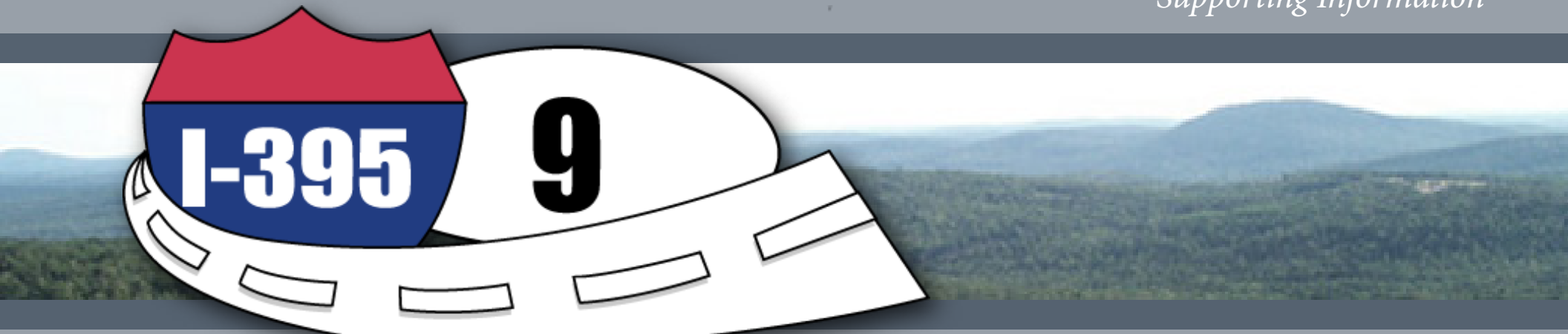
I-395/Route 9 Transportation Study

Draft Environmental Impact Statement and Section 404 Permit Application Supporting Information



Brewer, Holden, Eddington, and Clifton, Maine

FHWA-ME-EIS-12-01-D

MaineDOT Project Identification Number: 008483.20

FHWA: NH-8483(20)E

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

Federal Highway Administration FHWA

MaineDOT

United States Army Corps of Engineers

and Cooperating Agencies

U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency,
National Oceanic and Atmospheric Administration–National Marine Fisheries Service,
Maine Department of Environmental Protection, and Maine Historic Preservation Commission

· THIS PAGE INTENTIONALLY LEFT BLANK ·

I-395/Route 9 Transportation Study

Draft Environmental Impact Statement and Section 404 Permit Application
Supporting Information

Brewer, Holden, Eddington, and Clifton, Maine
FHWA-ME-EIS-12-01-D
MaineDOT Project Identification Number: 008483.20
FHWA: NH-8483(20)E

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

Federal Highway Administration, and Maine Department of Transportation

Cooperating Agencies
U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration–National Marine Fisheries Service, Maine Department of Environmental Protection, and Maine Historic Preservation Commission

David Bernhardt, P.E. 3/7/12 **Date**
Commissioner; Maine Department of Transportation

Todd D. Jorgensen 3/8/2012 **Date**
Maine Division Administrator; Federal Highway Administration

The following people may be contacted for additional information regarding this document:

Comments on this Draft EIS/Section 404 Permit Application and supporting information are due by May 15, 2012 and should be sent to either of the following:

Mark Hasselmann
Federal Highway Administration
Edmund S. Muskie Federal Building
40 Western Avenue, Room 614
Augusta, ME 04332
(207) 622-8350

Russell D. Charette, P.E.
Maine Department of Transportation
Director, Mobility Management Division
Bureau of Transportation Systems Planning
16 State House Station
Augusta, Maine 04333
(207) 624-3238

The Maine Department of Transportation (MaineDOT) and the Maine Division of Federal Highway Administration (FHWA) have undertaken the I-395/Route 9 Transportation Study to evaluate transportation alternatives to improve regional system linkage, relieve traffic congestion, and improve safety along Routes 1A and 46, and to improve the current and future flow of traffic and the shipment of goods to the Interstate system. This Environmental Impact Statement (EIS)/Clean Water Act Section 404 Permit Application examines the environmental effects of the "No-Build" Alternative and three build alternatives developed to satisfy the study purpose and needs. The purpose of this EIS/Section 404 Permit Application is to provide the FHWA, the MaineDOT, the USACE, and the public with a full accounting of the environmental impacts to the natural, social, atmospheric, and transportation environments. The EIS/Section 404 Permit Application serves as the primary document to facilitate review of the project by federal, state, and local agencies and the general public.

