoidance and minimization. During final design and permitting, every effort would be made to avoid the need to fill aquatic habitats.

Complete avoidance of wetland resource and water quality impact to the Aroostook River is not possible since reconnecting the bypass with Route 1 before the river crossing would greatly affect the transportation benefits of the bypass. Potential river and stream mitigation would focus on minimizing the impacts of new crossings. These measures may include:

- Using bridges rather than culverts to maintain channel substrate, flow, and bank characteristics where possible; and
- Using retaining walls rather than fill slopes to minimize impact areas.

All stream crossings would be designed in accordance with MaineDOT's 2008 *Waterway and Wildlife Passage Policy and Design Guide*. Additional mitigation measures may also include restoring bank and channels disturbed by construction at crossing areas to provide naturally vegetated banks and increase channel habitat. These measures would also provide stabilization to reduce erosion and sedimentation. Crossing structures would also be designed to minimize impact to floodplains, as discussed in Section 4.4.2.4 (Page 4-60).

4.4.2.3 Wetlands

This section discusses the potential direct and secondary/indirect impacts on wetlands, as well as potential mitigation measures for these impacts.

Impacts

Direct permanent and temporary wetland impacts associated with construction include wetland fill, vegetation removal, dredging, and watercourse relocation or alteration. Temporary impacts would involve short-term disturbance to wetlands and waterways during construction that would cease once construction activities are complete.

Secondary/indirect impacts to wetlands can occur post-construction when wetland hydrology is altered as a result of new impervious surfaces in a watershed, new or modified drainage patterns, or wetland fill. Modifications to wetland hydrology can alter the extent of wetlands and/or performance of functions and values provided by wetlands. Other Secondary/indirect effects could include fragmentation; edge effects, such as changes in species composition; and increased disturbance. Where the new alignment crosses streams and adjacent wetlands, riparian corridors and associated wildlife movements can be disrupted. As discussed in Section 4.4.2.1 (Page 4-36), stormwater runoff may also affect water quality in wetlands or may result in the deposition of sediments from anti-icing materials, such as sand.

Direct, permanent wetland impacts (loss of wetland) were quantified for the proposed Presque Isle Bypass Alignment Options. Table 4-9 (Page 4-44) shows impacts to wetlands by wetland class. Wetlands in the Reference Area are shown on Figure 3-10. This section evaluates impacts to individual wetlands and to the larger wetland systems identified as part of this study. A wetland system contains all adjacent wetlands as well as those wetlands that occur within 100 feet of the same waterway. For context when considering wetland impacts, there are approximately 6,240 acres of wetlands within the Presque Isle Bypass Reference Area.

**Table 4-9
 Wetland Impacts by Wetland Type (Acres)¹**

Alignment Option	Wetland Type ²			Total ¹ Impact	Percent of Reference Area Wetlands
	PEM	PFO	PSS		
4B	2.3	10.3	5.6	18.2	0.29
6	0.5	12.6	0.7	13.8	0.22
7	1.1	18.0	2.9	22.0	0.35
Total Within Reference Area				6,240	

1 Based on width of two-lane highway

2 PEM = palustrine emergent marsh. PFO = palustrine forested wetland. PSS = palustrine scrub-shrub wetland.

The different alignment options for the Presque Isle Bypass would impact between 13.8 and 22.0 acres of wetlands. These impacts are discussed in more detail in the following paragraphs and are shown in Table 4-9 (Page 4-44) and Tables 4-10 and 4-11 (Pages 4-50 and 4-51), and shown on Figure 4-10 and Figure 4-11a through Figure 4-11i.

The No-Action Alternative would not affect wetland resources.

Alignment Option 4B

Alignment Option 4B would affect approximately 18.2 acres of wetlands from 12 wetland systems, as seen on Tables 4-10 and 4-11 (Pages 4-50 and 4-51), and on Figure 4-10 and Figure 4-11a through Figure 4-11i. Alignment Option 4B requires eight new stream crossings, and would be within the 750-foot USACE Critical Terrestrial Habitat (CTH) of two Vernal Pools, affecting 5 and 14 acres each of the 40-acre CTH.

The wetland impact associated with Alignment Option 4B includes 10.3 acres of Forested Wetland (PFO) impact, 5.8 acres of which occurs in Wetland #5552, south of the Centerline Road/Academy Street intersection and 2.5 acres at Wetland #4008, north of the Aroostook River. Alignment Option 4B includes 5.6 acres of impact to Shrub Wetland (PSS) that include 4.2 acres at the previously mentioned Wetland #4008 and 1.4 acres at Wetland #5185, south of Brewer Road. Alignment Option 4B includes 2.3 acres of impact to Emergent Wetland (PEM) including 1.0 acres at Wetland #5383, north of the Aroostook River.

These wetlands provide a range of functions and values, primarily Groundwater Recharge/Discharge, Floodflow Alteration, Fisheries Habitat, and Wildlife Habitat. Wetland #4008 provides Sediment/Shoreline Stabilization, Recreation, and Endangered Species Habitat for the pygmy snaketail (*Omphigomphus howei*), a dragonfly listed as a Species of Special Concern found along the Aroostook River, west of Route 1 in the Reference Area.

The potential impacts to wetland wildlife habitat related to Alignment Option 4B include:

- Wetland #5522 – the road would create 2 small isolated fragments with reduced wetland wildlife habitat value.
- Wetland #5419 – the road would cross a narrow stream drainage, affecting the riparian wildlife corridor.
- Wetland #4008 – the road would bisect this large wetland, potentially adversely affecting upstream hydrology and reducing wildlife habitat value. The upstream portion would have reduced wildlife connectivity to the Aroostook River.
- Wetland #5185 – this small wetland would be bisected, leaving 2 small remnant fragments with reduced wildlife habitat values.

Alignment Option 6

Alignment Option 6 would affect approximately 13.8 acres of wetlands from 14 wetland systems, as seen in Tables 4-10 and 4-11 (Pages 4-50 and 4-51), and on Figure 4-10 and Figure 4-11a through Figure 4-11i. Alignment Option 6 requires 10 new stream crossings, and would be within the 750-foot radius (40 acre) USACE CTH of four Non-Significant Vernal Pools, affecting between 5 and 10 acres each of the 40-acre CTH.

The wetland impact associated with Alignment Option 6 includes 12.6 acres of PFO impact, including 3.0 acres at Wetland #4008, north of the Aroostook River; 2.8 acres at Wetland #90006, south of Perkins Road; and 2.6 acres at Wetland #6057, south of Henderson Road. Alignment Option 6 includes 0.7 acres of impact to PSS including 0.2 acres at Wetland #5399, south of the Aroostook River; 0.2 acres at Wetland #5401, south of the Aroostook River; and 0.2 acres at Wetland #5752, north of Henderson Road; Alignment Option 6 includes 0.5 acres of impact to PEM including 0.3 acres at Wetland #5394, south of the Aroostook River and 0.2 acres at Wetland #6015, north of Henderson Road.

These wetlands provide a range of functions and values, primarily Groundwater Recharge/Discharge, Floodflow Alteration, Fisheries Habitat, Sediment/Shoreline Stabilization, and Wildlife Habitat. Wetland #5752 provides Nutrient Removal/Retention/Transformation and Uniqueness/Heritage. Wetland #4008 provides Recreation, and habitat for the pygmy snaketail (*Omphigomphus howei*), a dragonfly listed as a Species of Special Concern found along the Aroostook River, west of Route 1 in the Reference Area.

The potential impacts to wetland wildlife habitat related to Alignment Option 6 include:

- Wetland #90006 – most of this wetland would be filled or altered. The small remaining section would be isolated with reduced values.
- Wetlands #6262/#6172 – the road would bisect these wetlands and affect wildlife movement.

- Wetland #6015 – this narrow wetland between two farm fields would be bisected, potentially eliminating its value as a wildlife corridor.
- Wetlands #5917/#5752 - the road would bisect these wetlands and affect wildlife movement.

Alignment Option 7 (Proposed Action)

Alignment Option 7 would affect approximately 22.0 acres of wetlands from 15 wetland systems, as seen on Tables 4-10 and 4-11 (Pages 4-50 and 4-51), and on Figure 4-10 and Figure 4-11a through Figure 4-11i. Alignment Option 7 requires 10 new stream crossings, including Arnold Brook, Williams Brook, and Merritt Brook, and would be within the 750-foot radius (40 acre) USACE CTH of seven Non-Significant Vernal Pools (with no direct impact to the vernal pools), affecting between 1 and 14 acres each of the 40-acre CTH.

The wetland impact associated with Alignment Option 7 includes 18.0 acres of PFO impact, 4.3 acres of which occurs in Wetland #6057, south of Henderson Road; 3.0 acres at Wetland #5419, north of State Street; and 2.4 acres at Wetland #4008, west of Higgins Road. Alignment Option 7 includes 2.9 acres of impact to PSS that includes 2.3 acres at Wetland #5752 south of Easton Road; and 0.4 acres at Wetland #5411, south of the Aroostook River. Finally, Alignment Option 7 includes 1.1 acres of impact to PEM including 0.5 acres at Wetland #6172, south of Henderson Road.

These wetlands provide a range of functions and values, primarily Groundwater Recharge/Discharge, Floodflow Alteration, Fisheries Habitat, and Wildlife Habitat. Wetland #5752 provides Nutrient Removal/ Retention/Transformation and Uniqueness/Heritage, and Wetlands #4008 and #5394 provide Sediment/Shoreline Stabilization and habitat for the pygmy snaketail (*Omphigomphus howei*), a dragonfly listed as a Species of Special Concern found along the Aroostook River, west of Route 1 in the Reference Area. .

The potential impacts to wetland wildlife habitat related to Alignment Option 7 include:

- Wetland #90006 – most of this wetland would be filled or altered. The small remaining section would be isolated with reduced values.
- Wetlands #6057/#6015 – the road would bisect these wetlands and affect wildlife movement through a large wetland. Upstream wetland hydrology and vegetation could be altered.
- Wetland #5752 - the road would bisect this wetland and affect wildlife movement. Upstream wetland hydrology and vegetation could be altered.
- Wetland #5552/#5407 - the road would bisect these wetlands and affect wildlife movement.

Secondary and Indirect Effects

Secondary (indirect) effects are defined in EPA Regulations at 40 CFR Part 230.11.¹⁵ The EPA regulations state that “Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.” Additionally, although not specifically addressing impacts to aquatic resources, the Center for Environmental Quality (CEQ) NEPA regulations at 40 CFR Part 1508.8¹⁶ define indirect effects as “.. effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects many include ... related effects on air and water and other natural systems, including ecosystems”. For an indirect effect to occur there must be a fill (discharge) of a wetland.

Indirect impacts are therefore the consequences of an action’s direct impacts. For example, while the direct impact of filling a wetland would be the loss of the filled wetland area and the functions and values provided by that specific area, the indirect impacts of that wetland fill would result from the associated changes to the overall size of the wetland, hydrology, cover type, species assemblage, or degree of habitat fragmentation. These types of impacts could adversely affect the ability of the wetland to provide functions and values, or could diminish the functions and values to a degree greater than would be attributed simply due to the loss of area. Isolated fragments of wetlands or waterways may have reduced habitat value, no longer provide viable fish or wildlife habitat or be so isolated that the wetland or waterway fragments are rendered inaccessible to many fish or other aquatic species.

Secondary and/or indirect impacts to wetlands and other Waters of the United States include changes in wetland functions or changes in wetland physical/biological characteristics which could be caused by the placement of fill within jurisdictional wetlands, but occur at a different location or time, and include:

- Filling a portion of a wetland (loss of) – reduction in wetland size, introducing human activity (noise, disturbance);
- Constructing a road across a wetland – change in hydrology, fragmentation, introduction of disturbed non-wetland conditions, creation of new “edge”, interrupt migratory routes;
- Installing a new culvert– alter water levels or flow patterns;
- Removing canopy or other vegetation – change light regimes, water temperature, plan community structure;
- Relocating a stream – change flow characteristics; or
- A new discharge of stormwater – alter water levels or flow patterns, or introduce sediments or nutrients.

¹⁵ 40 CFR §230.11, Factual Determinations. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr230_main_02.tpl, accessed June 1, 2012.

¹⁶ 40 CFR §1508.8, Effects. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr1508_main_02.tpl, accessed June 1, 2012.

Changes in the physical characteristics of adjacent uplands could affect some functions of wetlands in proximity to the ROW. The loss of a portion of a wetland through filling would affect its physical and biological functions, proportionately to the amount of the wetland that would be altered. Temporary impacts to wetlands caused by construction could also affect the wetland's biological functions through either short- or long-term changes in the plant community composition or structure. Stormwater discharge from stations could also affect these physical and biological functions.

Secondary and/or indirect effects are changes in the ability of a wetland to provide each function, and do not affect a wetland uniformly (except for some small wetlands). These functional effects occur as gradients with the highest intensity occurring closest to the disturbance and decreasing with distance. Each resource affected may also experience the effects differently – for example, the effects of a canopy gap do not affect all wildlife species in the same way, or at the same distance. While some researchers have considered an indirect effect (“road effect”) to alter the entire wetland¹⁷, others have documented that the effects of highways are not uniformly distributed across a wetland¹⁸, and showed that the majority of the indirect effects of highways occurs within 100 meters (300 feet) of the road.¹⁹ Effects on the ability of a wetland to support production export are different in type and location than on the ability of a wetland to provide sediment/toxicant retention or nutrient transformation. Some researchers have shown that the ability of a wetland to provide wildlife habitat functions is multivariate, and includes size, edge: interior ratio, cover type, connectivity, microhabitat diversity, soil moisture, and other factors. Their work has shown that the most important variable is wetland size, and that changes in wetland size in small wetlands has a much greater effect on wildlife species richness than changes in size in larger wetlands.²⁰

As described in Section 4.4.2.3 (page 4-43) and as shown on Table 4-11 (page 4-51) and Figures 4-11a through 4-11i, the analysis shows that Alignment Option 4B would have direct and secondary/indirect impacts to 12 wetlands, and secondary/indirect effects to an additional three wetlands. Alignment Option 6 would have direct and secondary/indirect impacts to 14 wetlands, and secondary/indirect effects to an additional four wetlands. Alignment Option 7 would have direct and secondary/indirect impacts to 15 wetlands, and secondary/indirect effects to an additional three wetlands.

¹⁷ Forman, R.T. and Deblinger, R.D. 2000. The Ecological Road-effect zone of a Massachusetts (U.S.A) Suburban highway. *Conservation Biology* 14:36-46.

¹⁸ Eigenbrod, F., S.J. Hecnar, L. Fahrig. 2009. Quantifying the road-effect zone" threshold effects of a motorway on anuran populations in Ontario, Canada. *Ecology and Society* 14 (1): 24. <http://www.ecologyandsociety.org/vol14/iss1/art24>

¹⁹ Biglin, K. and Dupigny-Giroux, L. 2006. Mapping the road-effect zone to assess impacts of proposed road segments. *Journal of Conservation Planning* 2:1-16.

²⁰ Eigenbrod, F., S.J. Hecnar, L. Fahrig. 2009. Quantifying the road-effect zone" threshold effects of a motorway on anuran populations in Ontario, Canada. *Ecology and Society* 14 (1): 24. <http://www.ecologyandsociety.org/vol14/iss1/art24>

Mitigation

This section describes the measures MaineDOT would employ to mitigate impacts to wetlands. These measures include design choices made to avoid and minimize impacts; erosion and sedimentation controls designed to minimize impacts from construction activities; and a plan for wetland mitigation to replace wetlands or wetland functions unavoidably lost.

During final design, MaineDOT would continue to refine the alignment and its right-of-way within the preferred corridor to further avoid and minimize impacts to the natural, social, and economic environments and to coordinate with those that are affected.

The Proposed Action would result in unavoidable wetland impacts that would require mitigation, based on the mitigation goals and guidance of the USACE and Maine DEP. This FEIS presents a mitigation strategy that articulates mitigation goals and objectives, approaches, site identification, site and mitigation priorities, site feasibility and selection, acquisition, design, implementation, performance standards, and monitoring.

Mitigation would be developed in accordance with the requirements of EO 11990, which requires that federal agencies “avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable option.” The requirements of EO 11990 are consistent with the Clean Water Act [Section 404(b)(1)] and the 1990 MOA between the EPA and the USACE, as well as the March 31, 2008 EPA/USACE Mitigation Rule, which prescribes a sequential approach to wetland mitigation whereby measures to avoid and minimize wetland impacts are given precedence over compensatory mitigation efforts such as restoration, creation or enhancement. The April 10, 2008 volume of the Federal Register²¹ documents the revised regulations issued by the EPA and the USACE issued on March 31, 2008 governing compensatory mitigation for authorized

²¹ Federal Register, Page 19594, June 10, 2008

**Table 4-10
 Functions and Values of Affected Wetlands**

System	Functions and Values ¹													System Area (acres)	Alignment Option
	GR/D	FF	FH	S/T R	NR/R/T	PE	SS	WH	R	E/SV	UH	VQ/A	ES		
4008	Y	N	Y	N	N	N	Y	Y	Y	N	N	N	N	2,182	4B, 6, 7
5185	Y	Y	Y	N	N	N	N	Y	N	N	N	N	N	17	4B, 7
5379	Y	N	N	N	N	N	N	Y	N	N	N	N	N	3	4B
5383	Y	N	N	N	N	N	N	Y	N	N	N	N	N	3	4B
5394	Y	N	N	N	N	N	Y	Y	N	N	N	N	N	4	4B, 6, 7
5395	Y	Y	Y	N	N	N	N	Y	N	N	N	N	N	2	7
5396	Y	Y	Y	N	N	N	N	Y	N	N	N	N	N	2	7
5399	Y	N	N	N	N	N	N	Y	N	N	N	N	N	0.4	6
5401	Y	N	N	N	N	N	N	Y	N	N	N	N	N	0.2	6
5407	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	121	6, 7
5411	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	0.4	7
5419	Y	N	Y	Y	N	N	N	Y	N	N	N	N	N	16	4B, 6, 7
5549	Y	N	N	N	N	N	N	Y	N	N	N	N	N	0.1	7
5552	Y	Y	Y	N	N	N	N	Y	N	N	N	N	N	191	4B, 7
5752	Y	Y	Y	Y	Y	N	N	Y	N	N	Y	N	N	467	4B, 6, 7
5846	Y	Y	Y	Y	Y	Y	N	Y	N	N	Y	Y	N	23	6
5904	Y	N	N	N	N	N	N	Y	N	N	N	N	N	0.1	4B
5912	Y	N	N	N	N	N	N	Y	N	N	N	N	N	7	4B
6015	Y	N	N	N	N	N	N	Y	N	N	N	N	N	7	6, 7
6057	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	79	6, 7
6141	Y	N	N	N	N	N	N	Y	N	N	N	N	N	0.1	6
6153	Y	N	N	N	N	N	N	Y	N	N	N	N	N	1	6
6172	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	11	6, 7
90006	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	14	4B, 6, 7
90020	N	N	N	N	N	N	N	Y	N	N	N	N	N	7	4B

¹ GR/D: Groundwater Recharge/Discharge
 FF: Floodflow Alteration
 FH: Fisheries Habitat
 S/TR: Sediment/Toxicant Retention
 NR/R/T: Nutrient Removal/Retention/Transformation
 PE: Production Export
 SS: Sediment/Shoreline Stabilization
 WH: Wildlife Habitat
 R: Recreation
 E/SV: Educational/Scientific Value
 UH: Uniqueness/Heritage
 VQ/A: Visual Quality/Aesthetics
 ES: Endangered Species

Table 4-11
Wetland Impacts by Wetland and Alignment Option

System	System Area (acres)	Impact (acres) ¹		
		AO 4B	AO 6	AO7
4008	2,182	6.8	3.0	2.6
5185	17	1.4	0	0.2
5379	3	0.8	0	0
5383	3	1.0	0	0
5394	4	0.3	0.3	0.3
5395	2	0	0	0.8
5396	2	0	0	1.0
5399	0.4	0	0.2	0
5401	0.2	0	0.2	0
5403	5	0	0	0
5407	121	0	1.3	0.1
5411	0.4	0	0	0.4
5419	16	0.5	0.4	3.0
5549	0.1	0	0	<0.1
5552	191	5.8	0	1.9
5752	467	0.6	1.7	3.2
5846	23	0	0.04	0
5904	0.1	0.04	0	0
5912	7	0.4	0	0
6015	7	0	0.2	1.7
6057	79	0	2.6	4.3
6141	0.1	0	<0.01	0
6153	1	0	0.07	0
6172	11	0	1.0	0.5
90006	14	0.6	2.8	2.0
90020	7	<0.01	0	0
Total²		18.2	13.8	22.0

1 Based on width of a two-lane highway
 2 Wetland impact rounded to nearest tenth of an acre

impacts to wetlands, streams, and other waters of the U.S. under Section 404 of the Clean Water Act.

Avoidance and Minimization

Avoidance of all direct wetland impacts (the loss of wetlands) would only be possible by implementing the No-Action Alternative or the Route 1 Upgrade/Transportation System Management (TSM) Alternative, neither of which satisfies the project purpose.

MaineDOT, in consultation with the FHWA, USACE, EPA, and the City of Presque Isle, has minimized wetland impacts through the development of alignment options that avoid wetlands to the greatest extent practicable. As seen on Table 4-12 (page 4-52), the FEIS Alignment Options result in substantially less wetland impact than the alignment options evaluated in the SDEIS.

**Table 4-12
 Wetland Impact Minimization**

Document	Alternative	Proposed Wetland Impacts (acres)¹
SDEIS	Option 1	64
	Option 2 (SDEIS Proposed Action)	55
	Option 3	53
	Option 4	20
	Option 5	126
	Option 6	24
FEIS	Option 4B	18.2
	Option 6	13.8
	Option 7 (FEIS Proposed Action)	22.0

¹ Wetland impacts for the SDEIS alignment options were based on a 4-lane highway width while the wetland impacts for the FEIS alignment options are based on a two-lane highway

Mitigation Approach

Direct wetland impacts would require appropriate mitigation. Mitigation would be developed in accordance with the requirements of the USACE rules for compensatory wetland mitigation (33 CFR Parts 325 and 332, 10 April 2008) and the New England District’s Compensatory Mitigation Guidance (July 20, 2010). This guidance gives precedence for wetland banking and in lieu fee programs when available in the project service area. When these programs are unavailable permittee responsible mitigation is used with an emphasis on a watershed approach to selecting compensatory mitigation measures and locations. Four types of Permittee Responsible Mitigation are recognized:

- Restoring previously existing wetlands or other aquatic sites (this should be considered the first option);
- Enhancing an existing aquatic site's functions and values;
- Creating a new wetland or aquatic site; or
- Preserving land that serves to protect aquatic resources by providing a buffer or corridor between aquatic resources.

The Maine DEP regulations in Chapter 310, *Wetlands and Waterways Protection*, state similar objectives. The goal of compensation is to result in no net loss of functions and values, and is required when Maine DEP determines that a wetland alteration would cause a wetland function or functions to be lost or degraded. The state regulations recognize the same types of compensatory mitigation as the USACE.

These regulations recognize that compensatory mitigation must be commensurate with the amount and type of impact, and requires that the USACE District Engineer determine what is practicable and capable of compensating for the aquatic resource functions that would be lost, and what is environmentally preferable. Considerations include:

- The likelihood for ecological success;
- The location relative to the impact site;
- The significance within the watershed; and
- The costs of the compensatory mitigation project.

These regulations require a watershed-based approach, ideally based on an existing watershed plan that provides information on the land uses, natural habitats, water quality, and aquatic resources within a watershed. The goal of using a watershed approach is to maintain and improve the quality and quantity of aquatic resources within a watershed, by strategically siting compensatory mitigation sites. There is also a desire to site new mitigation projects adjacent to other conserved lands to build habitat connectivity into the landscape. The Rule also notes that compensatory projects should not be located where they would increase the risks to aviation by attracting wildlife near airports.

In setting mitigation requirements for Section 404 permits, USACE considers watershed needs, mix of habitat types, and compatibility with adjacent land use. The USACE New England District has published guidance on mitigation ratios²² that generally requires 2:1 to 3:1 compensation for restoration, 3:1 to 10:1 for enhancement, 2:1 to 4:1 for creation, and 15:1 compensation for preservation. These ratios are greater than Maine DEP's ratios, which require 1:1 compensation for impacts to wetlands that are not of special significance, 2:1 for wetlands of special significance, and 8:1 for preservation.

²²

New England District Compensatory Mitigation Guidance: Compensation for Impacted Aquatic Resource Functions. July 20, 2010.

Table 4-13 (Page 4-54) identifies the range of mitigation requirements and their costs for the Proposed Action (Alignment Option 7). These range from 44 to 62 acres for restoration only (\$5.0 to 7.0 million) to 64.9 to 86.9 acres for creation only (\$7.0 million to \$9.0 million), or 102 to 220 acres for enhancement (\$6.0 to \$8.0 million) and 330 acres for preservation (\$3.0 to \$3.5 million). Costs provided by MaineDOT. The primary losses of functions would be groundwater recharge/discharge, floodflow alteration, fisheries habitat, and wildlife habitat. These functions would primarily be lost in Wetland #4008, which borders an un-named tributary to the Aroostook River within the developed part of the City of Presque Isle and Wetland #5752, south of Easton Road. Wetland mitigation areas would be designed to provide these functions.

**Table 4-13
 USACE Recommended Compensatory Mitigation- Proposed Action (Alignment Option 7)**

Impact by Wetland Type	Impact ¹ (acres)	USACE Recommended Compensatory Mitigation							
		Restoration ³		Creation		Enhancement		Preservation	
		Ratio	Acres	Ratio	Acres	Ratio ⁴	Acres	Ratio	Acres
PEM	1.1	2:1	2.2	2:1 to 3:1	2.2 to 3.3	3:1 to 10:1	3.3 to 11	15:1	16.5
PFO	18.0	2:1 to 3:1	36 to 54	3:1 to 4:1	54 to 72	5:1 to 10:1	90 to 180	15:1	270
PSS	2.9	2:1	5.8	3:1 to 4:1	8.7 to 11.6	3:1 to 10:1	8.7 to 29	15:1	43.5
Total	22.0²	-	44 to 62	-	64.9 to 86.9	-	102 to 220	-	330

1 Based on width of a two-lane highway.
 2 Impact total rounded to nearest tenth of an acre.
 3 Assumes no irreversible change has occurred to the hydrology. If there is such a change, then the corresponding creation ratio should be used.
 4 Based on types of functions enhanced and/or degree of functional enhancement.

Mitigation Approaches

Replacing wetlands and their important functions and values could be achieved with several approaches, including: restoring wetland from a filled, former wetland area that is now a non-wetland area; establishing new wetland from a non-wetland area; restoring functions to an existing, degraded wetland; enhancing wetland functions; and contributions to a mitigation bank or in-lieu fee program. Presque Isle is in the Aroostook Hills and Lowlands Biophysical Region of Maine. The appropriate wetland mitigation approach would take the biophysical region into account.

Watershed Approach

The Presque Isle Bypass is within the Aroostook River Watershed. In this watershed, wetlands have been lost through conversion to agriculture or have been lost to development. Neither a comprehensive watershed plan for the Aroostook River, nor a wetland restoration plan has been prepared for this area.

Types of Mitigation Being Considered

Maine DEP and the USACE give precedence to purchase credits from a mitigation bank or pay a compensation fee in lieu of constructing compensatory wetlands.²³ There are no mitigation banks in the Aroostook Hills and Lowlands Biophysical Region. The state does sponsor an in lieu fee program through the DEP. This allows that an applicant may pay an in-lieu compensation fee to be used for the purpose of restoring, enhancing, creating, or preserving other wetland functions or values in the project biophysical region. The amount of the fee would be determined based on the compensation that would be necessary to restore, enhance, create, or preserve aquatic resources with functions or values similar to the aquatic resources impacted by the activity.

When banking and in lieu fee programs are unavailable, permittee responsible mitigation is used. The evaluation of mitigation sites included establishing new wetlands (wetland creation, wetland replacement), wetland restoration, wetland functional enhancement, and wetland preservation. Restoration can be a valuable contribution to the quality of the ecological functions and values of the existing wetlands in the affected watershed. Wetland functional enhancements off-site may partially compensate for the functions and values provided by the impacted site; however, there would still be a net loss in wetland area. Restoration of degraded wetlands can sometimes be paired with expanding the same wetland. This may be considered creation or re-establishment, and may result in an increase in wetland area.

Site Selection Criteria

The mitigation site selection criteria were based on agency recommendations and USACE compensatory mitigation guidance report. Figure 4-12a and Figure 4-12b shows the potential mitigation sites where the selection criteria were used. These include:

- Sites in the Presque Isle area within the Aroostook River watershed;
- Degraded wetlands and adjacent uplands along edges of farm fields that are adjacent to existing wetland systems;

²³

Maine In-Lieu Fee Agreement Between the State of Maine Department of Environmental Protection, the New England District U.S. Army Corps of Engineers and The Nature Conservancy. 2007.

- Sites with a low topography that is practical to work with (consisting of soil, gravel or other easily graded materials) and a size that is appropriate for effective mitigation;
- Non-forested areas or other areas with low wildlife habitat quality; and
- Damaged sites with restoration potential (such as abandoned farm fields).

The design of the wetland mitigation areas, following final site selection, would include the following considerations:

- Identifying marginal fields on wet soils, tilled fields, poor quality or recently abandoned fields (most fields are topographically higher than the adjacent wetlands and sloped down to the wetland, and very few tilled fields are at the same elevation as the wetlands);
- Selecting sites that would be able to accommodate a variety of habitat types and hydrologic regimes in order to replace in-kind wetland impacts;
- Purchase and construction costs associated with the mitigation site;
- Monitoring and controlling invasive species;
- Requiring that all mitigation areas be permanently protected from future impact by conservation restriction or by transfer of ownership to an appropriate land conservation agency.

Potential Compensatory Wetland Sites

The DEP in lieu fee program and four potential mitigation sites were identified based on aerial photographs, topographic mapping, and soils maps. They range from 40 acres to 1,712 acres in size and are adjacent to existing wetland systems. These wetlands systems were preliminarily mapped on aerial photographs using available hydric soils mapping, NWI mapping, and photo interpretation. This preliminary mapping was field-verified and adjusted, as warranted. Vegetated wetland delineations were made in accordance with the USACE *Wetland Delineation Manual* (USACE 1987). Wetland functions and values were assessed in a manner consistent with the USACE *“Highway Methodology Workbook Supplement”*. Table 4-14 (Page 4-59) provides a summary of the potential mitigation sites that are adjacent to these wetland systems.

The following text describes the DEP in lieu fee program and four potential wetland restoration, enhancement and creation sites identified in the Presque Isle area, shown on Figures 4-12a and 4-12b. Where access to these sites was available, they were field-checked for suitability for wetland mitigation.

Mitigation Site 1 – Maine Natural Resources Conservation Fund

A portion of the overall wetland mitigation package could consist of a payment by MaineDOT to the Maine Natural Resources Conservation Fund to be used for

wetland restoration, enhancement, preservation, and creation projects in the Aroostook Hills and Lowlands Biophysical Region.

Mitigation Site 2 – Parsons Road Parcel

Site 2 (Figure 4-12a), also known as the Parsons Road Parcel, is adjacent to Wetlands #5266 (PEM), #5281 (P), and #5287 (P). The site is a privately-owned parcel northeast of Parsons Road in Presque Isle. The site, an abandoned farm field, would provide up to 150 acres of wetland creation, restoration, or enhancement. The site is an open, level field with a hydrologic connection to a tributary to the Aroostook River traversing the site. Mitigation Site 2 has the potential to provide the same functions and values as the surrounding wetlands, including groundwater recharge/discharge and wildlife habitat.

Mitigation Site 3 - Presque Isle Stream Parcel

Site 3 (Figure 4-12a), also known as the Presque Isle Stream Parcel, is adjacent to Wetland #5400 (PEM). The site is east of the Presque Isle Stream, south of the Parsons Road Connector in Presque Isle. The parcel was identified as a potentially suitable site for stream restoration due to the undeveloped land immediately adjacent to the waterway. The site may provide up to 40 acres of wetland creation, restoration, or enhancement. It has the potential to provide the same functions and values as the existing wetlands, including floodflow alteration and fisheries and wildlife habitat.

A field investigation was conducted for Site 3 and found it was unsuitable for a wetland mitigation site due to the amount of excavation required and the abutting large commercial and residential developments.

Mitigation Site 4 - Easton Road Parcel

Site 4 (Figure 4-12a), also known as the Easton Road Parcel, is adjacent to Wetland #5752 (PSS, PEM and PFO). The site consists of several open, level, active farm fields with some hydric soils that border a large, well-established wetland system south of Easton Road in Presque Isle. The site may provide 300 acres of wetland restoration or enhancement. The site would meet the USACE mitigation option of restoring wetlands that were likely lost to farming activities. Mitigation Site 4 has the potential to provide the same functions and values as the adjacent wetlands, including groundwater recharge/discharge, floodflow alteration, and wildlife habitat. This site would be partially bisected by the Proposed Action (Alignment Option 7), reducing the acres of potential wetland restoration or enhancement.

Mitigation Site 5 - Haynes Parcel

Site 5 (see Figure 4-12b), is known as the Haynes Parcel. The Haynes Parcel is approximately 4 miles east of Kingman in Drew Plantation in Penobscot County, approximately 82 miles south of Presque Isle. The parcel is bounded to the east, west, and south by land owned by Maine Department of Inland Fisheries and Wildlife (IF&W) known as the Mattawamkeag River Wildlife Management Area (WMA). This WMA is 4,043 acres in size and is managed for a variety of recreational uses. The

parcel's northern boundary is the Eastern Maine Railway (subsidiary of J.D. Irving). The Haynes parcel is within the Penobscot River watershed and within the same biophysical zone as the wetlands impacted by the Presque Isle Bypass.

The Haynes parcel is almost entirely within the "Mattawamkeag River Bogs and Fens Beginning with Habitat Focus Area". Focus areas are identified by Maine Natural Areas Program (MNAP), IF&W, the Department of Marine Resources (DMR), U.S. Fish and Wildlife Service (USFWS), The Nature Conservancy (TNC), Maine Audubon, and Maine Coast Heritage Trust (MCHT) as natural areas of statewide ecological significance. They typically support rare plants, animals, and natural communities; high quality common natural communities; significant wildlife habitats and include large blocks of undeveloped habitat. The property includes approximately seven miles of frontage along the Mattawamkeag River. This section of river is designated in the Natural Resources Protection Act (38 M.R.S.A. Section 480-P) as an Outstanding River Segment. In addition, it is within the federally designated Gulf of Maine Atlantic Salmon Distinct Population Segment (DPS) and is within the designated Critical Habitat for the species. The Haynes Parcel contains approximately 1,200 acres of freshwater wetlands. Wetlands on the parcel provide wildlife habitat, groundwater discharge, and floodflow functions and also have uniqueness and recreational values. The Haynes Parcel also contains four moderate value wading bird and waterfowl habitats that extend south to the Mattawamkeag River. The IF&W has noted high waterfowl use on this portion of the Mattawamkeag River. A vernal pool survey has not been completed.

The Haynes Parcel has been purchased by MaineDOT for preservation, creating a preserved block of habitat approximately 6,400 acres in size and further protecting the natural features within the WMA by protecting adjacent resources and an upland buffer. The Haynes Parcel mitigation would consist of wetland and upland preservation and wetland restoration at abandoned logging roads and staging areas. The site has been selected as the preferred mitigation site for the Route 1-161 Caribou Connector Project, which required approximately 40 acres of the site for wetland and vernal pool impact mitigation.

Selection of Mitigation Area

Following Corps guidance, MaineDOT believes that the use of the Maine Natural Resource Conservation Program should be a priority for mitigation. If Permittee Responsible Mitigation is used the Department believes that Mitigation Site 5, the Haynes Parcel, provides the best potential to mitigate for the functions and values lost through the construction of this project. The site is predominantly preservation with some excellent site specific restoration to abandoned logging roads and staging areas. The parcel is within a Beginning with Habitat Focus Area and the seven miles of Mattawamkeag River frontage is designated in the NRPA as an Outstanding River Segment. This land tract is in the DPS for Atlantic salmon and IF&W has noted high waterfowl use along the Mattawamkeag River frontage. The parcel contains approximately 1,200 acres of freshwater wetlands that have similar functions for

those wetlands being lost on the project. The Haynes Parcel was selected for the Caribou Bypass Project mitigation by the regulatory agencies. That project utilized 40 acres of the 1,781 acre parcel. The remaining credit acres are proposed for deposit in the Maine Umbrella Mitigation Bank Instrument.

**Table 4-14
 Potential Wetland Mitigation Sites**

Potential Wetland Mitigation Site No.	Site Name	Size (acres)	Hydric Soil	Adjacent Wetland System			Current Conditions	Potential Functions & values
				No.	Type	Functions & Values ²		
1	Maine Natural Resources Conservation Fund	Varies	Y	NA	Varies	Varies	Varies	Varies
2	Parson Road Parcel	150	N	5281/ 5266/ 5287	PEM/ PFO/ PSS/	GR/D and WH	Old farm field adjacent to oxbow channels associated with Aroostook River.	GR/D and WH
3	Presque Isle Stream Parcel	40	N	5400	PEM	GR/D, FF, FH, S/TR, and WH	Adjacent to highly developed downtown Presque Isle and wetlands associated with Presque Isle Stream.	GR/D, FF and WH
4	Easton Road Parcel	300	N	5752	PEM/ PFO/ PSS/	GR/D, FF, FH, S/TR, R, WH, and UH	Farm fields adjacent to predominately PFO with some PSS on the south eastern and north western areas of the wetland.	GR/D, FF and WH
5	Haynes Parcel	1,712	Y	NA	PFO/ PSS	GR/D, FF, R, WH, and UH	Evidence of historic timber harvesting. Adjacent to Mattawamkeag River System Wildlife Management Area.	GR/D, FF, R, and WH

1 GR/D: Groundwater Recharge/Discharge
 FF: Floodflow Alteration
 FH: Fisheries Habitat
 S/TR: Sediment/Toxicant Retention
 NR/R/T: Nutrient Removal/Retention/Transformation
 PE: Production Export
 SS: Sediment/Shoreline Stabilization
 WH: Wildlife Habitat
 R: Recreation
 E/SV: Educational/Scientific Value
 UH: Uniqueness/Heritage
 VQ/A: Visual Quality/Aesthetics
 ES: Endangered Species

Mitigation Design and Construction

Wetlands can be newly created through excavation of a non-wetland area adjacent to an existing wetland or water body. Excavation of a non-wetland area requires excavation to groundwater and/or establishment of a hydrological connection to a water source of sufficient volume and duration to maintain wetland hydrology which would result in the support of wetland vegetation and hydric soils.

Final mitigation plans would be developed for each site based on updated topographic survey, groundwater monitoring, test borings, and soil sampling. The

replacement wetlands would be designed to conform to the guidelines developed by the USACE²⁴ and Maine DEP.

4.4.2.4 Floodplains

This section describes the potential impacts of the Alignment Options on the 100-year floodplains.

Direct impacts to floodplains are assessed as the loss of floodplain area. The loss of flood storage or new obstructions within the floodplain or floodway could result in an increase in depth or duration of flooding, or increase the lateral extent of the flooding. These impacts depend on the location of the impact relative to the floodway and the proximity of sensitive land uses. New location corridors that cross floodplains may potentially have the greatest effect on floodplains. New river crossings downstream of existing residences and neighborhoods may create more property impacts than new crossings in undeveloped areas. Impacts to 100-year floodplains were estimated based on proposed fill limit of the roadway.

Alignment Option 4B would result in 1.2 acres of floodplain impact; Alignment Option 6 would result in 9.1 acres of floodplain impact; and Alignment Option 7 would result in 10.2 acres of floodplain impact.

Each alignment option crosses through mapped floodplains associated with Clark Brook, (Wetland #90006) in the southern part of the Reference Area, and the Aroostook River, in the northern part of the Reference Area (see Figure 4-10). Alignment Options 6 and 7 cross through mapped floodplains associated with a tributary to Prestile Stream (Wetland #5917), north of Cross Road. Alignment Option 6 crosses through mapped floodplains associated with a tributary to the Aroostook River (Wetland #5407).

Impacts to floodplain in the Reference Area associated with each alignment option would be relatively minor and can be mitigated for. As these minor floodplain impacts are in areas of farmland and undeveloped forest, with few structures in the area, they will not introduce higher flooding risks and would not introduce incompatible floodplain development. The impact on natural and beneficial floodplains values will be minor. Impacts associated with the new bridge crossing over the Aroostook River may have more severe impacts, especially if the bridge design includes piers or pilings in the River. These would be the same for all three Alignment Options (although at different locations). The No-Action Alternative would not impact floodplains.

²⁴

USACE, *Regulatory Guidance Letter, Number 02-2, Guidance on Compensatory Mitigation projects for Aquatic Resource Impacts under the Corps Regulatory Program Pursuant to Section 401 of the Clean Water Act and Section 10 of the Rives and Harbors Act of 1899*, December 24, 2002.

Mitigation

MaineDOT would include mitigation for floodplain loss in the design of the Presque Isle Bypass. Conceptual design for river crossing has not yet been developed. MaineDOT would take floodplain management into account during the design stage of the bridge and reduce the potential effects the bridge may have on the floodplain.

MaineDOT and FHWA are required by law to comply with Executive Order 11988, *Floodplain Management*. To ensure compliance, MaineDOT evaluates each project to assess and reduce the long- and short-term adverse impacts associated with the occupancy and modification of floodplains.

4.4.2.5 Wild and Scenic Rivers

Wild and Scenic Rivers are those rivers protected under the National Wild and Scenic Rivers Act which hold certain restrictions for development. There are no nationally listed Wild and Scenic Rivers within the Presque Isle Bypass Reference Area.

4.4.2.6 Outstanding River Segments

All of the alignment options considered for the Presque Isle Bypass would require a new crossing of the Aroostook River, which is classified as an Outstanding River Segment (ORS) (Figure 4-10). The portion of the Aroostook River in the vicinity of the proposed bridge crossing is in a generally agricultural area northeast of the more developed areas of Presque Isle. At the proposed bridge crossing area, the Aroostook River is approximately 330 feet wide and flows eastward. Alignment Option 4B would cross the Aroostook River approximately 1.3 miles downstream of the Route 1 crossing and approximately 0.6 miles downstream of the Montreal-Maine & Atlantic (MM&A) Railway railroad bridge. Alignment Option 6 would cross the Aroostook River approximately 1.5 miles downstream of the Route 1 crossing and approximately 0.9 miles downstream of the MM&A railroad bridge. Alignment Option 7 would cross the Aroostook River approximately 1.2 miles downstream of the Route 1 crossing and approximately 0.5 miles downstream of the MM&A railroad bridge. The No-Action Alternative would not impact an Outstanding River Segment.

In accordance with Section 480-D.8 of NRPA, Maine DEP may only grant a permit for a new crossing of a designated ORS if the applicant has demonstrated “that no reasonable option exists which would have less adverse effect upon the natural and recreation features of the river segment.” MaineDOT investigated upgrading the existing Route 1 through Presque Isle as an alternative to constructing the Presque Isle Bypass. The upgrade alternative would have included upgrading and widening the existing bridge carrying Route 1. This alternative, however, was found to not satisfy the Purpose and Need for the project. Therefore, a new crossing is required to accommodate the bypass.

Conceptual design of the bridge crossing over the Aroostook River has not yet been developed. The new bridge, spanning an approximately 330-foot channel, would require piers or pilings in the river. The river crossing would be designed to meet the MaineDOT Bridge Design Guide standards and to minimize the effects on the natural features of the aquatic environment.

Mitigation

The new bridge crossing the Aroostook River would be designed to meet the NRPA requirement for protection of an ORS. MaineDOT would coordinate with Maine DEP during the design of the new bridge to ensure that the crossing meets all of the NRPA criteria with regard to natural resources, such as aquatic and wildlife habitat, floodplain, and water quality, as well as recreational features, such as providing adequate access to the river and minimizing visual impacts.

4.4.3 Wildlife Habitat, Significant Wildlife Habitat, and Essential Fish Habitat

This section describes potential impacts to wildlife habitats, fisheries, and state-regulated “Significant Wildlife Habitats,” as well as potential mitigation measures for these impacts. Endangered and threatened wildlife species are addressed in Section 4.4.4 (Page 4-68).

4.4.3.1 Wildlife Habitat

Habitat loss is a direct effect of transportation improvements. Habitat is lost when an area previously providing wildlife habitat is converted to an area that does not provide food, cover, water, and/or breeding resources to wildlife. Habitat conversion is another direct effect of transportation projects, where an area providing habitat for one wildlife community may be altered so that it no longer provides resources to the original wildlife community. Wildlife mortality, as a result of collisions, is a direct effect of new location highways. Collisions between vehicles and large mammals, specifically moose and deer, are of particular concern in the region.

Exemplary natural communities are identified by the Natural Resources Information and Mapping Center (NRIMC) and contain ecologically sensitive communities with uncommon populations of plant diversity. Although Exemplary Natural Communities are a non-regulated resource, a database is maintained by the MNAP and used as an informational planning tool during project development and design.