After careful consideration of the range of alternatives developed in response to the study's purpose and needs and in coordination with its cooperating and participating agencies, the MaineDOT and the FHWA have identified Alternative 2B-2 as its preferred alternative because the MaineDOT and the FHWA believe it best satisfies the study purpose and needs, would fulfill their statutory mission and responsibilities, and has the least adverse environmental impact.

· THIS PAGE INTENTIONALLY LEFT BLANK ·

Contents

· THIS PAGE INTENTIONALLY LEFT BLANK ·

Exhibits

Summary

Chapter 1

Chapter 2

Chapter 3

Chapter 4

· THIS PAGE INTENTIONALLY LEFT BLANK ·

Glossary

affected environment – The physical features and land area(s) to be influenced or impacted by an alternative alignment under consideration. This term also includes various social and environmental factors and conditions pertinent to an area.

agency coordination – A general term referring to the process whereby government agencies are afforded an opportunity to review and comment on transportation proposals.

alignment studies – A general term describing engineering work involving the vertical and horizontal positioning, adjusting, and refining, as well as comprehensive evaluation of possible connectors through a selected study corridor and considering all relevant features, controls, travel desires, impacts, benefits, and costs. Alignment studies are typically performed to assess the relative feasibility of a proposed transportation facility.

alternative – One of a number of specific transportation-improvement proposals, alignments, options, design choices, and so forth in a defined study area. For a transportation project, alternatives to be studied typically include the No-Build Alternative, an upgrading of the existing roadway alternative, new transportation routes and locations, transportation systems management strategies, multimodal alternatives (if warranted), and any combinations of these.

archaeologically sensitive surficial deposits – Land forms that are likely locations of prehistoric settlements or gathering places, based on a Maine Historic Preservation Commission (MHPC) predictive model that uses surficial geology (i.e., water bodies, alluvium, lake-bottom deposits, glacial outwash, and eskers) to assess sensitivity.

arterials – Roads with high traffic volumes that provide linkage among major cities and towns and developed areas, capable of attracting travel over long distances. Basically, arterials provide service to interstate

and inter-county 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 (i.e., freeways) to entrance control (e.g., on 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 water bodies that are at risk of eutrophication due to new development and phosphorus-laden runoff. These water bodies 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 the State of Maine Stormwater Law (5 MRSA § 3331).

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

avoidance alternative – A general term used to refer to any alignment proposal that has been developed, modified, shifted, or downsized to specifically avoid impacting one or more resources.

Beginning with Habitat Program – A collaborative program of federal, state, and local agencies and nongovernmental organizations. It is a habitat-based approach to conserving wildlife and plant habitat on a landscape scale managed by the Maine Department of Inland Fisheries and Wildlife.

Best Management Practices – Structural and/or management practices employed before, during, and after construction to protect receiving-water quality. These practices provide techniques to either 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 (i.e., landscape diversity), local ecosystem diversity (i.e., community diversity), species diversity, and genetic diversity within populations of a species.

carbon monoxide (CO) – A colorless, odorless, tasteless gas formed in large part by incomplete combustion of fuel. Fuel-combustion activities (e.g.,

transportation, industrial processes, and space heating) are the major sources of CO.

CEQ Regulations – Directives issued by the Federal Council on Environmental Quality, published in 40 CFR 1500-1508, which governs the implementation of the National Environmental Policy Act and the development and issuance of environmental policy and procedure for federal actions by public agencies. The regulations contain definitions, spell out applicability and responsibilities, and mandate certain processes and procedures for state agencies with programs that utilize federal-aid funds.