In general, the loss of herbaceous upland vegetation may result in the loss of nesting habitat for grassland birds, the loss of feeding habitat for raptors and mammalian predators, the loss of year-round habitat for small mammals and reptiles, and the loss of wintering habitat for some northern birds. The loss of shrub habitat may

result in the loss of nesting habitat for birds, particularly warblers, and the loss of year-round habitat for small mammals and their predators. The loss of forest habitat, particularly in the Spruce-Northern Hardwoods forests, may result in the greatest impact to species diversity, since this habitat type supports a wide range of mammals and amphibians, and both year-round resident and neotropical migratory bird species.

Indirect effects of new highway construction may include fragmentation and associated “edge effects”, loss of genetic diversity, increased competition for resources, isolating habitats from each other, and physical or psychological restrictions on movements or migration by some feature within a corridor that wildlife are unwilling or unable to cross.

Fragmentation is defined as the subdivision of once large and continuous tracts of habitat into smaller patches. Fragmentation clearly has consequences on wildlife communities. In general, fragmentation of habitat is viewed as detrimental when considering species composition and abundance and relative ecological stability of animal populations, particularly for wildlife that require large areas of unfragmented forest habitat. Construction of new highways may also interrupt riparian (stream or river) corridors used by wildlife that provide important connections between wildlife populations. While there are few unfragmented forest habitats in the Presque Isle Bypass Reference Area, there are some larger, unfragmented forest blocks in the southern portion of the Reference Area, specifically west of Route 1 near the Arostook State Park.

New location highways create edges between forest and open land. Edge effects include a range of beneficial and detrimental ecological consequences that are associated with habitat diversity, the most common of which are increased predation and parasitism. Indirect effects, such as increased songbird nest parasitism from brown-headed cowbirds, can be expected where new roads cross through agricultural areas. Predation on small mammals, amphibians, and songbirds may also increase as opportunist predators such as crows and raccoons move into the edges adjacent to the new highway.

Because undeveloped forest makes up the majority of wildlife habitat in the area, the impacts presented in Table 4-3 (Page 4-11) for undeveloped forest (ranging from 19 to 21 acres of the 20,200 acres of forest in the Reference Area) gives a general sense of the magnitude of impacts to potential wildlife habitat. These numbers do not, however, give an indication of the value of that habitat.

The three FEIS alignment options pass through a mixture of urban, farm, and small patches of forest surrounded by farm fields. The southern termini of the Presque Isle Bypass Alignment Options are bounded on both the east and west by large areas of contiguous forest land. The three alignment options do not bisect large portions of forest land. Alignment Option 4B avoids most forested areas.

As seen on Figure 4-3, Alignment Options 6 and 7 traverse forest land associated with Clark Brook and its tributaries near the Westfield/Presque Isle town boundary and cross forest land associated with Williams Brook north of Cross Road. Alignment Options 6 and 7 also traverse forest land associated with tributaries to the Aroostook River north of Easton Road. The forest lands associated with streams are narrow strips of forest land surrounded by farm fields which may provide wildlife with connections to larger forested areas nearby. Impacts to these connections may be mitigated with a wildlife crossing (see Mitigation below). Overall, the north-south routes of the three alignment options avoid the majority of large tracts of forested land and therefore avoid impacts to wildlife habitat. The No-Action Alternative would not impact wildlife habitat.

Mitigation

Seasonal timing of construction to avoid critical breeding or migratory periods for wildlife may be used to minimize indirect effects on wildlife resources.

During the final design phase, MaineDOT would attempt to incorporate facilities for wildlife crossing where appropriate. The crossing would be designed as a combination between bridges and culverts and be in accordance with the 2008 *MaineDOT Waterway and Wildlife Crossing Policy and Design Guide for Aquatic Organisms, Wildlife Habitat, and Hydrologic Connectivity*.

4.4.3.2 Fisheries

Direct impacts to fisheries resources may result from construction that places fill material in streams and waterways that are intersected by the alignment options, which may cause the loss of habitat.

Fisheries may also be indirectly affected by transportation improvements by increased water runoff rates from paved surfaces. Increased runoff rates may result in higher rates of erosion, in turn, leading to decreased water quality through sedimentation and pollutant loading. Contaminants from highway runoff may also affect water quality, fish reproduction, or fish mortality, particularly in areas of heavy traffic.

Brook trout are the predominate sportfish in Aroostook County. The Aroostook River is particularly renowned for its wild trout fishing. Wild trout can be found in most coldwater waterbodies that have a gravel bottom in the Presque Isle Reference Area including Arnold Brook Lake, Echo Lake, Williams Brook, Kennedy Brook, Merritt Brook, Clark Brook, and potentially other lakes and streams throughout the Presque Isle Bypass Reference Area.

Alignment Option 4B would require a new roadway crossing of several streams with trout populations including Williams Brook, Kennedy Brook (south of Conant Road) and the Aroostook River. The Aroostook River also has a landlocked salmon

population in the Presque Isle Reference Area. Alignment Options 6 and 7 also require a new roadway crossing of streams with trout populations including Clark Brook, Williams Brook, Merritt Brook, and the Aroostook River. Trout within Arnold Brook Lake and Echo Lake would not be impacted by the alignment options because both waterbodies are west of the three alignment options (Figure 4-10).

The No-Action Alternative would not affect fisheries, although there would continue to be runoff from existing roads and farmed fields.

Mitigation

Impacts to fisheries resources would be avoided and minimized to the greatest extent practicable. Any unavoidable impacts to fisheries can be mitigated by providing unobstructed passageways between suitable aquatic habitats, implementing bottomless and natural bottom structures, and by enhancing existing habitat. Stream culverts or fish passage structures would be designed to maintain passage for fish. All culverts would be evaluated to determine requirements for fish passage and would be designed in accordance with the 2008 *MaineDOT Waterway and Wildlife Crossing Policy and Design Guide for Aquatic Organisms, Wildlife Habitat, and Hydrologic Connectivity*.

Implementation of bottomless and natural bottom structures, such as culverts and other fish passage structures, encourages their use by fish species. Structures that are not bottomless or made up of materials resembling the natural environment could potentially prevent the movement of fish.

Enhancing stream habitat is another potential mitigation for impacts to fisheries. Planting overhanging trees and shrubs adjacent to streams shades stream waters, thereby enhancing habitat for coldwater fish, such as brook trout. Overhanging shrubs also create a more natural riparian corridor along the stream, and ecological processes, such as cover and food production for fish, are improved.

Indirect impacts to fisheries can also be minimized by seasonal timing of construction to avoid critical spawning periods or periods of high flow in intermittent streams. Construction impacts to aquatic resources can be minimized by the appropriate use of BMPs. MaineDOT would coordinate with IF&W and the Maine DEP prior to construction to determine specific fisheries mitigation measures.

4.4.3.3 Significant Wildlife Habitat

As described in Section 3.4.3 (3-46), three state-regulated Significant Wildlife Habitat (SWH) types occur in the Presque Isle Bypass Reference Area: IWWH, Deer Wintering Areas (DWA), and significant vernal pools. Direct and indirect impacts to these wildlife resources are described below. Figure 4-13 shows the location of the three alignment options with respect to mapped IWWHs, DWAs, and significant vernal pools.

Impacts to SWH were determined by overlaying the Presque Isle Bypass Alignment Options onto mapped SWH. Impacts to SWHs along the three alignment options were based on a width of 300 feet. As shown in Figure 4-13, the only alignment option to impact any of the three SWHs is Alignment Option 6, which would impact approximately 0.7 acres of IWWHs along the western edge of the habitat area.

An inventory of all vernal pools was conducted in 2007 in accordance with the protocols developed by MaineDOT. One significant vernal pool was found within the Presque Isle Bypass Reference Area. This significant vernal pool would be avoided by all alignment options. Approximately 11 non-significant vernal pools were found within the Reference Area. Alignment Option 4B would impact one non-significant vernal pool, and Alignment Option 6 would impact three non-significant vernal pools (Figure 4-13). The Proposed Action (Alignment Option 7) would not directly affect any vernal pools but would be within 250 feet of three non-significant vernal pools at the southern end of the alignment. The 250-foot buffer zone around vernal pools is designated by Maine DEP as “critical terrestrial habitat”. MaineDOT would coordinate with IF&W before construction of the Proposed Action to verify that no impacts to significant vernal pools would occur. The No-Action Alternative would not impact SWH.

4.4.3.4 USACE Vernal Pool Critical Terrestrial Habitat

The New England District of the USACE protects an area within a 750-foot radius (an area of 40 acres) of a vernal pool. This area is defined as a Critical Terrestrial Habitat (CTH) of a vernal pool. As described above in Section 4.4.3.3, the MaineDEP also uses the term “critical terrestrial habitat” to define an area around a vernal pool, however the radius around a vernal pool in the MaineDEP definition of “critical terrestrial habitat” is 250 feet, rather than the 750-foot radius used by the USACE.

As noted above in Section 4.4.3.3, twelve vernal pools were surveyed within the Reference Area (Figure 4-13). No vernal pools would be directly affected by any Alignment Option. However, Alignment Options 4B would intersect the USACE CTH of two vernal pools, affecting 5 and 14 acres (of the 40 acre area) of each CTH, respectively. Alignment Option 6 would intersect the USACE CTH of four vernal pools, affecting between 5 and 10 acres of each CTH. The Proposed Action (Alignment Option 7) would intersect the USACE CTH of seven vernal pools affecting between one and 14 acres of each CTH. MaineDOT would coordinate with the USACE during permitting for the Proposed Action to avoid and minimize impact to vernal pools and their CTH. The No-Action Alternative would not impact the CTH of vernal pools.

4.4.3.5 Essential Fish Habitat

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) protects Essential Fish Habitat (EFH), as authorized under the 1996 Amendments to the Magnuson-Stevens Fishery Conservation and Management Act (50 CFR Part 600). Section 305(b)(2)-(4) of the Magnuson-Stevens Act (MSA) outlines a process for the NMFS to provide recommendations on projects during the NEPA review process. Federally funded State actions that may adversely affect EFH require consultation under the Magnuson-Stevens Act, and NOAA Fisheries Service must provide conservation recommendations if an adverse effect to EFH is anticipated.

In a letter dated August 28, 2012, the FHWA designated MaineDOT as the non-federal representative for EFH consultation for the Federal-Aid Highway Program in Maine (see Appendix B). The Bureau of Sea-Run Fisheries and Habitat, part of the Maine Department of Marine Resources (MDMR), has been authorized (by Maine statute) with protecting Atlantic salmon in the state of Maine.

The Aroostook River and its tributaries are considered EFH for Atlantic salmon because of its historical importance to Atlantic salmon populations. Further, the MDMR has actively managed Atlantic salmon in the Aroostook River. Atlantic salmon fry have been stocked in the Aroostook River upstream and downstream of Presque Isle. The Atlantic salmon EFH includes all coldwater streams (except Prestile Stream) within the Presque Isle Bypass Reference Area.

MaineDOT, in their role as designated non-federal representative for EFH consultation for the Federal-Aid Highway Program in Maine, contacted NOAA NMFS by mail on November 29, 2012 requesting an abbreviated EFH consultation for minimal effects to EFH, enclosing the required EFH worksheets for their review (Appendix B). NOAA, in their response letter dated December 14, 2012, provided the following EFH conservation recommendations, pursuant to Section 305(b)(4)(A) of the MSA:

- 1) To protect migrating juvenile and adult Atlantic salmon, all in water work generating turbidity and sedimentation should be conducted during low-flow conditions between July 15 and September 30 of any year. In-water work may be conducted at any time within coffer dams or similar silt-containment structures, provided these structures are installed and removed during the recommended work window.
- 2) All new and replaced culverts should be designed in a manner not to interfere with the passage of fish and other aquatic organisms. Structures should replicate natural stream channel, flow conditions, substrates, and channel grade. Perched culverts should be avoided.

In a letter December 17, 2012, MaineDOT provided responses to the NOAA NMFS'

EFH conservation recommendations by indicating that they will implement the recommendations for the Proposed Actions. The No-Action Alternative would not impact EFH.

4.4.4 Endangered, Threatened, and Species of Special Concern

Potential impacts to federally and state- listed endangered, threatened, and species of special concern are discussed in this section. Correspondence from state and federal agencies concerning endangered, threatened, and species of special concern is provided in Appendix B.

4.4.4.1 Federal Endangered and Threatened Species

As shown in Figure 3-12, Critical Habitat for the federally threatened Canada lynx (*Lynx canadensis*) is found in the Presque Isle Bypass Reference Area, along with the species itself. The Critical Habitat occurs in the Town of Westfield, west of Route 1.

In December 2008, FHWA, USFWS, and MaineDOT entered into a Programmatic Agreement regarding Endangered Species Act Section 7 Consultation for Canada lynx (Appendix B). Due to its location and scope, the Proposed Action qualifies as a Category II project. Category II projects are those projects that are 1) in the range of lynx in Maine but not in the proximity of lynx activity or habitat, or 2) are adjacent to suitable lynx habitat but due to the nature of development in the vicinity are unlikely to adversely affect lynx.

In accordance with the Programmatic Agreement, on November 11, 2012, MaineDOT submitted a Biological Assessment to USFWS initiating Section 7 consultation concerning the Canada lynx (Appendix B). In a letter dated December 11, 2012, USFWS concurred with MaineDOT's determination that the project is not likely to adversely affect the Canada lynx. Based on the information available to USFWS, no other federally listed species under their jurisdiction are known to exist in the project area. Accordingly, no further action is required under Section 7 of the ESA.

4.4.4.2 State Endangered and Threatened Species

Impacts to state-listed wildlife habitat were assessed by overlaying the 300-foot ROW footprint of the alignment options over GIS rare species location and habitat data received from IF&W. State-listed wildlife habitats are found within the Presque Isle Bypass Reference Area.

In June 2010, MaineDOT contacted the IF&W for updated information concerning potential project impacts on endangered and threatened species in the Presque Isle Bypass Reference Area. IF&W reported the presence of the Pygmy Snaketail Dragonfly (*Ophiogomphus howei*) habitat along the banks of the Aroostook River in

Presque Isle (Figure 4-13). The Pygmy Snaketail is a state-designated species of special concern.

Alignment Options 4B, 6, and 7 intersect the Pygmy Snaketail habitat but these habitat areas would likely be unaffected as they would be bridged over by the new bridge crossing of the Aroostook River. The abutments of the new bridge may be within Pygmy Snaketail habitat. During the final design process, MaineDOT would coordinate with IF&W to ensure that impact to Pygmy Snaketail habitat is minimized.

None of the three FEIS Alignment Options would impact any state endangered or threatened species. The No-Action Alternative would not impact any state endangered or threatened species.

4.5 Atmospheric Environment

This section discusses impacts to air quality and the noise environment from the Presque Isle Bypass. Unlike other resources, the air and noise analyses were done on a segment basis as opposed to an alignment option basis, so the results of the analysis do not differentiate among the Alignment Options.

4.5.1 Air Quality

The purpose of the air quality analysis is to assess whether construction of the Presque Isle Bypass could result in adverse regional or local air quality impacts. The ACTS Study Area is currently designated as attainment for ozone and carbon monoxide (CO) and maintenance for particulate matter (PM₁₀). Ozone is a pollutant of regional concern and is evaluated based upon the change in the precursor emissions of volatile organic compounds (VOCs), and nitrogen oxides (NOx). Carbon monoxide is of localized concern and is evaluated based upon CO concentrations at congested intersections. PM₁₀ refers to particulate matter with an aerodynamic diameter of 10 micrometers or smaller.

The air quality analysis includes a microscale analysis that evaluates CO concentrations at one of the most congested intersections in the Reference Area, the intersection of Route 1 (Main Street), Route 163 (Maysville Street), and the Parson Street Connector in Presque Isle. The air quality analysis did not include a regional analysis of emissions because the change in traffic data can be used as a surrogate to determine whether the Proposed Action has the potential to result in adverse regional air quality impacts. The Proposed Action would not result in a substantial change in traffic volumes or highway speeds as compared to existing conditions. Therefore, the Proposed Action is not expected to result in a substantial change in regional emissions.

4.5.1.1 Methodology

Future project-related emission calculations are based upon changes in traffic and emission factor data. The traffic data include traffic volumes, VMT, highway operations, and physical highway improvements. The emission factor data included emission reduction programs, years of analysis, and highway speeds. The following section reports the findings of the microscale and mesoscale analyses for the Proposed Action. The *SDEIS EVTR* provides additional information on the analysis methodology.

4.5.1.2 Local Impacts

The microscale analysis described in Section 3.5.1.2 (Page 3-58) was used to calculate 2035 No-Action Alternative and Proposed Action concentrations for CO and PM₁₀, and demonstrated that the future CO and PM₁₀ concentrations would be well below the National Ambient Air Quality Standards (NAAQS).

The worst case No-Action Alternative and Proposed Action CO concentrations were calculated for the intersection of Route 1 (Main Street), Route 163 (Maysville Street), and the Parsons Road Connector in Presque Isle. The highest No-Action Alternative CO concentration for the 1-hour analysis was calculated to be 5.90 parts per million (ppm) and for the 8-hour analysis was calculated to be 4.13 ppm. The highest Proposed Action CO concentrations for the 1-hour and 8-hour analyses were 5.80 ppm and 4.06 ppm, respectively. For the Presque Isle Bypass, in 2035, the rerouting of traffic from downtown Presque Isle would result in lower levels of CO concentrations for both the 1-hour and 8-hour analyses, as compared to the No-Action Alternative in 2035. The results of the microscale analysis (Table 4-15, Page 4-70) demonstrate that, under all future conditions, the predicted CO concentrations are substantially below the NAAQS of 35 ppm (1 hour) and 9 ppm (8-hour).

Table 4-15
Carbon Monoxide (CO) Microscale Results¹ (2035)

Carbon Monoxide (CO)	1-hour (ppm)²	8-hour (ppm)³
Existing Conditions	5.10	3.57
No-Action Alternative	5.90	4.13
FEIS Proposed Action	5.80	4.06

1 The concentrations are expressed in parts per million (ppm) and include a background concentration of 1.0 ppm for the 1-hour analysis and 0.7 ppm for the 8-hour analysis.

2 NAAQS = 35 ppm

3 NAAQS = 9 ppm

Note: CO concentrations were calculated for the intersection of Route 1, Route 163, and the Parsons Road Connector in Presque Isle.

Composite Corridors C1m and C2m both contain the Presque Isle Bypass. The Proposed Action PM₁₀ concentrations for these SDEIS corridors, and the No-Action Alternative, are presented in Table 4-16 (Page 4-71). All of these concentrations are substantially below the NAAQS of 150 micrograms per cubic meter (µg/m³) over 24 hours and 50 µg/m³ (annual). The EPA has not developed procedures for including PM₁₀ in transportation conformity. For purposes of this document, concentrations of PM₁₀ have been estimated from existing monitoring data for use in comparing future conditions.

The microscale analysis demonstrates that the study corridors would not result in violations of the CO and PM₁₀ standards in the Reference Area and that the Proposed Action complies with the 1990 Clean Air Act Amendments (CAAA).

**Table 4-16
 Particulate Matter (PM₁₀) Microscale Results¹**

Period	NAAQS	2005	2035		
		Existing Conditions	No-Action Alternative	Corridor C1m	Corridor C2m
24 – Hour	150	73	50	53	52
Annual	50	16	11	12	11

¹ Micrograms per cubic meter
 Note: PM₁₀ concentrations were calculated for the intersection of Route 1, Route 163, and the Parson Street Connector in Presque Isle.

4.5.1.3 Regional Impacts

The ACTS Study Area is in attainment for ozone. The mesoscale analysis demonstrates that the Proposed Action would not result in a substantial increase that could adversely affect this designation. The mesoscale analysis estimates the future ACTS Study Area VOCs, NO_x, and PM₁₀ emissions due to the changes in average daily traffic volume, highway characteristics, and vehicle emission rates for each SDEIS corridor and for the Presque Isle Bypass.

No-Action Alternative

For the No-Action Alternative in 2035, VOC emissions were estimated to be 1,201.7 kilograms per day (kg/day), NO_x emissions were estimated to be 988.3 kg/day, and PM₁₀ emissions were estimated to be 80.3 kg/day (Table 4-17, Page 73). In the future (2035) No-Action Alternative, VOC, NO_x, and PM₁₀ emissions are lower than the 2005 Existing Conditions emissions due to the implementation of emission control programs, such as the Federal Motor Vehicle Emission Control Program.

Presque Isle Bypass

The entire ACTS Study Area is in attainment for ozone. The mesoscale analysis demonstrates that none of the Presque Isle Bypass Alignment Options would result in a substantial increase that could adversely affect this designation. The mesoscale analysis estimates the future VOC, NO_x, and PM₁₀ emissions in the entire Reference Area due to the changes in average daily traffic volume, highway characteristics, and vehicle emission rates.

The following summarizes the mesoscale analysis for the Presque Isle Bypass and the results are presented in Table 4-17 (Page 4-73).

Under the 2035 Proposed Action condition for the Presque Isle Bypass (assuming no other corridor segments are constructed) VOC emissions were estimated to be 1,192.5 kg/day, NO_x emissions were estimated to be 992.6 kg/day, and PM₁₀ emissions were estimated to be 79.9 kg/day. This results in a decrease of 9.2 kg/day in VOC emissions, an increase of 4.4 kg/day in NO_x emissions, and a decrease of 0.4 kg/day in PM₁₀ from the 2035 No-Action Alternative. As each of Presque Isle Bypass alignment options evaluated would result in approximately the same amount of VMTs, a single alignment option (Alignment Option 2) was selected to serve as a typical representative of the air quality impacts that would result from any of the Presque Isle Bypass alignment options evaluated.

The air quality study demonstrates that the Presque Isle Bypass would comply with the CAAA. The mesoscale analysis demonstrates that the proposed bypass would result in slight increases of regional NO_x emissions, as compared to the No-Action Alternative.

The air quality study demonstrates that the Presque Isle Bypass conforms to the CAAA and the State Implementation Plan because:

- No new violation of the NAAQS would be created;
- No increase in the frequency or severity of any existing violations would occur; and
- No delay in attainment of any NAAQS would result.

Table 4-17
Mesoscale Analysis Results, Presque Isle Bypass¹

Pollutant	2005 Existing Conditions	2035	
		No-Action Alternative	Presque Isle Bypass ²
VOC	2,530.6	1,201.7	1,192.5
<i>Difference from No-Action Alternative</i>	---	---	-9.2
NOx	5,000.9	988.3	992.6
<i>Difference from No-Action Alternative</i>	---	---	+4.4
PM10	127.2	80.3	79.9
<i>Difference from No-Action Alternative</i>	---	---	-0.4

1 Kilograms Per Day

2 Alignment Option 2 was used as a typical representation for all of the Presque Isle Bypass Alignment Options

4.5.1.4 Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human sources, including on-road mobile sources, non-road mobile sources (*e.g.*, airplanes), area sources (*e.g.*, dry cleaners) and stationary sources (*e.g.*, factories or refineries).

Regulatory Background

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act (CAA). The MSATs are compounds emitted from highway vehicles and non-road equipment. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. (66 FR 17229, March 29, 2001). Between 2000 and 2020, FHWA estimates that, even with a 64 percent increase in VMT, these programs would reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and would reduce on-highway diesel PM emissions by 87 percent, as shown in Figure 4-14 (Page 4-74).

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that would address these issues and could make adjustments to the full 21 and the primary six MSATs.

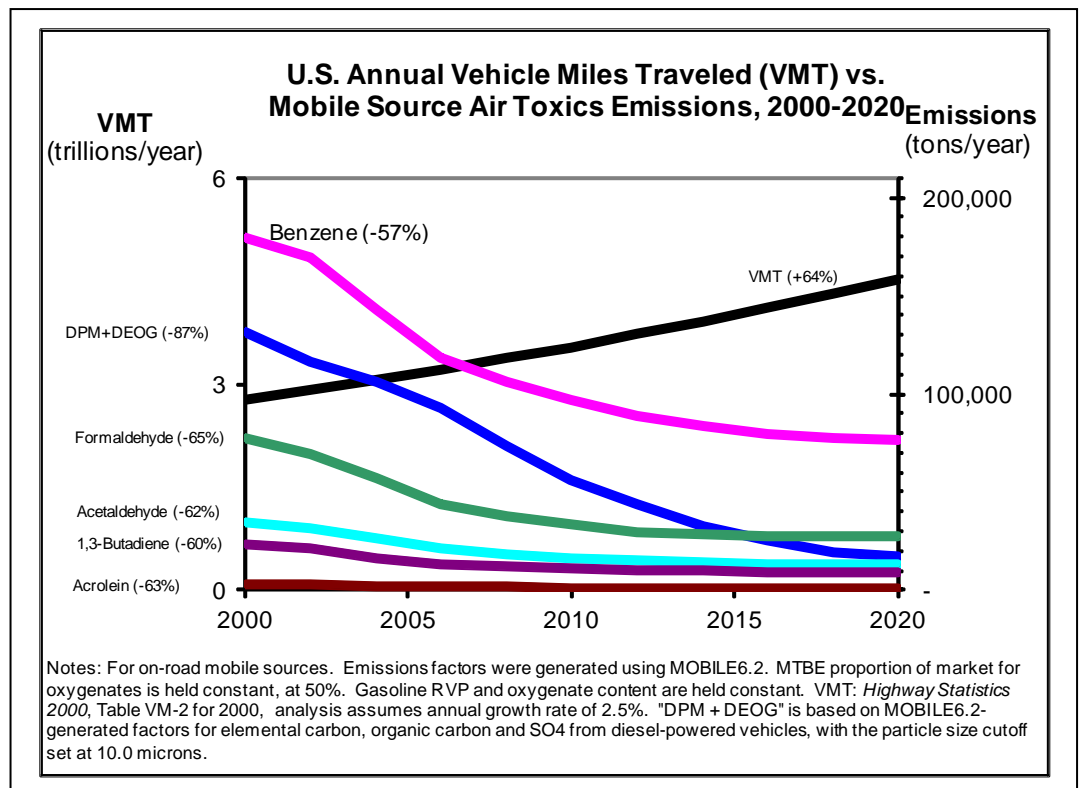
Reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, however it is possible to qualitatively assess the levels of future MSAT emissions. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The

qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*.²⁵

Impacts

The forecasted ADT for each of the Presque Isle Bypass Alignment Options in 2035 is approximately 15,000 vehicles per day. Using EPA’s MOBILE6.2 emissions model, FHWA has estimated that an AADT of 150,000 would be roughly equivalent to the Clean Air Act definition of a major Hazardous Air Pollutant (HAP) source, i.e. 25 tons per year (tpy) for all HAPs or 10 tpy for any single HAP. The AADTs for the Presque Isle Bypass Alignment Options are substantially below these levels. The VMT estimated for each of the alignment options is slightly higher than that for the No-Action Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the corridor, along with a corresponding decrease in MSAT emissions along the routes where equivalent VMT reductions would occur. Because the estimated VMT for each of the alignment options is nearly the same, there would be no appreciable difference in overall MSAT emissions among the alignment options.

Figure 4-14
Mobile Source Air Toxics Emissions



25 www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

4.5.2 Noise Environment

The MaineDOT and FHWA noise impact assessment procedures for Type I projects were used to evaluate existing and future highway noise levels and to determine potential noise impacts. A Type I project is a highway project that results in the construction of a new highway or the physical alteration of an existing highway that substantially changes either the horizontal or vertical alignment or increases the number of through travel lanes. The Presque Isle Bypass conforms to this definition.

The following summarizes the change in future sound levels for the Presque Isle Bypass, for the 2035 analysis year. Sound levels were predicted at a distance of 50 feet from the centerline of the highway and are compared to the FHWA and MaineDOT noise criteria. MaineDOT considers a receptor location to be impacted by noise when sound levels approach (within 1 dBA), are at, or exceed the Noise Abatement Criteria (NAC) for a particular land use, or when future sound levels exceed existing sound levels by 15 dBA or more (Table 4-18, Page 4-76). The NAC for Activity Category B (residential areas) is 67 dBA. MaineDOT considers a residential receptor location to be impacted by noise when sound levels equal to or exceed 66 dBA. Much of the remainder of the Presque Isle Bypass Reference Area would be considered Category C (picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, churches, libraries, and hospitals) for which the NAC is 67 dBA or Category D (interior areas of auditoriums, day care centers, libraries, parks, places of worship, public meeting room, schools) for which the NAC is 52 (interior). The remainder of the land within the Presque Isle Bypass Reference Area would be considered Category E (motel, hotels, offices, restaurants, and other developed lands) for which the NAC is 72 dBA or Category F (agricultural lands, airports, industrial, lodging, retail facilities, or utilities) for which there is no NAC. There are no Category A areas (areas of serenity and quiet).

**Table 4-18
 Noise Abatement Criteria (NAC) One-Hour, A-Weighted Sound Levels in
 Decibels (dBA)**

Activity Category	Leq(h) ¹	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes.
B ²	67 (Exterior)	Residential
C ²	67 (Exterior)	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios,
E ²	72 (Exterior)	motels, hotels, offices, restaurants/bars, and other developed lands, properties, or activities not included in activity category D or F.
F	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	Undeveloped lands that is not permitted for construction

¹ Leq(h) is a energy-averaged, one-hour, A-weighted sound level in decibels (dBA).

² Includes undeveloped lands permitted for this activity category.

Source: 23 CFR Part 772 - *Procedures for Abatement of Highway Traffic Noise and Construction Noise.*

4.5.2.1 Noise Modeling Methodology

The most common way to account for the time-varying nature of sound (duration) is through the equivalent sound level measurement, referred to as Leq. The Leq averages the background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time. The time period used for highway noise analysis is typically one hour. The peak hour Leq represents the noisiest hour of the day/night and usually occurs during peak periods of automobile and truck traffic. FHWA guidelines and criteria require use of the 1-hour Leq for assessing highway noise impacts on different land uses.

The following general relationships exist between hourly traffic noise levels and human perception:

- A 1- or 2-dBA increase/decrease is not perceptible to the average person;
- A 3-dBA increase/decrease is a doubling/halving of acoustic energy but is just barely perceptible to the human ear; and

- ▶ A 10-dBA increase/decrease is a tenfold increase/decrease in acoustic energy but is perceived as a doubling/halving in loudness to the average person.

The noise analysis was completed in accordance with MaineDOT's Highway Noise Traffic Policy²⁶. The analysis identified typical worst-case receptor locations and predicted existing and future sound levels. The existing and future sound levels were calculated using the FHWA's Traffic Noise Model (TNM). The modeling input data included peak hour traffic volumes, vehicle mix, free-flow vehicle speeds, and highway and receptor geometry. The sound level predictions were based on evening peak hour traffic, which was assumed to be the loudest hour of the day. The noise analysis calculated the change in sound levels that are anticipated, calculated sound levels for each receptor location, and compared the results to the MaineDOT's noise impact criteria. The noise analysis also calculated the distance from the centerline of each Alignment Option within which sound levels may exceed or equal the impact levels.

4.5.2.2 Impacts

Noise impacts are expected to occur when the future sound levels equal or exceed the residential NAC of 66 dBA or when the future sound levels equal or exceed the existing sound levels by 15 dBA.

The Proposed Action would result in sound level increases along the new alignment up to a distance of where the NAC of 66 dBA is exceeded or where a 15 dBA increase would occur. The distance to the 66 dBA noise contour, the residential noise impact criteria, was calculated to be 100 feet from the new highway alignment centerline.

The noise impact contour line representing a 15-decibel increase (60 dBA) was calculated to be 175 feet from the new highway alignment centerline. Since the 60 dBA contour line is located further from the new highway alignment centerline than the 66 dBA contour line, it was used to determine the number of impacted residences (Appendix E). For this FEIS, the noise analysis assumes that noise levels at all residences within this distance (175 feet from centerline) would exceed the MaineDOT and FHWA noise criteria.

As shown in Table 4-19 (Page 4-78), the number of affected residential receptors ranges from seven (Alignment Option 4B) to 16 (Alignment Option 6). For Alignment Option 4B the affected residential receptors would be at the southern end of the Bypass at Centerline Road (four impacted receptors)

²⁶ Highway Traffic Noise Policy, State of Maine Department of Transportation, July 18, 2011.

**Table 4-19
 Noise Receptor Impacts**

	Alignment Option 4B	Alignment Option 6	Alignment Option 7
Number of Residences Exceeding Noise Criteria ¹	7	16	8

¹ Based on a 15 dBA increase relative to existing sound levels.

4.5.2.3 Mitigation

The primary noise mitigation measures for highway noise are noise barriers. MaineDOT and FHWA have established guidelines to determine if a noise barrier is feasible and reasonable. The feasibility of noise abatement measures is based upon engineering and acoustic attributes. The engineering considerations include existing geometry, cross streets, driveways, safety issues, and other environmental impacts. While the goal of the noise abatement measures is to provide significant acoustic benefits of 10 dBA (or higher) of noise reduction at the first row of receptors, the measures must be able to provide a minimum of seven dBA of noise reduction to a majority (greater than 50 percent) of benefitted receptors.

The reasonableness of noise abatement measures is based upon their economic and social aspects. The costs of the noise abatement measures must be reasonable for the number of receptors receiving a benefit and the amount of noise reduction being achieved. The local community being affected must also support the implementation of a noise abatement measure.

MaineDOT has developed a Cost Effectiveness Index (CEI) to evaluate the cost effectiveness of a proposed noise barrier. The CEI is an index used to determine barriers' reasonableness based on cost. It is calculated based upon the cost per unit protected. All receivers within the study area attaining at least a 5-dBA reduction are considered benefitted. According to the MaineDOT *Highway Traffic Noise Policy*,²⁷ the overall cost of abatement shall be equal to or less than \$31,000 per benefitted receiver.

The noise analysis evaluated the impacted residential areas for the Proposed Action to determine if noise barriers were feasible and reasonable. The feasibility of a noise barrier was based upon whether or not a noise barrier could achieve a 7-dBA or greater noise reduction for the receptor location. If a noise barrier was found to be feasible, then the cost per benefitted receptor was calculated to determine if the noise barrier meets the MaineDOT criterion of \$31,000 per benefitted receptor. The costs of potential noise barriers were calculated assuming a 14-foot height, varying lengths, and 31 dollars per square foot. The estimate cost per linear foot is \$434.

²⁷ *Highway Traffic Noise Policy*, State of Maine Department of Transportation, July 18, 2011.

The height of the noise barriers can range depending upon specific roadway/receptor location geometry. A 14-foot height was assumed for the noise barriers because truck exhaust stacks are typically 12 feet in height and some additional height is needed to achieve the MaineDOT minimal noise barrier reduction criteria of 7 dBA. The lengths of the noise barriers were estimated based upon FHWA’s guidance,²⁸ which states that noise barriers should be extended beyond the last receptor location to be protected by 4 times the perpendicular distance from the receptor location to the barrier. For example, an individual receptor location that was approximately 100 feet from the barrier was assumed to have a minimum barrier length of 900 feet, 100 feet for the property and four times the perpendicular distance to the barrier on each direction, or 800 feet. For areas with multiple receptor locations, the distance between the receptor locations was measured and 800 feet was added to it.

The Presque Isle Bypass Alignment Options would result in noise impacts that exceed FHWA’s NAC (Table 4-20, Page 4-79). However, due to the low number of benefitted receptors (ranging from one to seven benefitted receptors per location), the noise barrier costs (ranging from \$162,750 to \$368,900 per benefitted receptor) exceed the MaineDOT criteria of \$31,000 per benefitted receptor (Table 4-20, Page 4-79). Therefore, noise barriers are not feasible and reasonable for the Presque Isle Bypass.

**Table 4-20
 Noise Receptor Mitigation Analysis**

Alignment Option	Location	Number of Impacted Receptors	Noise Barrier Recommended	Estimated Noise Barrier Length (ft)
Option 4B	Route 1 and Centerline Road	4	N ¹	2,000
	Presque Isle Bypass at Easton Road	2	N ¹	900
	Presque Isle Bypass at Reach Road	1	N ¹	800
Option 6	Route 1 at Presque Isle/Westfield City Line	2	N ¹	1,700
	Presque Isle Bypass at Fort Fairfield Road	4	N ¹	1,500
	Presque Isle Bypass at Higgins Road	3	N ¹	1,500
	Presque Isle Bypass at Parkhurst Rd	7	N ¹	3,000
Option 7	Route 1 at Presque Isle/Westfield City Line	2	N ¹	1,700
	Presque Isle Bypass at Conant Road	2	N ¹	1,700
	Presque Isle Bypass at Fort Fairfield Road	4	N ¹	1,500

¹ Noise Barriers were found not to be reasonable and feasible.

28 Highway Traffic Noise Analysis and Abatement Policy and Guidance, Page 25, dated July 2010

4.6 Construction Impacts and Mitigation

Construction impacts associated with a transportation project are those impacts that are temporary or short term, and that occur only during construction. This section provides an overview of construction impacts, compares the extent of impacts that potentially may occur with the Proposed Action, and outlines mitigation measures that would be employed to reduce short-term impacts.

4.6.1 Water Quality and Wetlands

Activities associated with construction may require grading and blasting of bedrock material in some areas. Construction would result in nearly complete reworking and/or removal of both surficial and subsoils along the proposed alignment. Exposure of previously vegetated soils could potentially lead to erosion and runoff into adjacent streams or other water bodies if not properly controlled.

Erosion and sedimentation control plans would be required from the contractor prior to commencement of work that would include ground disturbance. The Stormwater Pollution Prevention Plan (SWPPP) required by the National Pollutant Discharge Elimination System (NPDES) must identify potential source areas and describe what measures would be employed as erosion control, sedimentation control, temporary stormwater management measures, dust control, and winter stabilization measures. In sensitive areas, multiple erosion and sedimentation control BMPs must be used. These BMPs must include source erosion control in addition to sedimentation control. Erosion control plans must address in-water work at any stream crossing location.

4.6.2 Wildlife

Human presence during construction and the associated construction noise may temporarily displace some species of wildlife from the edge of the ROW. The noise associated with construction may also mask territorial vocalizations of bird species near the highway, interfering, at least temporarily, with breeding. Amphibians, which breed more commonly at dusk or at night, are less likely to be indirectly affected. Construction in forested areas may result in the mortality of amphibians, reptiles, and small mammals within the work zone, and the loss of nesting birds. The United States Migratory Bird Act prohibits active nests from being moved or destroyed during breeding season. To mitigate the movement and destruction of active nests, tree removal and clearing would be performed outside of the breeding season when possible. The use of sedimentation and erosion control, such as silt fencing, during construction may cause temporary fragmentation of wildlife habitats.

4.6.3 Air Quality

Air quality in the Reference Area would not be affected by construction due to the transitory nature of highway construction and the confined construction area. Emissions produced by the operation of construction machinery (NO_x, sulfur oxides, CO, and particulate matter) are short term. All diesel powered construction equipment would be required to comply with the Maine DEP Rules Diesel-Powered Motor Vehicle Emissions Standards.

Fugitive dust emissions are proportional to the amount of earth moved and the length of travel on unpaved roads. Mitigating fugitive dust emissions involves curbing or eliminating its generation. Mitigation measures that may be used in highway construction include wetting and stabilization to suppress dust generation, cleaning paved highways, and scheduling construction to minimize the amount and duration of exposed earth.

4.6.4 Noise Impacts

Noise impacts from construction activities are closely related to the phase of construction and the type and placement of construction equipment. Table 4-21 (Page 4-82) shows a variety of construction equipment that may be deployed at various stages of highway construction. Typical noise levels from this equipment are also shown.

Construction activities may result in a substantial, but temporary, noise impact to receptors at various locations adjacent to construction. Noise levels may vary depending on the type and number of pieces of equipment active at any one time. It is expected that noise levels exceeding 67 decibels could occur up to 500 feet away from construction activities. In general, construction noise would be temporary and restricted to daylight hours.

4.6.5 Traffic Management and Control

Construction of the Presque Isle Bypass may create the potential for increased construction truck traffic on secondary roads. Traffic delays and other types of congestion, especially in areas where construction crosses existing roads, are largely unavoidable but would be short term and localized in nature.

4.6.6 Utilities

Utilities within the Presque Isle Bypass area include overhead electric transmission/distribution lines and substations, underground water lines, natural gas pipelines, underground sanitary sewers, and aerial and buried telephone and television cable lines.

Construction of the Proposed Action may require relocating above-ground or subsurface utility lines within or adjacent to existing roadways and crossing under or over existing utilities along new highway alignment segments. During subsequent phases of the design, MaineDOT would coordinate with utility companies to investigate measures to avoid and minimize impacts to utilities and to utility customers.

**Table 4-21
 Typical Construction Equipment Noise Emissions**

Equipment Type	Noise Levels (dBA at 50 ft)
Earthmoving	
Front Loader	84
Backhoe	84
Bulldozer	88
Tractor	84
Scraper	90
Grader	83
Truck	90
Paver	84
Vibrator	76
Materials Handling	
Concrete Mixer	83
Crane	82
Derrick	88
Stationary	
Pump	71
Generator	81
Compressor	89
Impact Devices	
Pile Driver	91
Pavement Breaker	89
Pneumatic Tool	80

Source: *Highway Construction Noise: Environmental Assessment and Abatement, Volume IV: User's Manual*. Vanderbilt University, Nashville, TN. Report No. VTR-81-3, 1981.

4.7 Indirect and Cumulative Impacts

This section examines the potential indirect and cumulative impacts of the Proposed Action. The indirect and cumulative impacts related to Alignment Options 4B and 6 would be very similar to those of the Proposed Action (Alignment Option 7). Indirect impacts are defined as reasonably foreseeable consequences to the environment that are caused by a proposed action, but that would occur either in the future (later in

time) or in the vicinity of (not at the same location as) the direct impacts. The baseline for evaluating potential indirect impacts is the existing and reasonably foreseeable expected environment, which is described in the No-Action Alternative (Section 2.2.2.1, Page 2-16). Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.”²⁹

Section 4.7.1 (Page 4-83) presents a general discussion of indirect impacts and a specific analysis of the potential indirect effects associated with the Proposed Action.

Section 4.7.2 (Page 4-85) presents a detailed analysis of cumulative effects of the Proposed Action, including the methodology and assumptions used for the analysis. As described in the Council on Environmental Quality (CEQ) guidance³⁰ a three-step process was followed for cumulative impact assessment:

- Scoping
 - Identify significant cumulative effects issues;
 - Establish the geographic scope for the analysis;
 - Establish the time frame for the analysis; and
 - Identify other actions affecting resources, ecosystems, and human communities.
- Describing the Affected Environment
- Determining the Environmental Consequences

4.7.1 Indirect Impacts

Indirect impacts are likely to occur as a result of improved access to employment opportunities, improved mobility of goods and people, and changes in property values and land uses. Construction spending may result in broad, short-term economic benefits throughout the region. Highway improvements may improve access to employment opportunities, changes in property values and land use along existing highways, and improved mobility in the Presque Isle region. The Proposed Action may result in indirect impacts to land use, would have intersections with local roads, which could result in commercial or residential development in lands currently used for forestry or agriculture. Alignment Option 7 has an at-grade intersection with Route 1 (south and north). The Conant Road intersection would be at-grade or grade separated. The Route 163/167 intersection would be grade separated.

²⁹ 40 CFR Section 1508.7

³⁰ Council on Environmental Quality. January 1997. *Considering Cumulative Effects Under the National Environmental Policy Act*.

As described in Section 4.2.2 (Page 4-4), the Presque Isle Bypass would reduce travel times for through traffic on Route 1, allowing traffic between Route 1 and the St. John Valley to bypass downtown Presque Isle. This segment would divert approximately 24 to 32 percent of traffic from downtown Presque Isle. The new connector would be a controlled-access highway and would not create new road frontage for development.

As described in Section 4.3.3.3 (Page 4-21), the bypass of downtown Presque Isle could potentially result in economic and social impacts to Presque Isle as a result of the diversion of traffic from the existing street system. Such impacts could include the loss of business activity/sales revenue for certain businesses and/or possible diminution of property values. On the other hand, the reduction of traffic may enhance the “livability” of downtown Presque Isle, thereby enhancing the attractiveness and value of residential units and commercial properties that are not as dependent on through traffic.

Surveys of businesses were conducted as part of the DEIS (Page 4-58) and by RKG Associates in October 2007. Although some businesses were concerned about the impacts of removing through traffic from certain locations, the surveyed businesses indicated that the overall impacts would be offset by the improved regional mobility resulting from the Presque Isle Bypass. The RKG Report³¹ indicates that many businesses located in the downtown core of Presque Isle do not depend on drive-by business and are not concerned about a reduction in traffic through downtown Presque Isle. Businesses outside downtown Presque Isle are more dependent on drive-by traffic; however, these businesses are also more dependent on regional traffic. Nearly half of business activity in the city comes from residents throughout Aroostook County.

The Proposed Action (Alignment Option 7) has the potential to induce new commercial development, likely to consist of travel-related services, such as gas stations, convenience stores, or fast food outlets on Route 1 and adjacent roadways, at the north and south end of the Bypass and at the intersections of Alignment Option 7 with Route 167 (Fort Fairfield Road) or Conant Road. The land near Alignment Option 7 consists mainly of residential and agricultural uses, with the exception of the intersection with Route 167 which contains some commercial uses.

The potential indirect impacts to wetlands related to these induced new commercial developments are discussed in Section 4.4.2.3, Page 4-43.

The most likely area for new commercial development is the intersection of the Alignment Option 7 and Route 167 in Presque Isle. Land use in the immediate area of the new intersection is sparsely developed. Existing businesses on Route 167 in this

31 RKG Associates, Inc. November 2007. Presque Isle Bypass Economic Impact Study

area includes Smith Packing Corporation, an auto garage, an auto sales dealership, and a nursery/garden center. However, the largest concentration of commercial/retail development in Presque Isle (and likely the entire ACTS Study Area) is in the intersection area of Route 1 and Route 167, approximately 1.25 miles west of the proposed intersection of Alignment Option 7 and Route 167. There is a strong likelihood that new development would occur in the area between the existing commercial/retail developments on Route 167 and the proposed intersection. This may require a change in zoning.