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 are typically lower than those of arterials.

comment period – The duration of time during which written comments or responses may be submitted to an agency that has distributed a document for review and comment. It can be applicable to all types of documents that are circulated as well as to formal presentations, such as those that may be given by transportation-department officials at a public hearing.

community water supply – A public water system that serves at least 25 residents throughout the year; consists of one or multiple wells or reservoirs.

conceptual design – idea or feasibility phase of the design process during which various alternatives are developed and tested. During this phase, various environmental and engineering issues are identified and accounted for prior to advancing a range of alternatives into the preliminary and final design phases.

conceptual mitigation – The early, generalized identification of design, operational, construction, or other measures considered to avoid, minimize, or compensate for anticipated environmental consequences. Typically, conceptual mitigation represents ideas discussed before the concluding stages of an environmental study.

concurrence – Determination by an agency that information to date is adequate and a project can advance to the next stage of project development.

connector – A highway or roadway that connects to another highway or roadway.

construction phase – The phase of the transportation project development process that entails the physical

act of building by a contractor of the proposed project according to all plans and specifications developed during final design.

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

controlled-access highway – A highway that provides limited points of vehicle access; access is permitted only at interchanges and intersections. Freeways, such as I-395, 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.

cooperating agency – Any organization, other than the lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed action.

cost effectiveness – An economic measure used to evaluate and compare the corridors of a study. Cost effectiveness is defined as the present value of a gross regional product growth per dollar of construction cost. In this way, cost effectiveness compares the relative future economic benefits to the size of the investment required to generate those benefits.

cumulative impacts – Impacts on the environment that result from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes other such actions; required under the National Environmental Policy Act (NEPA) by the Council on Environmental Quality (CEQ).

daily traffic volume – The number of vehicles that use a given roadway in both directions during a 24-hour period.

dB – Decibel, a unit of measurement of sound level. Expresses relative difference in power or intensity, usually between two acoustic or electric signals, equal to 10 times the common logarithm of the ratio of the two levels.

dBA – An abbreviation for A-weighted decibel. A decibel is a unit used to describe sound-pressure levels on a logarithmic scale. For a 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 area – Areas of softwood-dominated forest that provide food resources and shelter for deer during severe winter conditions.

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

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

design hour volume (DHV) – The hour used for geometric design of highways, typically the 30th highest traffic volume of the year.

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 another element of the proposed action.

disadvantaged population – A group of people, living in one area, that has a median income below the federal poverty level or that exhibits other indicators of economic disadvantage.

displacement – The act of removing businesses, people, or households from structures for transportation right-of-ways.

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

early coordination – Communication undertaken near the beginning of a transportation-study development process to exchange information and work cooperatively with agencies and the public in an effort to determine the type and scope of studies, level of analysis, and related study requirements.

edge habitat – An area along a transitional zone between two or more vegetation cover types that provide feeding, breeding, nesting, and/or cover habitat for wildlife.

endangered species – Any species that is in danger of extinction throughout all or a significant portion of its range (in reference to the Endangered Species Act [16 USC Chapter 35 Section 3(6)] and the Maine Endangered Species Act).

engineering – A general term that refers to the systematic analysis and development of measurable physical data using applied mathematical, scientific, and technical principles to yield tangible end products that can be made, produced, and constructed.

environment – The complex of social, natural, and cultural conditions that are present in the physical surroundings.

Environmental Assessment (EA) – A document prepared for federal actions that are not categorical exclusions and that do not clearly require an Environmental Impact Statement (EIS). An EA provides the analysis and documentation to determine if an EIS or a Finding of No Significant Impact (FONSI) should be prepared.

environmental baseline – An inventory or summary assessment of environmental features present in a study area, typically conducted during systems planning or early project development. This activity is used to provide environmental-impact information as a basis for developing alternatives.

environmental feature – A general term to denote resources or objects located in or adjacent to an existing or proposed transportation corridor. Features may include natural or physical resources, important structures, community facilities, topographic features, and certain other land uses.

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 that are necessary to fish for spawning, breeding, feeding, or growing to maturity, as defined by the National Marine Fisheries Service and the regional Fishery Management Councils. EFH is protected by the Magnuson-Stevens Fishery Conservation and Management Act of 1996.