Due to the fact that the Presque Isle Bypass is proposed as a limited access highway, indirect development is likely to occur on roads that intersect the Presque Isle Bypass, such as Route 167 and Conant Road. There are areas of undeveloped parcels located south of Route 167 on Conant Road that could be impacted by indirect development. State Road is also a road that may experience increased development, since it stems directly off of Route 167 and contains commercial land uses.

The extent of commercial development at this location is difficult to quantify and cannot be reasonably foreseen under current economic conditions. New development might represent a localized shift as existing downtown businesses that are highly dependent on through traffic move to the new location to take advantage of the change in traffic patterns, or new businesses might be started. In addition to local zoning, commercial development is also dependent on the availability of suitable land free of environmental and other development constraints and that is owned by parties willing to sell or develop their property.

Potential indirect development in the Presque Isle Bypass Study Area may include gas stations, convenient stores, fast-food outlets, and retail stores. The potential acreage of indirect developed was estimated through review of aerial photography and at key intersection locations. If the maximum foreseeable indirect development were to occur, the indirect impacts associated with the Proposed Action would include:

- Conversion of (at most) 16 acres of active agricultural land and 10 acres of undeveloped forest to developed land (parking lots and buildings); and
- Minor and localized increased runoff during precipitation events.

4.7.2 Cumulative Impacts

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.”³² Cumulative impacts need to be analyzed in terms of the

³² 40 Code of Federal Regulations Section 1508.7 Cumulative Impact.

specific resource or ecosystem being impacted. The list of environmental effects focuses on those impacts and affected resources that are meaningful. For this FEIS, the parameters of the cumulative impact study are:

- Impacts are assessed for the Presque Isle-Caribou area, including the towns of Mars Hill, Westfield, Easton, Mapleton, Washburn, Fort Fairfield, and Limestone.
- The time frame extends from the recent past (approximately 1950) to the foreseeable future (2035).
- Actions included in the analysis include:
 - Closing Loring Air Force Base (1994);
 - Redeveloping the Loring Commerce Centre (1990 to 2035);
 - Construction of a roadway connection between Route 1 and Route 161 in Caribou; and
 - Construction of a Route 1 bypass roadway east of downtown Presque Isle (proposed action).
- Actions also include planned or likely future developments or actions:
 - Expanding agricultural processing facilities; and
 - Expanding tourist-related activities.
- Resources of concern include:
 - Transportation;
 - Land Use;
 - Agriculture;
 - Cultural Resources;
 - Economic Impacts;
 - Forests;
 - Aquatic Resources;
 - Wetlands;
 - Wildlife (birds, mammals, reptiles and amphibians, and fisheries);
 - Endangered and Threatened Species; and
 - Air Quality and Noise.

The purpose of the analysis of cumulative impacts is to determine whether the Proposed Action (the Presque Isle Bypass), considered with other foreseeable impacts, would result in significant degradation of a resource, loss of biological diversity, or significant social or economic effects that would not result from the Proposed Action considered separately. The Proposed Action being considered in the FEIS is unlikely to result in cumulative impacts that would differ substantially from

the effects of past actions or other likely future actions and would not result in substantial damage to, or loss of, an environmental resource.

4.7.2.1 Methodology

EPA guidance³³ and CEQ guidance³⁴ establish methods for analyzing cumulative effects of a proposed action. The preparation of this analysis also relied on the FHWA's Interim Guidance memorandum.³⁵ These documents establish a process which includes identifying a study area, time frame, past actions and their effects, and reasonably foreseeable future actions and their effects.

Cumulative Impact Study Area

The Cumulative Impact Study Area identified for the analysis of cumulative impacts is defined as approximately 295,000 acres, consisting of the Presque Isle-Caribou area in the eastern portion of the ACTS Study Area. The majority of the population of the ACTS Study Area (39,115 people) lives in the Presque Isle-Caribou area. The Cumulative Impact Study Area is the most densely developed in the ACTS Study Area and includes the primary economic and business centers of the region, within a matrix of dispersed farms and residences. The smaller towns of Mars Hill, Westfield, Easton, Mapleton, Washburn, Fort Fairfield, and Limestone are included in the Study Area and provide community services, libraries, churches, gas stations, small grocery stores, and cafes. Presque Isle and Caribou are modestly-sized cities that serve as the shopping, business, and employment center for this region. These cities have dense population centers and provide a full range of community resources and services, including educational, medical, civic, recreational, and commercial businesses. Presque Isle, which contains the regional commercial airport, hospital, several hotels, and a regional mall, is the major business and tourist center for the outlying smaller communities and residents. Loring Commerce Centre, at the former Loring Air Force Base in Limestone, is viewed as the region's focus for industrial development.

Time Frame

The time frame for the analysis of past actions was identified by the chronology of events in the historic context of the Study Area that have had a major effect on population growth, land use, and environmental resources. Although there has been continuous development and land use change in the Presque Isle Bypass Study Area since the first European settlement, events that have shaped the existing environment and contributed to major changes in land use and the environment began in the early

33 United States Environmental Protection Agency, Office of Federal Activities. May 1999. *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*. EPA 315-R-99-002.

34 Council on Environmental Quality. January 1997. *Considering Cumulative Effects Under the National Environmental Policy Act*.

35 United States Department of Transportation, Federal Highway Administration. January 31, 2003. *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process*.

1950s. The time frame for this analysis extends forward to 2035 which is the end of the planning period for the ACTS.

Information Sources

Information used to evaluate past and future actions, trends, and impacts was obtained from a range of sources. The primary documents consulted for this analysis include:

- United States Geological Survey maps, 1951-1953 (obtained from the University of New Hampshire);
- The Cultural Resources documents prepared as part of the SDEIS and summarized in the *SDEIS EVTR*;
- The economic and environmental impact analyses prepared as part of the SDEIS (*SDEIS ECTR* and *SDEIS EVTR*);
- *City of Caribou Comprehensive Plan*, January 2004;
- *City of Presque Isle Comprehensive Plan*, 2007;
- *Woodland Comprehensive Plan*, March 1997;
- *Comprehensive Land Use Plan for Areas within the Jurisdiction of the LURC*, MDOC, 2010; and
- Information provided by City and Town Managers and the NMDC.

4.7.2.2 Past and Future Actions and Trends

Past and future actions within the Presque Isle Bypass Study Area in this time frame that have affected, or have the potential to affect the transportation environment, land use and economics, the physical and biological environment, and the atmospheric environment are listed in Table 4-22 (Page 4-89). The effects of these past actions are reflected in the existing environmental conditions within the Presque Isle Bypass Reference Area. Generally, these actions have resulted in increased vehicular traffic, the loss of undeveloped land, changes in farmed land, and increased air quality emissions. The effects of future actions are reflected in the No-Action Alternative.

**Table 4-22
 Past and Foreseeable Future Actions and Trends**

Action	Approximate Date	Location	Environmental Effects
Agricultural Industry Trend: From 1974 to 2007, number of farms in Aroostook County has decreased from 1,561 to 1,246; acres in cultivation has decreased from 448,090 to 375,568.	Ongoing	Cumulative Impact Study Area	Loss of employment, loss of population, and economic downturn for the region Loss of historic structures due to lack of maintenance
Forestry Industry	Ongoing	Cumulative Impact Study Area	Clear cutting resulting in decrease in forest land, forest fragmentation, and increase in early-successional community types
Commercial Development	Ongoing	Route 1 between Presque Isle and Presque Isle, south of Presque Isle Presque Isle Industrial Park Aroostook Valley Mall	Increased traffic congestion and air pollution emissions from vehicles Change in use of undeveloped land and agricultural land Increased stormwater runoff
Close Loring Air Force Base	1994	Limestone	Loss of employment, loss of population, and economic downturn for region Environmental benefits: improved air quality (decreased emissions of air pollutants from aircraft) and improved surface/groundwater quality through remediation of hazardous material discharge/disposal sites
Commercial Redevelopment, Loring Commerce Center	Ongoing	Limestone	Increased employment and increased tax revenues
Create Aroostook National Wildlife Refuge at former Loring AFB	2000	Limestone	Improved protection of wildlife habitat and improved protection of rare plant and animal species
Intermodal Transportation Center	2010	Presque Isle	Increased employment and increased tax revenues
Residential Subdivision Development	2005	Presque Isle	Change in use of undeveloped (some former agricultural) land
Commercial/Retail Development and redevelopment (including the Aroostook Centre Mall in Presque Isle)	Ongoing	Presque Isle Presque Isle Pine Tree District	Improved employment and increased tax revenues. In some locations previously developed areas would be beneficially redeveloped. In other areas, development may result in loss of undeveloped land, and an increase in stormwater runoff.
Transportation Projects in MaineDOT's 6-year plan	2010 - 2015	Various	Minor impacts to wetlands, and water quality during construction. Long-term benefits of maintaining existing infrastructure.

**Table 4-22
 Past and Foreseeable Future Actions and Trends (continued)**

Action	Approximate Date	Location	Environmental Effects
Caribou – Route 1-161 Connector – Segment 4 of the ACTS	2011/2012	Caribou	Minor loss of wetlands, farmed land, and structures Noise levels would decrease in some areas, and increase in others. Long-term benefit of improved transportation system, <i>i.e.</i> , reduced VHT, reduced VMT, elimination of functional conflicts in the city center, and improved regional mobility
Aroostook County Transportation Study (ACTS) – Complete north-south corridor:	Unknown - based upon funding availability	I-95 to Madawaska	Increase in population and employment, gross regional product (by \$45 million), and population. Loss of undeveloped land, agricultural land, historic resources, wetlands, and residences Increased runoff and contribution of highway runoff to waterways. Noise levels would decrease in some areas, and increase in others. Reduced highway congestion, reduced VHT, reduced VMT, elimination of functional conflicts in village centers, and improved regional mobility

4.7.2.3 Cumulative Environmental Effects

The analysis of cumulative effects takes into account, for each resource, the Proposed Action’s direct and indirect impacts, and cumulative impacts for that resource. This analysis is intended to determine if the Proposed Action, considered in context, would result in unacceptable significant adverse impacts.

Transportation

The Proposed Action would have a beneficial effect on the highway transportation environment. The Proposed Action would improve mobility to and around Presque Isle, provide better access to growth nodes in this community, enhance traffic flow by removing trucks from congested downtown areas, and improve safety. Specifically, the Proposed Action would save over 540 vehicle-hours of travel per day, reduce average daily traffic in downtown Presque Isle by 4,320 vehicles (31 percent), and reduce average daily truck traffic in downtown Presque Isle by 540 trucks (55 percent).

The effect of past and foreseeable future actions on the highway transportation environment would also be beneficial. Construction of Segment 4, The Route 1-161

Connector in Caribou would save over 310 vehicle-hours of travel per day, reduce average daily traffic in downtown Caribou by 3,060 vehicles (22 percent), and reduce average daily truck traffic in downtown Caribou by 280 trucks (23 percent). Construction of Segment 4, The Route 1-161 Connector and the Presque Isle Bypass would save a combined 850 vehicle-hours of travel per day. Additionally, construction of projects on MaineDOT's *Six-Year Plan* would provide long-term benefit to the existing infrastructure. MaineDOT's *Six-Year Transportation Improvement Plan (Six-Year Plan) for 2010-2015* lists the potential projects within MaineDOT's ongoing construction program planned for construction during that period. It includes both highway reconstruction and highway bridge maintenance projects, as listed on Table 2-2 (Page 2-17).

Land Use

The cumulative impact analysis includes approximately 295,000 acres of land. This area is dominated by farmed land and to a lesser extent undeveloped forest. Areas developed for residential, commercial, community, and government use are found mostly in the city centers of Presque Isle and Caribou and along the major roadway corridors of Route 1, Route 89, Route 161, Route 163, Route 167, and Route 10.

As discussed in the *SDEIS ECTR*, land use in the Presque Isle Bypass Study Area is not expected to change substantially in the No-Action Alternative, and there would be no substantial increase in demand for land. Existing and planned industrial parks, such as Loring Commerce Centre, Pine Tree Area in Presque Isle, and the Presque Isle Industrial Park, would fill out undeveloped space over the 25-year planning horizon.

The Proposed Action, in combination with construction of Segment 4, the Route 1-161 Connector in Caribou, would have a negligible effect on land use, resulting in minor losses of agricultural, commercial, residential, and undeveloped land (Table 4-23, Page 4-92). Considered together, the cumulative changes in land use as a direct effect of these actions would be minor with respect to the total amounts of lands in each category.

**Table 4-23
 Cumulative Impacts to Land (Acres)**

	Farmed land	Commercial	Community	Government	Residential	Undeveloped Forest	Total Land ³
Proposed Action ¹	218	55.1	0	0	55.3	21.0	461.1
Segment 4, Route 1-161 Connector, Caribou ²	66	33.3	0	1.1	11.2	75.2	230.1
Potential Indirect Development	16	0	0	0	0	10.0	26.0
Total	300	88.4	0	1.1	66.5	106.2	717.2

1 Based on Presque Isle Bypass, Alignment Option 7

2 Based on Segment 4, Alignment Option 4B

3 Individual columns do not add up to Total Land because of unreported land uses, such as existing roadways

The cumulative impact of past and foreseeable actions, without the construction of the Proposed Action, would be minor. Commercial, retail, and residential development would continue, although likely at a slower pace than would be anticipated with the Proposed Action. The effect of these developments would be minor losses of wetland, forest, and farmed land, likely in areas adjacent to existing roadways.

Farmed Land

Farmed land within the Cumulative Impact Study Area is one of the dominant land uses. Active farmed land (which includes regulated farmland soils as well as less valuable soils) varies year-by-year and depends on economic conditions.

Comparison of topographic maps (1951-1953) with 2011 aerial photographs for the Cumulative Impact Study Area shows that there has been virtually no change in the amount of land in agricultural use, or in the boundaries of forested land patches within or adjacent to farm land. While a given field may not be in production in all years, the overall amount and distribution of farmed land has not changed substantially as a result of past actions. According to the USDA Agriculture Census, actively farmed land in Aroostook County increased from 324,887 to 357,568 acres during this period, an increase of 10 percent. There are approximately 157,000 acres of agricultural land within the Cumulative Impact Study Area.

MaineDOT, in accordance with the FPPA, has completed the USDA NRCS' Farmland Conversion Impact Rating (NRCS Form AD 1006) for the Proposed Action. These Forms, evaluated by NRCS, indicate that, based on the value of the farmed land and the overall farm properties, evaluation of alternative sites, modifications, or mitigation, is not required.

Segment 7 (Presque Isle Bypass) and Segment 4 combined would result in a loss of approximately 284 acres of farmed land. This loss equals 0.18 percent of the approximately 157,000 acres of farmed land in the Cumulative Impact Study Area.

Future residential, commercial and retail development in the Presque Isle Bypass Study area would likely result in the loss of additional farmed land as farmed land is developed. However, the cumulative effect of these actions, combined with the Proposed Action would be negligible with respect to the total amounts of farmed land and would not affect agricultural production.

The cumulative impact of past and foreseeable actions, without the construction of the Proposed Action, would be minor. Commercial, retail, and residential development would continue, although likely at a slower pace than would be anticipated with the Proposed Action. The effect of these developments would be minor losses of farmed land, likely in areas adjacent to existing roadways.

Cultural Resources

No quantitative data are available to assess the cumulative effects of past actions on cultural resources (historic properties, archaeological resources, and traditional cultural properties) within the Cumulative Impact Study Area, as no formal survey of cultural resources was available. Research conducted for this FEIS to establish the historical context for cultural resources indicates that a substantial number of historic buildings in downtown Presque Isle, downtown Caribou, and in smaller towns and farmsteads dispersed throughout the Cumulative Impact Study Area have been lost over the past century and continue to be demolished today as a result of lack of maintenance, redevelopment, or changes in the tourist and agricultural industries. It is likely that archaeological and traditional cultural resources have also been altered or lost as a result of agriculture, road construction, or development, because of a lack of knowledge and absence of regulatory protection.

The study conducted for this FEIS focused on the areas proximate to the study corridors, and did not analyze the Cumulative Impact Study Area as a whole. For this limited area, the study found one property listed on the National Register of Historic Places, and identified 22 additional properties (including 86 structures) and 3 additional districts that were determined to be eligible for the National Register, for a total of 24 historic properties. The Proposed Action would not result in an adverse effect on any historic or archeological properties.

Future actions in the Cumulative Impact Study Area may affect historic and/or archeological properties; however, these impacts would likely be minor given the slow rate of development in the Cumulative Impact Study Area. Additionally, many of the National Register listed- or eligible-properties identified in the Presque Isle Bypass Study Area are in downtown Presque Isle. It is unlikely that historic buildings in downtown Presque Isle would be demolished for future development.

Economic and Social

The Proposed Action would have a beneficial effect on the economic and social resources of the Cumulative Impact Study Area, by increasing construction spending, increasing

employment, and improving mobility and access to jobs, as documented in Section 4.3 (Page 4-9) of this FEIS and in the *SDEIS ECTR*. The cumulative effect of the Proposed Action would have a beneficial economic effect broadly distributed throughout the Cumulative Impact Study Area.

The cumulative impact of past and foreseeable actions, without the construction of the Proposed Action, would be minor. Commercial, retail, and residential development would continue, although likely at a slower pace than would be anticipated with the Proposed Action which would have a beneficial effect on the Cumulative Impact Study Area through increased construction spending and employment.

Forests

Estimates of the total amount of forested land within the Cumulative Impact Study Area are based on land use mapping, which indicates that there are currently approximately 130,000 acres of forest in the Cumulative Impact Study Area. Comparison of topographic maps (1951-1953) with 2011 aerial photographs shows that there has been virtually no change in the amount of forest land, or in the boundaries of forested land patches within or adjacent to farm land. This land has been actively harvested for timber for 200 years, with the peak of forest cutting coinciding with the construction of the railroads in the mid- to late-1800s. As a result of this continuous cycle of forest harvest, forested areas are crossed by a large number of logging roads, and forests on both public and private lands are in various stages of succession following cutting. These activities have resulted in a mosaic of habitat types that support a wide range of bird and mammal species.

Segment 7 (Presque Isle Bypass) and Segment 4 construction would result in the loss of approximately 96.2 acres of forested land, largely in small strips intertwined with agricultural fields. This negligible loss (0.07 percent), in combination with potential indirect development in non-forested areas, would not affect the ability of forests in the Cumulative Impact Study Area to provide habitat for wildlife, nor would it affect the forest industry. Future residential, commercial, and retail development would likely result in the loss of additional forested areas. Given the slow rate of development in the Study Area, loss of forested areas due to development would reasonably be expected to be minor.

The cumulative effects of the Proposed Action and other future developments would not affect the ability of forests in the Study Area to provide habitat for wildlife, nor would it affect the forest industry.

Aquatic Resources

Aquatic resources within the Cumulative Impact Study Area include groundwater (which is the source for several public and all private water supplies) and surface water (lakes, ponds, rivers, and streams), some of which provide public water supplies. There

are numerous streams, lakes, and ponds within the Presque Isle Bypass Study Area, including the Aroostook River, Presque Isle Stream, Knights Brook, Prestile Stream, Kennedy Brook, Williams Brook, Birch Brook, Merritt Brook, Arnold Brook, and Lamson Brook. These aquatic resources have been altered in various ways since the time that Europeans settled this region. Streams have been filled and placed into culverts for road crossings; bridges have been constructed across rivers; wastewater from many cities and towns is discharged to the rivers; and agricultural runoff has discharged silt and nutrients, affecting river and stream channels and water quality in waterbodies and waterways.

The Presque Isle Bypass would involve the construction of a major new highway over the Aroostook River. However, construction of the Segment 7 (Presque Isle Bypass) and Segment 4 (the Route 1-161 Connector), designed and constructed with appropriate mitigation measures to protect water quality, would have minor effects to aquatic resources. They would avoid direct or indirect adverse impacts to lakes and ponds. The Presque Isle Bypass would require crossing 10 streams, and could potentially affect aquatic habitat and water quality within these streams, in the absence of mitigation measures. The Presque Isle Bypass would require constructing new highway segments within the Aroostook River watershed, designated as “at-risk”. This waterbody has been determined to be at risk of significant degradation and to be highly sensitive to the discharge of pollutants. Studies of the Aroostook River³⁶ have identified the primary pollutant of concern to be phosphorus from agricultural operations. Phosphorus is not a major constituent of highway runoff. With the mitigation measures identified in this FEIS and future design stages, the Presque Isle Bypass is not anticipated to contribute to further degradation of water quality.

The Presque Isle Bypass, in combination with the past and foreseeable future actions including the Route 1-161 Connector in Caribou, would require crossing a total of 11 streams and rivers (Table 4-24, Page 4-96). With the appropriate mitigation measures, these actions would not be anticipated to cumulatively result in significant adverse impacts to water resources.

³⁶ Maine Department of Environmental Protection, Bureau of Land and Water Quality. September 2004. *Aroostook River Modeling Report*.

**Table 4-24
 Cumulative Impacts to Perennial Streams (Number of New Crossings)**

		Perennial Streams
	Segment 7 (Proposed Action) ¹	10
	Segment 4 ²	1
1	Based on Segment 7, Alignment Option 7	
2	Based on Segment 4, Alignment Option 4B	

Wetlands

Wetlands within the Cumulative Impact Study Area have undoubtedly been lost since European settlement in the region, particularly along the major rivers. Agricultural regions have lost wetlands that were historically drained to create cropland or filled to construct railroads and roads. Because of the low density of development within the Study Area, it is likely that the loss of wetlands historically has been less than in other portions of Maine. Comparison of the 1951-1953 topographic maps with 2011 aerial photographs and wetland mapping indicates that there has been almost no loss of wetlands over the last 50 years.

The Proposed Action, in conjunction with the Route 1-161 Connector in Caribou would result in the loss of approximately 25.4 acres of wetlands (0.07 percent of the Cumulative Impact Study Area total), as shown in Table 4-25 (Page 4-97). This analysis presumes that the very limited potential indirect development that could potentially result from the Presque Isle Bypass would be constructed in upland areas and would not create additional wetland loss. This cumulative wetland loss (over approximately 13.7 miles of new highway and 1.0 mile of upgraded highway) is minor.

Endangered and Threatened Species

The Proposed Action would not have any effect on any federal or state-listed endangered or threatened species and therefore would not, in combination with past and reasonably foreseeable future actions, have a cumulative adverse effect on these species.

**Table 4-25
 Cumulative Wetland Impacts (Acres)**

	Wetland Type			Total Impact
	Marsh	Forested	Shrub	
Segment 4 ¹	2.2	1.2	0.0	3.4
Segment 7 ²	1.1	18.0	2.9	22.0
Total	3.3	19.2	2.9	25.4
Total Within Cumulative Impact Study Area	1,744	23,442	4,435	34,210 ³
Percent of Study Area Wetlands Impacted by Proposed Action	0.19	0.08	0.06	0.07

1 Based on Segment 4, Alignment Option 4B

2 Based on Segment 7, Alignment Option 7

3 Wetlands types do not add up to the Total Impact due to unreported wetland types

Air Quality

The Proposed Action would be in compliance with the NAAQS. It would not result in any exceedances of air quality standards and would not affect the attainment status of the Cumulative Impact Study Area. The Proposed Action, in combination with other future developments in the Project Area, would result in slight increases of regional VOCs, NO_x, and PM₁₀ emissions as compared to past and future actions. However, these minor increases would not affect the attainment status of the Study Area and would not result in violations of the CO and PM₁₀ standards.

Noise

No quantitative data are available to assess the cumulative effects of past actions on the noise environment within the Cumulative Impact Study Area. Noise generators have existed within the Study Area for over a century and include airports, railroads, trucks and other vehicles on roads, agricultural equipment, forest clearing equipment, mills, sawmills, and other processing plants. Noise experienced by residents in any particular area depends on the type of surrounding development and proximity to a road, railroad, or airport. Noise levels have changed over the study time frame as the type and level of operations at Loring Air Force Base and the Northern Maine Regional Airport in Presque Isle Airport have changed (as either more active, or in the case of Loring Air Force Base, less active); as railroad operations have ceased in many locations; and as highway truck traffic has increased. The noise levels predicted at any location along the Presque Isle Bypass for the future (2035) year reflect this history of noise change, as well as the noise levels anticipated to result from foreseeable future actions.

Noise levels would increase in areas near the Presque Isle Bypass and the Route 1-161 Connector in Caribou, but would decrease in downtown Presque Isle and Caribou and some Sections of Route 1 as vehicular and truck traffic is removed. The Proposed Action would result in adverse noise impacts³⁷ at 8 residences along the Presque Isle Bypass corridor.

The Proposed Action would similarly increase noise levels where there are residential areas adjacent to new highway corridor segments, and would decrease noise levels along some existing highway segments where traffic levels would decrease.

4.7.3 Summary of Cumulative Impacts

A summary of cumulative impacts for the Proposed Action is presented in Table 4-26 (Page 4-99). Cumulative impacts of past actions have resulted in loss of undeveloped lands, loss of farmed lands, loss of wetland resources, loss of wildlife habitat, and relocation of residences and businesses due to highway improvements. There has been a positive effect on the economy due to increases in employment, and tax revenues.

Foreseeable future actions are expected to cause a loss of undeveloped land, loss of farmed land, minor loss of wetland resources, and loss of wildlife habitat. Future actions would cause positive economic effects due to increases in employment, tax revenues and mobility.

The cumulative impacts of the overall ACTS were addressed in the Tier 1 FEIS and are not addressed in this document because the overall ACTS is not “reasonably foreseeable” in that no corridor has been selected and no construction time frame or funding has been identified.

The cumulative impacts from the Proposed Action would result in minor losses of developed and undeveloped land, loss of 218 acres of farmed land, loss of forest land, loss of wetland resources, and loss of wildlife habitat. The Proposed Action would improve mobility, reduce vehicle travel times and congestion, and improve safety. It would also have a positive effect on economic and social resources of the Cumulative Impact Study Area by increasing construction spending, employment, and improving mobility and access to jobs. The Proposed Action would not result in adverse effects to cultural resources.

³⁷ MaineDOT defines adverse noise impacts as future sound levels equal or exceed the residential NAC of 66 dBA or when the future sound levels equal or exceed the existing sound levels by 15 dBA.

**Table 4-26
 Summary of Cumulative Impacts**

Resource	Effects of Past Actions	Potential Effects of Future Actions	Effects of Proposed Action
Land Use	Change in use of undeveloped land; beneficial re-use of developed properties; and relocations of residences and businesses for highway improvements.	Change in use of undeveloped land; beneficial re-use of developed properties.	Minor losses of developed and undeveloped land. Relocation of 13 residences, two commercial business, two industrial business, and 4 agricultural buildings
Farmed land	Change in use of farmed land.	Change in use of farmed land.	Change in use of 218 acres of farmed land, with additional losses of designated agricultural soils.
Social	Unknown.	Unknown.	Likely to improve neighborhood cohesion through diversion of truck traffic. Would reduce conflicts between local and through traffic. Would improve pedestrian safety.
Economic	Positive economic effects due to increases in employment, tax revenues; minor adverse effects due to loss of land (due to right of way takings) from tax rolls. The loss of Loring AFB resulted in negative economic impacts.	Positive economic effects due to increases in employment, tax revenues and mobility.	Proposed Action would provide local and regional economic benefits. Positive economic effect from reduced travel times for trucking industry. Minor negative economic effects due to reductions in tax revenues. Potential negative effect to businesses due to loss of drive by business. This loss unlikely due to downtown business mix.
Groundwater	Increased demand on groundwater resources.	Increased demand on groundwater resources.	No effect on groundwater resources. Roadway construction would incorporate appropriate mitigation measures to protect groundwater quality.
Wetlands	Losses of wetland resources, generally not mitigated by the construction of compensatory wetlands.	Minor losses of wetland resources, likely to be mitigated with resulting “no net loss” of wetland functions.	Losses of wetland resources. As prudent and feasible, wetland losses would be mitigated to strive for no anticipated loss of wetland functions within the Study Area watershed.
Wildlife	Losses of wildlife habitat.	Losses of wildlife habitat.	Losses of wildlife habitat.
Rare species	Unknown.	Unlikely to affect rare species, threatened or endangered species.	Would not affect rare species.
Air quality	Unlikely to affect air quality.	Unlikely to affect air quality.	Would not affect air quality.

4.8 Summary of Study Commitments

This section summarizes the Study Commitments for the Proposed Action. Following completion of NEPA compliance, and when funding is available, preliminary and final design of the Proposed Action would be undertaken. Design alternatives to avoid and minimize impacts would be developed, and specific mitigation measures would be developed during final design for unavoidable impacts, consistent with these commitments.

4.8.1 Farmed Lands

During future design stages, impacts to farmed land would be mitigated by avoiding the bisection of farms, where possible. Mitigation measures for indirect impacts of highways on active farms may include minimizing loss of property access and decreasing highway-related water pollution. Where feasible, construction would provide access to farm fields over or under the highway. Improvements to highway stormwater runoff quality may also reduce indirect impacts to agricultural production.

4.8.2 Cultural Resources (Historical and Archaeological)

MaineDOT determined that the Proposed Action (Alignment Option 7) would not require the use of any Section 106/Section 4(f) properties, meaning no historic properties affected. Further, MaineDOT also determined that no known archeological resources would be affected by the Proposed Action. MHPC, in a memorandum dated September 26, 2011 (Appendix B), concurred with MaineDOT's determination.

If it is determined during final design and permitting that historical properties or archeological resources would be affected, MaineDOT would consult with FHWA, SHPO, and MHPC to determine a course of action and possible mitigation measures for potential harm. These mitigation measures may include the replacement of removed features, vegetative screening, and intensive documentation of buildings and properties for above-ground historical resources.

4.8.3 Public Parks, Recreation Areas, Wildlife Refuges, Trails, and Publicly-Used Facilities

The Proposed Action would not affect any public parks, recreation areas, wildlife refuges, trails, or publicly-used facilities. This alignment option would cross several ITS snowmobile trails on private properties which are not Section 4(f) properties. MaineDOT would work with the City of Presque Isle and local snowmobile clubs to relocate trail crossings on private lands, ensuring adequate sight distances, trail continuity, and highway safety.

4.8.4 Surface and Groundwater Quality

Construction of the Proposed Action would include measures to collect and store stormwater to minimize changes to the peak runoff rate. Stormwater collection systems would be designed to reduce the potential for erosion, and provide treatment by including BMPs, such as vegetated swales and sedimentation basins. This project would be designed in compliance with MaineDOT's *Best Management Practices for Erosion and Sedimentation Control Manual* (the BMP manual).

MaineDOT would ensure that the BMP Manual is followed for construction of the Proposed Action, including that appropriate erosion and sediment control Best Management Practices (BMPs) are used and that stormwater pollution prevention plans are implemented. For areas where it is required under the MOA, MaineDOT would also design ditches, culverts, and outlet areas to be stable and to minimize any increase in peak flow from the project.³⁸ In any instances in which a peak flow increase would result, MaineDOT would implement measures to avoid adverse impacts to off-site property as a result of drainage increases. BMPs may include minimizing impervious surface within recharge areas and avoiding surface water intakes and wellheads.

Specifically, MassDOT is required to adhere to Chapter 500 of the General Standards for a linear project. The stormwater system would be designed to treat for water quality 75 percent of the impervious area and 50 percent of the overall developed area. To meet the General Standards, the stormwater Management system must include treatment measures that would mitigate for the proposed frequency and duration of channel erosive flows due to runoff from smaller storms, provide effective treatment of pollutants in stormwater, and mitigate potential temperature impacts.

Erosion and sedimentation control plans are required for work that would include ground disturbance. Plans must identify potential source areas and describe what measures would be employed as erosion control, sedimentation control, temporary stormwater management measures, dust control, and winter stabilization measures. In sensitive areas, multiple BMPs must be used and must include source erosion control in addition to sedimentation control. Erosion control plans must address in-water work at any stream crossing location.

4.8.5 Aquatic Habitats

Potential mitigation measures include minimization of impact at perennial or intermittent stream crossings. These minimization measures may include:

- Using a bridge or open bottom culvert, rather than a closed box culvert, to maintain channel substrate, flow, and bank characteristics; and
- Using retaining walls rather than fill slopes to minimize impact areas.

Additional mitigation measures may also include bank and channel restoration to provide naturally vegetated banks and increase channel habitat. These measures would also provide stabilization to reduce erosion and sedimentation. Crossing

³⁸ In accordance with the Stormwater MOA, MaineDOT would calculate peak flow from the project site if 1) the project combines two or more subwatershed areas, and 2) includes 20,000 square feet of more of new impervious surface or five acres or more of disturbed area in the direct watershed of a waterbody most at risk from new development, or one acre or more of new impervious area or five acres or more of disturbed area elsewhere.

structures would be designed to minimize impact in accordance with MaineDOT's 2008 *Fish Passage Policy and Design Guide*.

The design and construction of the Proposed Action in the vicinity of stream crossings would include measures to reduce indirect water quality impacts from highway runoff. Highway design would include measures to reduce alteration to stream hydrology and BMPs to treat stormwater runoff water quality and control flow velocities. Construction would include measures described in the MaineDOT BMP Manual for sensitive waterbodies, which includes the use of source control measures to reduce erosion, in addition to sedimentation control to keep sediment out of waterbodies. Greater levels of protection, and consequently more stringent mitigation measures to reduce direct and indirect impacts on aquatic habitats, water quality, and water temperatures, may be undertaken at specific locations that affect sensitive or salmon rivers, such as the Aroostook River.

4.8.6 Wetlands

Direct wetland impacts would require appropriate mitigation. Mitigation would be developed in accordance with the requirements of the USACE rules for compensatory wetland mitigation (33 CFR Parts 325 and 332, 10 April 2008) and the New England District's Compensatory Mitigation Guidance (July 20, 2010). This guidance gives precedence for wetland banking and in lieu fee programs when available in the project service area. When these programs are unavailable permittee responsible mitigation is used with an emphasis on a watershed approach to selecting compensatory mitigation measures and locations. Four types of compensatory mitigation are recognized:

- Restoring previously existing wetlands or other aquatic sites (this should be considered the first option);
- Enhancing an existing aquatic site's functions and values;
- Creating a new wetland or aquatic site; or
- Preserving land that serves to protect aquatic resources by providing a buffer or corridor between aquatic resources.

In setting mitigation requirements for Section 404 permits, USACE considers watershed needs, mix of habitat types, and compatibility with adjacent land use. The USACE New England District has published guidance on mitigation ratios³⁹ that generally requires 2:1 or 3:1 compensation for restoration, 2:1, 3:1, or 4:1 compensation for creation, 3:1, 5:1, or 10:1 compensation for enhancement and 15:1 compensation for preservation. These ratios vary depending of the type of affected wetland. These ratios are greater than Maine DEP's ratios, which require 1:1 compensation for impacts to wetlands that are not of special significance, 2:1 for wetlands of special significance, and 8:1 for preservation.

³⁹ USACE New England District Compensatory Mitigation Guidance. July 20, 2010.

Based on this guidance, the Proposed Action would require (Table 4-13, Page 4-54) some combination of 44 to 62 acres of wetland restoration (\$5.0 to \$7.0 million), 64.9 to 86.9 acres of wetland creation (\$7.0 to \$9.0 million), 102 to 220 acres of wetland enhancement (\$6.0 to \$8.0 million), or 330 acres of wetland preservation (\$3.0 to \$3.5 million). Cost estimates provided by MaineDOT. The required wetland compensation package would be determined through coordination between MaineDOT, the USACE, and Maine DEP.

The DEP in lieu fee program and four potential mitigation sites were identified based on aerial photographs, topographic mapping, and soils maps. They range from 40 acres to 1,712 acres in size and are adjacent to existing wetland systems. A site known as the Haynes Parcel which is 4 miles east of Kingman Township, Maine in Penobscot County has been selected as the preferred mitigation site (as preservation) for the Presque Isle Bypass. The Haynes Parcel has been purchased by MaineDOT for preservation.

The proposed mitigation site would provide a sufficient mitigation area designed to replace the functions and values that would be primarily affected by construction of the Proposed Action. The mitigation areas would be permanently protected from future impact by conservation restriction or by transfer of ownership to an appropriate land conservation agency.

4.8.7 Wildlife and Fisheries

Mitigation measures for impacts to wildlife and fisheries would include a variety of structural measures intended to minimize wildlife mortality and mitigate for fragmentation effects of a new highway facility, as well as measures to protect water quality and habitat quality. Protection of water quality would include measures to improve the quality of stormwater runoff as described in the MaineDOT's *Best Management Practices for Erosion and Sedimentation Control Manual*.

Constructing wildlife crossings can mitigate impacts to wildlife and fisheries from highways. Wildlife crossing structures would be incorporated into the design of the new highway. Seasonal timing of construction to avoid critical breeding or migratory periods for wildlife would also minimize indirect effects.

The Proposed Action requires a new crossing of 10 perennial or intermittent streams. Impacts to fisheries resources would be mitigated by providing unobstructed passageways between suitable aquatic habitats and enhancing existing habitat. New crossings (a bridge or open bottom culvert) would be designed in accordance with MaineDOT's 2008 *Fish Passage Policy and Design Guide*. As with wildlife resources, indirect impacts to fisheries can also be minimized by seasonal timing of construction to avoid critical spawning periods. Construction impacts to aquatic resources would be minimized by the appropriate use of BMPs.

4.8.8 Air Quality

Adverse effects to air quality would only occur during construction. Air quality may be affected during construction by fugitive dust emissions, which are proportional to the amount of earth moved and the length of travel on unpaved roads. Any impacts from fugitive dust particles would be of short duration and localized. Mitigating fugitive dust emissions involves curbing or eliminating its generation. Mitigation measures that may be used in highway construction include wetting and stabilization to suppress dust generation, cleaning paved highways, and scheduling construction to minimize the amount and duration of exposed earth.

4.8.9 Noise

The analysis conducted for this FEIS demonstrates (Section 4.5.2, Page 4-75) that noise barriers are feasible but not reasonable because they would exceed MaineDOT's cost criteria.

Construction activities may result in a substantial, but temporary, noise impact to receptors at various locations adjacent to the proposed construction areas. Noise levels may vary depending on the type and number of pieces of equipment active at any one time. It is expected that noise levels exceeding 67 decibels could occur up to 500 feet away from construction activities. However, the vast majority of the construction would occur outside of populated areas, well beyond this 500-foot threshold.

4.8.10 Utilities

Construction may require relocating above-ground or subsurface utility lines within or adjacent to existing highways, and crossing under or over existing utilities along new highway alignments. During subsequent phases of the study, coordination with the utility companies would be undertaken to evaluate measures to avoid and minimize impacts to utilities and to utility customers.

4.9 Summary of Impacts

This FEIS provides an analysis of the potential impacts associated with the construction of the Proposed Action. Various resource categories were evaluated within the physical and biological environment. Impacts to the transportation, cultural resources, and the social and economic environments were also evaluated.

MaineDOT, based on an evaluation of the transportation benefit analysis and the environmental impact analysis, identified Alignment Option 7 as the Proposed Action.

Of the alignment options evaluated, the Proposed Action offers the best balance of improving transportation mobility while limiting, to the extent possible, impacts to natural and social environmental resources (Tables 4-27 and 4-28, Page 4-107). The Proposed Action results in the least amount of impact to many key environmental resources, including farmed land, vernal pools, cultural resources, and Section 4(f) resources. The Proposed Action would also not result in substantial impacts to air quality, noise, rare species habitat, significant wildlife habitat, fisheries (including Essential Fish Habitat), and floodplains. There would be no adverse cumulative impacts and all unavoidable impacts to natural and social environmental resources would be properly mitigated.

While Alignment Options 4B and 6 would impact less wetland, they do so at the expense of farmland and structures (some of which are historic structures protected under Section 4(f)). The Secretary of Transportation cannot approve a project that requires the use of a Section 4(f) property if other feasible and prudent alternatives exist that do not require the use of Section 4(f) properties.

As determined in Chapter 2, the Proposed Action 7 would satisfy the Purpose and Need of the project, the USACE basic project purpose, and overall, results in the least amount of impact.

4.10 Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity

The need for transportation improvements in Presque Isle is based on the state and local comprehensive planning (specifically, the Aroostook County Transportation Study) that identified the need for enhanced travel mobility within northwestern Aroostook County that will support regional economic growth. The Proposed Action will result in short and long-term impacts, short-term construction-related nuisance impacts (noise, dust, traffic) and temporary disturbance of traffic and soils. As part of the mitigation plan for these impacts, construction techniques that help to minimize short-term impacts will be specified in construction contracts.

Long-term transportation benefits of the proposed Presque Isle Bypass include improved transportation mobility by reducing travel times in the Presque Isle area, separating local traffic from through traffic within downtown Presque Isle, reducing speed differentials among roadway users, and safety improvements at high crash locations. Long-term economic benefits of the Presque Isle Bypass include enhancing the marketability of area businesses, and improving conditions for pedestrians in downtown Presque Isle. The Proposed Action will be compatible with enhanced economic growth in the region.

4.11 Any Irreversible and Irrecoverable Commitment of Resources Which Would be Involved in the Proposed Action

Implementation of the Proposed Action involves a commitment of a range of natural, physical, human and fiscal resources. The land area required for the Proposed Action will be irreversibly committed. Impacts to natural and cultural resources, including wetlands, farmland, and public and private structures, is an irreversible commitment. Once the roadway is built it is expected to remain in service in perpetuity.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material will be expended. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources. Any construction will also require a substantial one-time expenditure of both State and Federal funds, which are not retrievable. The expenditure of construction funds, however, is anticipated to result in short-term economic benefits to the Study Area.

The commitment of these resources is based on the concept that residents of Presque Isle, Aroostook County and the State of Maine will benefit by the improved quality of the transportation system. These benefits will consist of enhanced mobility and safety, savings in time, and greater availability of transportation services which are anticipated to outweigh the commitment of these resources.

Table 4-27
Summary of Transportation Benefits vs. No-Action Alternative (2035)

	Truck VHT	Total VHT	Total VMT	Travel Time	Mobility	Downtown PI Truck ADT	Downtown PI Total ADT
No-Action Alternative				15 min.	39%	990 trucks	13,840 vehicles
<i>Change vs. No-Action Alternative:</i>							
Alignment Option 4B	-50 vehicle-hours	-310 vehicle-hours	-770 vehicle-miles	-4.1 min.	45% (+6 %)	-420 trucks (-42%)	-3,330 vehicles (-24%)
Alignment Option 6	-80 vehicle-hours	-560 vehicle-hours	-2,090 vehicle-miles	-5.4 min.	46% (+7 %)	-550 trucks (-55%)	-4,390 vehicles (-32%)
Alignment Option 7	-80 vehicle-hours	-540 vehicle-hours	-1,320 vehicle-miles	-5.3 min.	46% (+7 %)	-540 trucks (-55%)	-4,320 vehicles (-31%)

VHT – Vehicle-hours traveled

VMT – Vehicle-miles traveled

Travel Time - travel time for through trips on Route 1 between points north and south of Presque Isle

Mobility is the percent of daily traffic through the Segment 7 Study Area that travels on freeways and principal arterial roads.

ADT – Average daily traffic

Note: Shaded area denote the optimal value for each measure. Entries in bold and italics denote the worst value for each measure

Table 4-28
Comparison of Physical Features and Key Environmental Impacts

Alignment Option	Cost (2012 Cost Estimate)	Length of New Highway (mi)	Length of Upgraded Highway (mi)	Aquatic Resources					Other Environmental Resources			
				Wetland Impacts ¹ (ac)	Number of Stream Crossings ¹	Significant Vernal Pools Affected	Within USACE Critical Habitat of Non-Significant Vernal Pools	Inland Waterfowl and Wading Bird Habitat (acres)	Farmland Impacts ² (acres)	Structures Impacted ²	Historic Properties Affected ²	Section 4(f) Parcels Affected ^{2,3}
Alignment Option 4B	\$120.0M	8.3	2.0	18.2	8	0	2	0	264	12 (10 Residential)	2	2
Alignment Option 6	\$130.0M	9.7	0.5	13.8	10	0	4	0.7	289	18 (15 Residential)	4	4
Alignment Option 7	\$132.0M	9.8	0.4	22.0	10	0	7	0	218	27 (19 Residential) ⁴	0	0

¹ Based on width of a two-lane highway.

² Based on the full 300-foot ROW Width.

³ Includes Historic Property Impacts

⁴ One residential property is also used as commercial

This Page Intentionally Left Blank

5

Response to Comments

5.1 Introduction

A Supplemental Draft Environmental Impact Statement (SDEIS) for the Aroostook County Transportation Study (ACTS), which was the DEIS for the Tier 2, Presque Isle Bypass, was released for public review in June 2006. Over 400 people attended the SDEIS public hearings which were held in Frenchville, Caribou, and Houlton in August 2006.

FHWA received 40 comment letters regarding the SDEIS. These comment letters include Federal agency comments submitted by the U.S. Environmental Protection Agency (EPA). One state elected official provided comments. State agency comments were submitted by the State Historic Preservation Officer. Local and regional comments were submitted by officials of Caribou, Presque Isle, and the County of Aroostook.

Community organizations and businesses that submitted comments on the SDEIS included the Aroostook Municipal Association, the Aroostook Partnership for Progress, Leaders Encouraging Aroostook Development (LEAD), Loring Commerce Center, Maine Public Service Company, the Northern Maine Development Commission, the Presque Isle Snowmobile Club, and Sleeper's Store of Caribou.

The Tier I/Tier II FEIS for the ACTS and the Caribou, Route 1-161 Connector Project, respectively, was released in December 2009. FHWA received three letters regarding the Tier I FEIS. Federal agency comments were submitted by the U.S. Environmental Protection Agency (EPA). State agency comments were submitted by the Maine Department of Inland Fisheries and Wildlife. One letter was received from Caribou Management Company (concerning a retail property in Caribou). All comment letters are found in Appendix C

Responses to substantive comments related to the ACTS Tier I FEIS or the Caribou, Route 1-161 Connector Project Tier II FEIS were provided in the Records of Decision (ROD) for these documents. This chapter of the FEIS summarizes the substantive comments on the SDEIS/FEIS specific to Segment 7 and provides responses to these comments in accordance with the requirements of the National Environmental Policy Act (NEPA). No comments specific to Segment 7 were received in response to the ACTS Tier I FEIS. There are no other outstanding comments that have not been addressed in either the ROD for the ACTS Tier I FEIS, the Caribou, Route 1-161 Connector Project Tier II FEIS or this Presque Isle Bypass Tier II FEIS.

The following sections provide summaries of the comments received on the SDEIS. The comments are separated into six general categories: purpose and need, alternatives, aquatic resources, socio-economic resources, utilities, and other issues.

All accompanying figures are bound separately in Volume 2 of this FEIS, with the exception of Figures 2-6 and 4-14 which are embedded within the Volume 1 text.

5.2 Purpose and Need

Comments were received on the SDEIS concerning the purpose and need of Segment 7, the Presque Isle Bypass. One comment letter from a concerned citizen stated that the traffic problem in Presque Isle is a result of east-west truck traffic and a north-south bypass would do little to address the problem. The same comment letter claimed that the new bridge over the Aroostook River would do nothing in the short-term and little in the long-term to address the truck traffic problem.

Another comment asserted that the bypass would remove traffic from one busy area and relocate it to another area, east of downtown Presque Isle, causing safety, air quality, and noise to be negatively affected in this area. Similarly, a comment was made about the neighborhood east of downtown Presque Isle and that the bypass would have detrimental effects on development in that neighborhood.

A comment from the U.S. Environmental Protection Agency (EPA) stated that community objectives, such as the city's vision for downtown Presque Isle, can not have a bearing over the basic project purpose. A separate comment was made by a resident in relation to property takings. The commenter felt that the property takings are not justified in relation to the net benefits of the project.

***Responses:** The purpose and need for the Proposed Action is described in Chapter 1, Section 1.2, on Page 1-4. The purpose of the ACTS is to evaluate transportation alternatives that would improve the region's economy by improving transportation mobility. As described in Chapter 2, Section 2.1.1 on Page 2-1, the Presque Isle Bypass would partially satisfy the purpose and need in the following ways:*

- *Improve mobility by reducing travel times for through trips on Route 1 between points north and south of Presque Isle for present and future traffic;*
- *Improve public safety in Presque Isle by reducing vehicular conflicts caused by an undesirable mix of local/through traffic and car/truck traffic;*
- *Reduce unsafe speed differentials along Route 1 in Presque Isle;*
- *Improve safety at five High Crash Locations (HCL); and*
- *Provide better access to the east side of Presque Isle, particularly the Easton Industrial Area.*

The Presque Isle Bypass would improve east-west traffic by allowing motorists traveling from west to east to take Route 163 to the Presque Isle Bypass until Conant Road. This route would shift demand from roads with low functional classification to roads with a higher functional classification, leading to lower crash occurrences and allowing for higher speeds. Removing the Aroostook River crossing from the Presque Isle Bypass and using the existing Route 1 Bridge would substantially lower the anticipated travel time reductions, causing the bypass to not meet the purpose and need.

Impacts to air and noise due to the bypass are addressed in Chapter 4 in Section 4.5 (Page 4-69). In general, the Presque Isle Bypass would remove some traffic from downtown Presque Isle and relocate it east of the city, but not all traffic. The Presque Isle Bypass would be a roadway with a high functional classification, which would minimize the traffic backups, crashes, and other negative impacts associated with higher traffic volumes.

The Presque Isle Bypass would fulfill the basic project purpose and the purpose and need by removing traffic from downtown Presque Isle. Improving safety and providing a more efficient alternative for trucks and through traffic would achieve the community objectives. Impacts to properties and other resources were reduced as much as possible through an extensive alternatives analysis and coordination with Presque Isle city officials and members of the public. During final design, MaineDOT would continue to refine the alignment and its right of way to further minimize impacts to natural, social, and economic environments and to coordinate with those affected.

5.3 Alternatives

Comments were submitted relating to the Presque Isle Bypass Alignment Options. A few of the comments received discussed using the existing bridge that crosses the Aroostook River instead of spending money to build a new bridge near the existing bridge.

Suggestions on further analysis of additional alignment options for Segment 7 were made in a few comment letters. Suggestions included moving the new route west of downtown Presque Isle to avoid large farmland impacts and maintain access to the downtown area and the Presque Isle Airport. The EPA suggested considering

upgrading existing roadways as well as expanding the analysis to look for less environmentally damaging options, including a shorter bypass. The EPA suggested that MaineDOT consult with planners trained in smart design to develop solutions to the impact of Route 1 on downtown Presque Isle.

Additional comments recommended that Transportation System Management (TSM) and Transportation Demand Management (TDM) measures be considered, as well as rail options. One commenter wrote that the bypass would result in longer travel time for many residents to the center of Presque Isle., potentially lowering the resale value of property.

***Responses:** The alternatives analysis conducted for the Proposed Action is described in Chapter 2 of this FEIS. After extensive coordination with federal and state environmental agencies and a thorough and extensive alternatives analysis, which considered federally regulated environmental resources and transportation benefits to the region, Alignment Option 7 has been identified as the Preferred Alternative. The City of Presque Isle has also identified Alignment Option 7 as their Preferred Alternative.*

As described above, a new alignment which uses the existing Route 1 Bridge would lead to longer travel times and therefore would not meet the purpose and need. Upgrading Route 1 was dismissed as discussed in Chapter 2, Section 2.2.1.9 on Page 2-13. The Route 1 Upgrade would also not meet the purpose and need as the alternative must address safety and mobility. This would be achieved by shifting traffic to limited-access roadways with a higher functional classification. Route 1 in downtown Presque Isle cannot handle higher speeds due to adjacent land uses. Alignment Options 4A and 4B were developed to respond the EPA's request for a shorter bypass, however after careful evaluation these were not identified as the Preferred Alternative.

MaineDOT would continue to consider TSM and TDM measures in combination with the Preferred Alternative to benefit the transportation system in Presque Isle. Given the widely dispersed origins and destinations of truck and passenger car traffic, developing freight and passenger rail system for the ACTS Study Area would not be practicable. No local roadways would be closed due to the Presque Isle Bypass and therefore, travel times to downtown Presque Isle should remain the same or improve due to decreased traffic volumes.

5.4 Aquatic Resources

Many comments regarding the aquatic resources in relation to Segment 7 were submitted. The EPA submitted a comment letter which commented on aquatic resources in Segment 7, among other things.

A number of the EPA comments were related to water quality. One comment requested that the FEIS explain what level of stormwater protection would be required and that BMPs for Segment 7 be constructed consistent with the Maine Stormwater Management Law, Maine Site Law, and Maine Drinking Water Program

Source Water Assessment. The EPA also suggested that a plan for in-stream sampling prior to and following highway construction be included to demonstrate effectiveness of the constructed BMPs. One comment requested that the FEIS describe the extent of impervious area, developed areas, and the potential for hydrologic changes and increased pollution in Segment 7.

Additionally, EPA suggested that baseline water quality conditions, a list of public drinking water sources, and a list of impaired water bodies in the area be provided. The EPA also requested that MaineDOT coordinate with Maine DEP's Sand and Salt Coordinator regarding the placement of sand and salt piles. EPA also requested that the FEIS address the potential for impacts to water quality from road salt and how the project would comply with Maine water quality criteria for chlorine and sodium.

The EPA also made many comments on aquatic resources. The EPA suggested that a vernal pool study be done for Segment 7 and included in the FEIS. On the topic of wetland mitigation, the EPA suggested that MaineDOT focus on wetland function when considering wetland mitigation areas; that all specific wetland impact information be available before proposing wetland mitigation ratios; and that invasive species control be included in the wetland mitigation plan.

Comments on aquatic resources were also made by concerned citizens. One comment stated that although not an EPA-designated sole source aquifer, the sand and gravel aquifer surrounding the Aroostook River is a highly productive public water supply. Two comments were made on the proximity of the new bridge crossing the Aroostook River to the public drinking water wells and expressed concern over potential impacts to the wells. Another comment submitted addressed the lower Aroostook River, which is described as an "outstanding river segment" and is afforded special protection under Article 5-A. The comment questioned whether it is accurate to say that no reasonable alternative exists which would have fewer adverse effects on the natural and recreational features of the river segment.

***Responses:** Aquatic resources and wetlands in the Segment 4 Study Area are described in Chapter 3, Section 3.4.2, Page 3-38 of this FEIS. Information regarding the water quality of surface and groundwater resources in the Study Area including Maine Department of Environmental Protection Bureau of Land and Water Quality 303(d) listed impaired water bodies has been included. The 2010 Integrated Water Quality Monitoring and Assessment Report was used to gather this information instead of the United Watershed Assessment.*

The Presque Isle Bypass would cross the Aroostook River in Presque Isle, as well as other smaller waterways. MaineDOT is not planning on conducting instream sampling for pollutants but would implement stormwater BMPs consistent with the MaineDOT's Best Management Practices for Erosion and Sedimentation Control Manual. MaineDOT would ensure its management and storage of winter maintenance materials are done in accordance with Maine DEP regulations detailed in Chapter 574 – Siting and Operation of Road Salt and Sand-Salt Storage Areas.

A vernal pool study was conducted in 2007 for Segment 7. Vernal pools are shown on Figure 3-12.

As discussed in Chapter 4, Section 4.4.2.3, Page 4-43 of this FEIS, four potential wetland mitigation areas have been identified. Mitigation Site 4, the Haynes Parcel, in Drew Plantation was selected by MaineDOT as the wetland mitigation area for the Caribou – Route 1/161 Connector Project. The Haynes Parcel has been identified by MaineDOT as the preferred mitigation area for the Presque Isle Bypass. MaineDOT completed the purchase of this 1,751 acre Mattawamkeag parcel on February 9, 2012 as a mitigation bank. This area would provide the similar functions and values as the wetlands impacted by Alignment Option 7.

The river crossing along the Presque Isle Bypass would avoid impacts to the well locations. An alternative to constructing a new bridge over the Aroostook River that meets the purpose and need does not exist. Removing the Aroostook River crossing from the Presque Isle Bypass and using the existing Route 1 Bridge would substantially lower the anticipated travel time reductions, causing the bypass to not meet the purpose and need.

5.5 Social and Economic Environment

Comment letters referring to socio-economic issues relating to Segment 7 were submitted. The EPA made a few comments relating to socio-economic issues. The EPA suggested that an effort be made to determine the effect a bypass would have on downtown Presque Isle by finding similar transportation projects and observing the effect on the community. The EPA requested a better assessment of secondary impacts which considered not only current zoning, but secondary impacts with potential changes to current zoning. The EPA also suggested a discussion in the FEIS of how the economy of Aroostook County would be improved with Segment 7 alone.

Four comments were related to property takings. The comments requested that an accurate count of impacted homes be conducted and that communication with land owners of affected homes be conducted. Also related to property takings, one comment suggested that emotional and financial cost be considered when taking a property. Two comments noted that impacts to historic structures, which are not listed on the National Register of Historic Places, but still important to the historic culture of Presque Isle (such as a farmstead which has been in the family for five generations or an old rail station which has been converted into a home) were not adequately considered.

Two comments were made on more general socio-economic issues. One commenter believed that it was not acceptable to dismiss measuring the cost of environmental and social impacts as too difficult, as was done in the SDEIS. Another comment was concerned about the bypass cutting off access to a local farm in Presque Isle and the economic implications of this loss in access.

Responses: MaineDOT has assessed the impact the Presque Isle Bypass would have on the economy of Presque Isle. Section 4.3.3.3 of Chapter 4 on Page 4-21 discusses the potential for new developments both under current and future zoning along the Presque Isle Bypass. Presque Isle is the economic hub of Aroostook County. Improvements to the transportation system in Presque Isle would be beneficial to the economy of Aroostook County.

Under state and federal law, owners of property are entitled to fair and just compensation for the value of their property, as well as financial assistance with relocation. MaineDOT would communicate with property owners who would be affected by the Proposed Action.

As described in Chapter 3, Section 3.3.6 on Page 3-29, numerous surveys in Presque Isle were conducted through the Maine Historic Preservation Commission to collect information on historic structures. Only properties listed or eligible for listing on the National Register of Historic Places are protected under Section 106 of the National Historic Preservation Act.

Impacts to the Social and Economic Environments can be found in Chapter 4, Section 4.3.3 Page 4-17. MaineDOT would work with farm owners to assure that access to fields is maintained and, if necessary, new accommodations would be made (if feasible and practicable).

5.6 Utilities

Comments relating to utilities were submitted in reference to Segment 7. Comments from Maine Public Service (MPS) were received on the SDEIS. MPS suggested that they be included in future economic analysis and planning to help minimize costs. MPS was also concerned that a four-lane raised highway would lead to a major effort to relocate power lines.

Additionally, comments from a concerned citizen were related to impacts to utilities during construction. One comment inquired who would assume the cost relating to construction blasting on local wells and foundations and who would pay for driveway relocation that may be needed due to the bypass. Another comment related to work schedule and asked if construction would continue during the winter. Similarly, the commentor asked if electrical service would be interrupted during construction and how long it is anticipated to be interrupted.

Responses: MaineDOT would coordinate with MPS regarding impacts to utilities including distribution lines, transmission lines, and private right-of-way. The Presque Isle Bypass would be constructed as a two-lane highway on a four-lane right-of-way footprint and a major utility relocation effort is not anticipated at this time.

MaineDOT would bear the cost of driveway relocations as well as any right-of-way impacts.

No blasting is anticipated for the Segment 7 Proposed Action. Therefore, no impacts on wells and foundations are anticipated.

MaineDOT would decide at a later date if construction work would continue during the winter months.

MaineDOT would not be responsible for relocating electrical and phone service, however, utilities are expected to remain in service during construction.

5.7 Other Issues

Additional comments were submitted which do not fall into the categories listed above. One comment requested that the technical support documents from the carbon monoxide (CO) air quality analysis be made available to the public. Another commenter stated that MaineDOT is unable to complete current maintenance projects on existing roadways and asked how a new roadway would impact future budgets.

One commenter suggested that the FEIS include a discussion on wildlife crossings and to include crossings for farm equipment in the design of the Presque Isle Bypass. A comment related to high crash locations (HCL) was received which requested that a definition of a HCL and an explanation on how they are determined be provided.

Responses: Members of the public interested in viewing the technical support documents for the air quality analysis may contact MaineDOT (www.vhb.com/aroostook/default.asp).

MaineDOT would continue to fund projects listed on their six-year plan.

Public input has been an important element of this project.

Wildlife crossings are discussed in the mitigation section of Section 4.4.3 on Page 4-62 on Chapter 4.

Crossings for farm equipment would be discussed with farm owners during final design.

An HCL is defined as a location with eight or more crashes in a three year period. HCLs are discussed in Chapter 3, Section 3.2.3 on Page 3-5.

6

Coordination and Consultation

How to Read This Chapter: Federal National Environmental Policy Act (NEPA) regulations require that the lead federal agency solicit the views of other state and federal agencies during the preparation of an Environmental Impact Statement (EIS), and provide early and continuing opportunities for the public to be involved in the identification of social, economic, and environmental impacts. This chapter summarizes the Aroostook County Transportation Study (ACTS) coordination with regulatory and other governmental agencies, and citizen involvement following publication of the Supplemental Draft Environmental Impact Statement (SDEIS) in June 2006. Chapter 7 (Page 7-1) in the SDEIS provides a summary of previous consultation and coordination.

6.1 Federal, State, and Local Agency Consultation

The Federal Highway Administration (FHWA) and MaineDOT have solicited the input of other state and federal agencies through interagency meetings and correspondence.

The Study Team coordinated with federal and state agencies during the preparation of this FEIS to obtain information on environmental conditions, review potential impacts, and obtain agency input. These agencies included the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Maine Department of Inland Fisheries and Wildlife (IF&W), Maine Department of Environmental Protection (Maine DEP), Land Use Regulation Commission (LURC), Maine Historic Preservation Commission (MHPC), the Maine State Planning Office (SPO), and the Maine Natural Areas Program (MNAP).

The Study Team also presented information on the progress of the ACTS in general and the Presque Isle Bypass in particular at eight Interagency Coordination Meetings held on the following dates:

- April 11, 2006
- August 8, 2006
- March 13, 2007
- April 10, 2007
- June 27, 2007
- December 4, 2009
- February 9, 2010
- October 11, 2011

A two-day interagency wetland mitigation field visit was held on November 1 and November 2, 2006. These field visits were attended by representatives of the USFWS, USACE, EPA, Maine DEP, and FHWA. FHWA and MaineDOT also met several times with MHPC to discuss potential impacts to historic properties as part of the Section 106 coordination process.

During several interagency meetings in 2007, EPA expressed concern that the alignment options being evaluated would result in substantial impact to aquatic resources. The agency requested that additional alignment options be developed that were shorter in length or used existing roadways such as Route 1 through downtown Presque Isle or Centerline Road in Presque Isle. MaineDOT developed and evaluated several additional alignment options in response to these EPA requests.

The Preferred Alternative for the Presque Isle Bypass would require a Section 404 Permit under the Clean Water Act from the USACE. Therefore, subsequent to the SDEIS, MaineDOT initiated the Section 404 Highway Methodology Process (Highway Methodology) with the USACE. The Highway Methodology is the process that the New England Division of the USACE uses to coordinate the Section 404 review process with the NEPA process.

In order to coordinate the USACE's Section 404 permitting process with the NEPA process, MaineDOT obtained a Basic Project Purpose and submitted to the USACE a Phase I Avoidance Technical Memorandum (June 2007) and a Phase II Permit Application (June 2008) in accordance with the Highway Methodology requirements.¹ An informal public meeting was held on December 8, 2008 in Presque Isle to discuss the Phase II Permit Application. Representatives from MaineDOT, USACE, and FHWA attended this meeting.

¹ USACE New England Division. October 1993. *The Highway Methodology Workbook. Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process.*

6.2 Public Involvement

The ACTS has included an early and continuous public involvement program that has involved the citizens of the Study Area and sought their input on study objectives, impacts, and corridor evaluation. Citizen involvement has included a Public Advisory Committee (PAC), public informational workshops, meetings, a newsletter, articles in the Northern Maine Development Commission quarterly newsletter, and a study web site (see Section 6-5, Page 6-4).

The SDEIS (Section 7.2, Page 7-2) summarized the public meetings and public involvement process prior to publication of the SDEIS.

The PAC is a 20-member group convened to represent all areas of the ACTS Study Area, the Maliseet and Micmac Tribal Nations, and economic interests within the Study Area. Members were nominated by their communities, and selected by the Commissioner of MaineDOT to provide broad multidisciplinary representation throughout the Study Area. The PAC met on two occasions after the publication of the SDEIS on the following dates:

- August 1, 2006
- October 2, 2007

6.3 Coordination with Local Communities and Organizations

The Study Team has coordinated with the local communities and local organizations throughout the study to obtain information on existing conditions as well as transportation and economic needs, and to obtain input on the corridor screening process. Meetings were held at various times with the:

- Aroostook County Commissioners;
- Congressional and Senate Delegations;
- City of Presque Isle;
- Aroostook Band of Micmac Indians;
- Houlton Band of Maliseet Indians;
- Leaders Encouraging Aroostook Development (LEAD);
- Maine Potato Board;
- Northern Maine Development Commission (NMDC); and
- University of Maine, Presque Isle.

Meetings with local communities and local organizations occurred on the following dates:

- November 29, 2006 – Meeting with the LEAD Transportation Committee at NMDC;
- May 23, 2007 – Meeting with LEAD at NMDC;
- August 6, 2007 – Meeting with Presque Isle City Council;
- January 10, 2008 – Meeting with Presque Isle City Council and Planning Board; and
- December 10, 2008 – Public Information Meeting in Presque Isle.

6.4 Study Web Site

The web site established for the study (www.vhb.com/aroostook) includes up-to-date study information, announcements of PAC meetings, summaries of previous PAC meetings, links to related news articles, and maps of the study corridors. The site also has a “Feedback” page that allows users to email comments and questions to the study coordinators. The site can also be accessed through MaineDOT’s website (www.maine.gov/mdot/major-planning-studies/major-planning-stds.php). This FEIS is available on the website.

7

List of Preparers

7.1 Federal Highway Administration

Mark Hasselmann

Mr. Hasselmann is the Program Manager for Right-of-Way and Environment for the Maine Division of FHWA and has over 25 years professional experience.

Mr. Hasselmann provided the study team procedural guidance, technical advice, and document review to assure compliance of the environmental analysis with federal requirements. He has a B.S. in Environmental Science.

Cheryl Martin

Ms. Martin is the Assistant Division Administrator for the Maine Division of FHWA, responsible for procedural guidance and document review. Ms. Martin has 27 years of experience in transportation project development, including 15 years in procedural and technical guidance to assure compliance of the environmental analysis with federal requirements. She has a B.S. in Civil Engineering from the University of Maine.

Cassandra Chase

Ms. Chase is an Environmental Engineer for the Maine Division of FHWA, responsible for procedural guidance and document review. Ms. Chase has three years of experience in engineering, including involvement in procedural and technical guidance to assure compliance of the environmental analysis with federal requirements. She has a B.S. in Civil Engineering from the University of Maine.

7.2 Maine Department of Transportation

Russell D. Charette, P.E.

Mr. Charette is the Director of the Mobility Management Division in the MaineDOT's Bureau of Transportation Systems Planning and has 35 years experience in

multimodal transportation planning, design and development, including managing NEPA Studies throughout the State of Maine for the MaineDOT. Mr. Charette serves as project manager for the ACTS and is responsible for managing and coordinating the consultant and study activities. He received an A.S. Civil Engineering Technology from the University of Maine in 1974. He subsequently received a B.S. Civil Engineering also from the University of Maine. Mr. Charette received a Master of Business Administration from the University Of Southern Maine. He is a licensed Professional Engineer in Maine.

Judith Lindsey

Ms. Lindsey was an Environmental Planner and Community Impact Assessment specialist of the NEPA Compliance and Feasibility Studies Unit in MaineDOT's Bureau of Transportation Systems Planning with extensive knowledge in the compliance with NEPA regulations, policies, and documentation requirements. Ms. Lindsey served as assistant to the Project Manager for the ACTS responsible for managing MaineDOT's technical document review and regulatory compliance. She received a B.S. in Environmental Planning from Unity College.

Richard D. Bostwick

Mr. Bostwick is Supervisor of Field Studies for MaineDOT's Environmental Office. He has 25 years of experience in the review of transportation-related environmental and NEPA documents, and reviewed the natural environment sections of the FEIS. Mr. Bostwick has a B.S. in Biology from Mount Allison University.

John Perry

Mr. Perry is a Biologist for MaineDOT's Environmental Office. He has 19 years experience in identifying natural resources and conducting environmental impact assessments. Mr. Perry holds a BS Biology, University of Maine. His responsibilities for the ACTS are natural resource (wildlife survey and Canada lynx survey) identification.

Stephen W. Tibbetts, P.E.

Mr. Tibbetts is a Senior Environmental Engineer in MaineDOT's Environmental Office. He is the Supervisor for the Surface Water Quality Unit, and is responsible for reviewing all DOT projects for compliance with State and Federal stormwater regulations. He is a Professional Civil Engineer with over 25 years of design experience, both public and private, in the stormwater management field. Prior to joining the MaineDOT he ran a private consulting practice specializing in land and site planning and design. He received his M.S. in Civil Engineering (Water Resources) from the University of Connecticut and a B.S. in Civil Engineering from Tufts University

David Gardner

Mr. Gardner is the Cultural Resource Manager for MaineDOT's Environmental Office. He has 11 years experience in Section 106, Section 4(f), and Section 6(f) compliance. Mr. Gardner holds a B.S. Natural Resources, University of Maine. His responsibilities for the ACTS are Section 106 and Section 4(f) coordination.

Dan Tierney

Mr. Tierney is a Biologist for MaineDOT's Environmental Office. He has 10 years experience in natural resource review and GIS analysis. Mr. Tierney holds a B.S. in Wildlife Ecology, University of Maine at Orono, and a MS in Biodiversity, Conservation, and Policy, State University of New York at Albany. His responsibilities for the ACTS are natural resource (vernal pools and Canada lynx survey) identification and Section 7 consultation for Canada lynx.

Peter Newkirk, P.E.

Mr. Newkirk is Supervisor of Surface Water Resources at MaineDOT's Environmental Office. He has over 17 years of professional experience, and worked for the USDA NRCS prior to joining MaineDOT. Mr. Newkirk holds an A.S. in Biology and a B.S. in Civil Engineering.

Michael Morgan

Mr. Morgan is a Senior Technician with the Transportation Analysis Section of the Bureau of Transportation Systems Planning. He was responsible for the review of the transportation and economics analysis for the ACTS. Mr. Morgan has over 40 years of experience in transportation analysis. He received an A.S. Civil Engineering from the University of Maine.

Dwight Doughty

Mr. Doughty is Supervisor of the Hazardous Waste and Groundwater Unit at MaineDOT's Environmental Office. He has over 20 years of experience in the design and oversight of geo-environmental studies and the implementation of environmental management systems. For the ACTS, he provided consultant prepared Uncontrolled Petroleum and Hazardous Waste data and reviewed the SDEIS sections concerning the same. Mr. Doughty has an undergraduate degree in Geological Sciences and a M.S. in Business Administration.

Deane C. Van Dusen

Mr. Van Dusen is Supervisor of Natural Resource Mitigation at MaineDOT's Environmental Office. Prior to joining MaineDOT he worked as the chief Landscape

Architect for Bowdoin College and managed his own firm in West Newton, Massachusetts. Mr. Van Dusen holds a B.S. in Plant and Soil Science and an M.A. in Landscape Architecture from the University of Massachusetts.

Nathan Howard

Mr. Howard is a Transportation Policy Development Specialist for MaineDOT's Bureau of Transportation Systems Planning. He has 11 years experience in transportation planning, Geographic Information System (GIS), and air and noise analysis. Mr. Howard holds a B.F.A. in Creative Writing, Environmental Planning and Policy, and Geography, University of Maine at Farmington and a MPA Public Administration, University of Maine. His responsibilities for the ACTS are air and noise analysis.

7.3 Vanasse Hangen Brustlin, Inc.

Jonathan Feinstein

Mr. Feinstein is Senior Vice President of Environmental Services at VHB and has extensive experience in analysis of transportation improvement projects and their environmental impacts. Mr. Feinstein served as project manager for the ACTS, and had primary responsibility for the management, coordination and review of all studies, public involvement, and documents. He received a B.S. in Natural Resources and a M.S. in Community Planning from the University of Rhode Island.

Ruth Bonsignore, P.E.

Ms. Bonsignore, Managing Director of VHB's Transportation Systems Department, has managed and participated in dozens of transportation planning studies, including several Maine corridor and transportation improvement projects. Ms. Bonsignore had primary responsibility for the transportation analyses for identification and evaluation of corridor alternatives for this study. Ms. Bonsignore received a B.S. from the University of Massachusetts, and a M.S. from the Massachusetts Institute of Technology.

Lisa A. Standley, Ph.D.

Dr. Standley is Chief Environmental Scientist at VHB's Watertown, Massachusetts, headquarters. Dr. Standley served as the environmental task manager for the ACTS. She is a senior scientist with management experience in the environmental analysis of major transportation improvement projects. Dr. Standley had primary responsibility for the supervision, coordination, preparation, and review of the environmental studies and the FEIS. She received a B.S. and M.S. in Biology from Cornell University, and a Ph.D. from the University of Washington.

Michael Paiewonsky

Mr. Paiewonsky is an Environmental Project Manager with 19 years of experience in environmental documentation for major and minor transportation projects, particularly in compliance with Massachusetts Environmental Policy Act (MEPA) and NEPA. He served as an environmental task manager for the ACTS, responsible for the preparation and review of the FEIS. Mr. Paiewonsky received a B.A. in Legal Studies from the University of Massachusetts.

Anne Bastoni

Ms. Bastoni is an Environmental Planner with VHB's Environmental Services Division who is experienced in preparing federal and state environmental documents for major and minor transportation projects, such as National Environmental Policy Act documentation (EIS/EA/CE), USDOT Section 4(f) documentation, and Massachusetts Environmental Policy Act documentation (EIR/ENF). Ms. Bastoni was responsible for the physical and biological environmental assessment of the FEIS. Ms. Bastoni received a B.S. in Environmental Science from the University of Rochester in Rochester, NY.

Christopher Rife

Mr. Rife is an Environmental Analyst with VHB's Environmental Services Division who has provided environmental consulting services for a variety of private sector clients in the mining, residential land development, solid waste, and other sectors for nearly 20 years. Mr. Rife has supported clients principally in federal NEPA, CWA, RCRA, and CERCLA permitting and compliance projects, with additional experience in ESA, NHPA, and GWPA programs. Mr. Rife was responsible for the preparation of the Section 4(f) Evaluation. Mr. Rife received a M.A. in Environmental Policy and Management, from the University of Denver.

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 B.S. in Civil Engineering from the University of Massachusetts, Lowell.

Anthony Grande, P.E.

Mr. Grande is a Senior Project Manager with technical experience in transportation engineering, and preparation of environmental documents for transportation projects. He oversaw development of the design for the project alternatives. Mr. Grande received a B.S. in Civil Engineering from the University of Massachusetts, Lowell.

7.4 RKG Associates

Craig Seymour

Mr. Seymour has been a Principal with RKG Associates, Inc. since 1987. He had primary responsibility for the economic analysis presented in the SDEIS. Mr. Seymour received his A.B. in civil engineering and economics from Brown University and his M.B.A. from the University of New Hampshire.

Darren J.M. Mochrie

Mr. Mochrie was a Project Planner with RKG Associates, Inc. He was responsible for data collection and analysis, planning and graphic presentations in the economic impact sections of the SDEIS. Mr. Mochrie received his B.A. in Geography from Laurentian University in Sudbury, Ontario and his M.S. in City Planning from the University of Manitoba.

7.5 Barton & Gingold

Tobey Williamson

Mr. Williamson is an Associate in Barton & Gingold's Portland Office. A mediator and facilitator, Mr. Williamson specializes in conflict management, strategic planning, and collaborative processes. Mr. Williamson was the NEPA Process Facilitator and Conflict Manager for the ACTS PAC.

8

Circulation List

8.1 Federal Agencies

Copies of the FEIS will be distributed to the following Federal Agencies, along with a CD which will contain the complete document.

Advisory Council on Historic Preservation

Department of Agriculture

Department of the Army Corps of Engineers, New England District

Department of Housing and Urban Development

Department of the Interior

Environmental Protection Agency, Washington Office

Environmental Protection Agency, Region 1

Federal Emergency Management Agency

Fish and Wildlife Service

National Marine Fisheries Service

Natural Resource Conservation Service

8.2 State Agencies

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following State Agencies.

Maine Bureau of Parks and Lands

Maine Department of Agriculture

Maine Department of Conservation

Maine Department of Community and Economic Development

Maine Department of Environmental Protection

Maine Department of Inland Fisheries and Wildlife
Maine Department of Marine Resources
Maine Forest Service
Maine Geological Survey
Maine Historic Preservation Commission
Maine Land Use Regulation Commission
Maine Natural Areas Program

8.3 Elected Officials

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following elected officials.

Governor Paul R. LePage
U.S. Senator Susan Collins
U.S. Senator Olympia Snowe
U.S. Senator Angus S. King, Jr.
U.S. Representative Chellie Pingree
U.S. Representative Michael Michaud
State Senator Troy Jackson
State Senator Roger Sherman
State Representative Bernard Ayotte
State Representative Carol McElwee
State Representative Tyler Clark
State Representative Robert J. Saucier
State Representative Alexander Willette
State Representative Allen Nadeau
State Representative Charles Theriault
State Representative Joyce Fitzpatrick

8.4 Sovereign Nations

Copies of the FEIS will be distributed to the following Sovereign Nations, along with a CD which will contain the complete document.

Houlton Band of Maliseet Indians
Aroostook Band of Micmacs

8.5 Regional Agencies

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following Regional Agencies.

Northern Maine Development Commission
Aroostook County Commission

8.6 Local Communities

Copies of the FEIS will be distributed to the City Hall or Town Hall of the following communities. Copies of the FEIS will also be distributed to municipal libraries. (Communities with municipal libraries are indicated with an asterisk below.)

Caribou*	Presque Isle*
Easton	Presque Isle City Council
Fort Fairfield*	Washburn*

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the City Hall or Town Hall of the following communities.

Caribou Parks & Recreation Department	Mapleton
Limestone*	Mars Hill*
Limestone Water & Sewer District	Westfield

8.7 PAC Members

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following PAC members.

Paul Bouchard, Fort Kent
Ken Arndt, Presque Isle
Austin Bleess, Caribou
Sam Collins, Caribou
Fred Corey, Aroostook Band of Micmacs
David Cyr, Unorganized Townships
Linda Anne Cyr, Madawaska
Richard Daigle, Van Buren
John Edgecomb, Mapleton, Castle Hill and Chapman
Don Flannery, Maine Potato Board
Dale Flewelling, Houlton
Carl Flora, Loring Development Authority
Gene Green, Westfield
George Howe, Washburn
Norm Johnson, Presque Isle
Phil McCarthy, Houlton
Ray Mersereau, Mars Hill
David Parent, Eagle Lake
Anthony Tomah, Houlton Band of Maliseet Indians

8.8 Other Interested Parties

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following interested parties.

Aroostook County Tourism
Aroostook Municipal Association
Association of Aroostook Chambers of Commerce
Leaders Encouraging Aroostook Development
Maine Public Service

8.9 Members of the Public

Executive Summaries of the FEIS, along with a CD which will contain the complete document, will be distributed to the following members of the public.

Brown, Jim

Gerow, Ward

Goetz, Thomas

Holmes, Thomas C.

Huggins, Diana

Knowles, Leone

Suttler, Steve

This Page Intentionally Left Blank

9

References

- Aroostook County Transportation Study, Section 106 Determination of Effects Report, January 2006 and Spiess, A. 2007.
- City of Presque Isle, *Downtown Presque Isle, Replacement Parking Analysis*, November 12, 2009
- City of Presque Isle, *Survey of Downtown Presque Isle Businesses*, March 25, 2009
- Colgan, Charles and Bruce Andrews. October 2004. *Migration and Youth Migration from Aroostook County: Trends, Factors, and Implications*. Center for Business and Economic Research, University of Southern Maine
- Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act*, January 1997
- Council on Environmental Quality, *Incorporating Biodiversity Considerations into Environmental Impact Analysis under the National Environmental Policy Act*, January 1993
- Cowardin, L.M. et al. 1979. *Classification of Wetlands and Deepwater Habitat of the United States*, FWS/OBS 79/31. Washington DC. United States Government Printing Office.
- Department of Conservation, Maine Forest Service, *The 2005 Biennial Report on the State of the Forest and Progress Report on Sustainability Standards*. Report to the Joint Standing Committee of the 122nd Legislature on Agriculture, Conservation and Forestry, 2005.
- Federal Highway Administration Memorandum, Cynthia J. Burbank. December 13, 2005.
- Federal Highway Administration Office of Planning. March 1, 2005. *Environment and Realty; Project Development and Environmental Review. Section 4(f) Policy Paper*. Section 4(f) Applicability, #3 Historic Sites, Question C.

Federal Highway Administration Technical Advisory T6640.8a. October 1987. *Guidance for Preparing and Processing Environmental and Section 4(f) Evaluations*

Federal Highway Administration's Traffic Noise Model Version 2.5, February 2004

Fretwell, JD, JS Williams, and PJ Redman. 1996. National Water Summary on Wetland Resources. Water- Supply Paper 2425. US Geological Survey, Reston, VA.

Highway Construction Noise: Environmental Assessment and Abatement, Volume IV: User's Manual. Vanderbilt University, Nashville, TN. Report No. VTR-81-3, 1981.

Highway Traffic Noise Analysis and Abatement Policy and Guidance, Page 25, dated July 2010

Hiller and Associates, *Phase I Environmental Assessment, Aroostook County Transportation Study, Segment 7 – Presque Isle Bypass*, September 2005

Maine Department of Environmental Protection *2010 Integrated Water Quality Monitoring and Assessment Report*. Accessed July 15, 2012
<http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm>

Maine Department of Labor Employment Info Guide. Accessed 2/8/2012. <http://www.maine.gov/labor/cwri>

Maine Department of Transportation, *Draft Environmental Assessment for the Easton Industrial Access Road Study*, 2003.

Maine Department of Transportation, *Highway Traffic Noise Policy*, July 2011

Maine Department of Transportation and Kleinschmidt Associates. *Vernal Pool Study; Presque Isle Bypass, Presque Isle, ME*, June 2007..

Maine In-Lieu Fee Agreement Between the State of Maine Department of Environmental Protection, the New England District U.S. Army Corps of Engineers and The Nature Conservancy. 2007.

Parker, P.L. and T.F. King, *National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties*. 1990, revised 1998

Planning Decisions, Inc, *Aroostook County Economic Cluster Report – Part 1: Analysis*, September 30, 2003

RKG Associates, Inc., *Presque Isle Bypass Economic Impact Study*,
November 2007

Title 23 Code of Federal Regulations, Part 772. *Procedures for Abatement of Highway Traffic Noise and Construction Noise*.

United States Army Corps of Engineers, New England District, *Compensatory Mitigation Guidance: Compensation for Impacted Aquatic Resource Functions*. July 20, 2010.

United States Army Corps of Engineers, New England District, *The Highway Methodology Workbook. Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process*, October 1993.

United States Army Corps of Engineers, *Regulatory Guidance Letter, Number 02-2, Guidance on Compensatory Mitigation projects for Aquatic Resource Impacts under the Corps Regulatory Program Pursuant to Section 401 of the Clean Water Act and Section 10 of the Rives and Harbors Act of 1899*, December 24, 2002.

United States Census Bureau. 2006-2010. American Community Survey 5-Year Estimates. Data
(http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table)

United States Census Bureau. 2010. Data
(<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>)

United States Department of Agriculture. Final rule effective August 6, 1984. *Section 2 [7 United States Code 4201] of the Farmland Protection Policy Act of 1981*.

United States Department of Transportation, *Federal Highway Administration Highway Traffic Noise Prediction Noise Model*.
FHWA-RD-77-108, December 1978

United States Department of Transportation, Federal Highway Administration, *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process*, January 31, 2003

United States Department of Transportation, *Federal Register 5610.2, Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*, Volume 62, No. 72.15, April 1997

United States Environmental Protection Agency, Office of Federal Activities. *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*. EPA 315-R-99-002, May 1999

University of Maine, Margaret Chase Smith Policy Center. *Maine Winter Roads: Salt, Safety, Environment and Cost*. February 2010.

Vanasse Hangen Brustlin, Inc., *Aroostook County Transportation Study (MaineDOT #06462.10) – Presque Isle Bypass, Section 106 Determination of Effect Report*, July 2011

Vanasse Hangen Brustlin, Inc., *Cultural Resource Field Survey, Aroostook County Transportation Study, Segments 1-11*, April –July, 2004

Vanasse Hangen Brustlin, Inc., *Supplemental Draft Environmental Impact Statement, Corridor Traffic Analysis Technical Memorandum*, August 2005

Vanasse Hangen Brustlin, Inc., *Supplemental Draft Environmental Impact Statement, Economic Technical Report*, August 2005

Vanasse Hangen Brustlin, Inc., *Supplemental Draft Environmental Impact Statement, Environmental Technical Report*, August 2005

Vanasse Hangen Brustlin, Inc., *Supplemental Draft Environmental Impact Statement, Traffic Analysis Technical Memorandum*, August 2005

Vanasse Hangen Brustlin, Inc., *USACE Highway Methodology Phase I Avoidance - Presque Isle Bypass*, June 2007

Vanasse Hangen Brustlin, Inc., *USACE Highway Methodology Phase II Permit Application – Presque Isle Bypass*, June 2008

10

Index

Air quality	S-7, 3-56, 4-69, 4-81, 4-97, 4-104, 5-8
Alternatives analysis	2-1, 4-2, 5-3
Aquatic habitats	S-10, 3-41, 4-41, 4-101
Archaeological resources	3-34, 4-31, 4-93
Atlantic salmon	3-46, 3-52, 4-58, 4-67
Communities	S-7, 3-38, 3-49, 4-23, 4-62, 6-3, 8-3
Community and agency coordination	S-5, S-11, 1-7, 2-4, 2-13, 4-13, 4-103, 5-3, 6-2
Construction impacts	4-65, 4-80, 4-103
Cumulative impacts.....	4-82, 4-85, 4-90, 4-98
Deer wintering yards.....	3-46, 3-52
Economic development.....	3-19, 4-13, 4-21, 4-23
Employment	1-4, 3-3, 3-5, 3-13, 3-15, 3-20, 4-17, 4-83, 4-87, 4-98
Essential fish habitat.....	3-45, 3-53, 4-62, 4-67
Exemplary natural communities	4-62
Existing transportation conditions	3-4
Farmland	S-7, S-9, 2-3, 2-7, 2-10, 2-18, 2-22, 3-2, 3-9, 4-10, 4-14, 4-92, 5-3
Farmland soils	3-9, 3-10, 4-14, 4-92
Federal and state permits.....	S-11, 1-8, 4-53, 4-102
Federal endangered and threatened species	3-46, 3-54, 4-68, 4-96
Fisheries.....	S-11, S-14, 3-46, 3-51, 4-64, 4-103
Forest resources.....	S-8, 3-2, 3-38, 3-43, 3-48, 4-10, 4-24, 4-34, 4-63, 4-94
Floodplains	3-44, 4-60
Geometric deficiencies	3-6, 4-2, 4-5
Hazardous materials	S-9, 3-26, 3-28, 4-26
High crash locations	S-5, 2-2, 3-5, 3-6, 4-5, 4-105, 5-3, 5-8
Historic resources	S-8, 2-8, 2-21, 3-32, 4-27, 4-93, 4-100, 5-6
Industrial parks	4-23, 4-91
Inland waterfowl and wading bird habitat	2-19, 3-52, 4-2, 4-65
Land use	S-7, 3-8, 4-10, 4-23, 4-91
Minority and low income populations	1-8, 3-22, 4-25
Noise	S-6, S-7, 3-61, 4-75, 4-81, 4-97, 4-104, 5-3
Outstanding river segments	3-45, 4-61, 5-5
Population.....	S-4, 1-4, 3-5, 3-13, 3-22, 4-17, 4-25, 4-87
Property impacts.....	1-6, 2-15, 2-22, 4-11, 4-20, 4-60
Public parks and recreation areas.....	S-6, 3-35, 4-31, 4-100

Purpose and need	S-4, 1-4, 2-1, 4-3, 4-14, 5-2
Safety deficiencies.....	3-5
SDEIS comments	S-2, 1-5, 5-1
Secondary impacts.....	S-3, 1-6, 5-6
Section 106	S-8, S-12, 1-7, 1-10, 2-21, 3-30, 4-27, 4-100, 5-7
Section 4(f)	S-8, S-11, 1-8, 2-18, 2-21, 3-9, 3-30, 3-36, 4-2, 4-32, 4-100, 4-105
Sensible Transportation Policy Act	S-1, S-12, 1-1, 1-9
Significant wildlife habitat.....	3-45, 3-47, 3-52, 4-62, 4-65
Snowmobile trails	S-9, 3-9, 4-12, 4-32, 4-100
Soils.....	S-9, 3-9, 4-14, 4-26, 4-56, 4-92
State endangered and threatened species.....	3-55, 4-68
Stormwater	S-10, 3-40, 4-36, 4-40, 4-80, 4-100, 5-4
Study commitment	4-99
Phased/tiered study.....	S-1
System continuity	S-4, 1-4, 3-6, 4-4
Tourism	3-20
Traditional cultural properties.....	4-9, 4-93
Traffic.....	S-4, 1-4, 2-1, 2-20, 3-4, 3-58, 4-4, 4-17, 4-22, 4-69, 4-76, 4-81, 4-84, 4-90, 4-97, 5-2
Tribal lands	3-8, 4-12
Utilities	4-81, 4-104, 5-7
Vernal pools.....	3-46, 3-53, 4-66, 5-6
Water quality	S-10, 3-39, 4-36, 4-38, 4-42, 4-80, 4-95, 4-100, 5-4
Wetland communities	S-7, 3-41, 3-48, 3-50, 4-36 through 4-60, 4-80, 4-96, 4-102, 5-5
Wildlife habitat.....	S-7, S-11, 3-45, 3-47, 3-50, 4-45, 4-62, 4-65, 4-77, 4-98



Aroostook County Transportation Study