Farmland Protection Policy Act (FPPA) – A statute enacted in 1981 by the U.S. Department of Agriculture (USDA) to ensure that significant agricultural

lands are protected from conversion to nonagricultural uses. For highway projects receiving federal aid, the regulations promulgated under the FPPA (7 CFR Part 658, 1984) require a state highway authority (i.e., the MaineDOT) to coordinate with the USDA Natural Resources Conservation Service. The FPPA regulates four types of farmland soils: prime farmland, unique farmland, farmland of statewide 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 in accordance with the Farmland Protection Policy Act of 1981 by the U.S. Department of Agriculture.

farmland soils of statewide importance – Soils that are nearly prime farmland and that produce high yields of crops when treated and managed according to acceptable farming methods (see the definition for prime farmland soil).

feasibility study – A general term that refers to various types of systematic evaluations carried out to better assess the desirability or practicality of further developing a proposed action. Such studies are typically performed during the planning stages.

federal-aid system – The federal-aid system consists of those routes in Maine that are eligible for the categorical federal highway funds.

Federal Emergency Management Agency (FEMA) – A former independent agency that became part of the new Department of Homeland Security in March 2003. It 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.

Federal Register – A daily publication of the U.S. Government Printing Office that contains notices, announcements, rulemaking, and other official pronouncements of the administrative agencies of the U.S. Government. Various announcements and findings related to specific environmental matters and transportation projects and activities appear in this publication.

final design phase – The phase of the transportation project development process that involves the preparation of detailed working drawings as well as specifications and estimates for approved transportation projects.

Final Environmental Impact Statement (FEIS) – The document prepared after circulation of a DEIS (or Supplemental DEIS) and consideration of comments received. The Federal Highway Administration National Environmental Policy Act 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 FEIS, summarize public involvement, and describe the mitigation measures that will be incorporated into the proposed action.

Finding of No Significant Impact (FONSI) – A document by a federal agency that briefly presents the reasons why an action, not otherwise excluded (§ 1508.4), will not have a significant effect on the human environment and, therefore, for which an environmental impact statement will not be prepared. It will include the environmental assessment or a summary of it and will note any other environmental documents related to it (§ 1501.7(a)(5)). If the assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference.

floodplain – The level area adjoining a river channel that is inundated during periods of high flow.

floodway – The channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood may 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 and accompanied by the loss of a certain portion of the original habitat.

freeway – A type of road designed for safer high-speed operation of motor vehicles through the elimination of at-grade intersections. This is accomplished by preventing access to and from adjacent properties and eliminating all cross traffic through the use of grade separations and interchanges.

functional conflict – Highways provide a balance between providing access (with multiple access points) and mobility (with controlled-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 (e.g., lane width, shoulder width, horizontal curvature, and vertical grade) do not meet prevailing design standards.

geometric design – Those engineering activities that involve standards and procedures for establishing the horizontal and vertical alignment and dimensions of a highway.

glacial outwash – Surficial sand and gravel sediments deposited ahead of a glacier by glacial meltwater.

grade – The slope of a road along the direction of travel, typically 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).

gross regional product (GRP) – One of the major economic indices of the socioeconomic development of a region. GRP is equal to the total of added values in the regional economic industries, estimated as a difference between production and intermediate consumption.

Groundwater Recharge Protection Areas – Areas of land designated by water-resource agencies through which rainwater or snowmelt percolate and replenish the underlying aquifer near a public well. These areas require special protection because they directly affect the quality and safety of the public drinking-water supply.

habitat block – Units of habitat uninterrupted by roadways or other disturbances.

high crash location (HCL) – An intersection or highway segment that experiences an abnormally high number of crashes relative to the traffic demands that are served. For the state of Maine, the MaineDOT identifies HCLs.

highway reconstruction/rehabilitation – Reconstruction of an existing highway is undertaken when the pavement structure or alignment of the existing facility is deficient. Reconstruction includes removal and replacement of the entire pavement structure, significant changes in the vertical or horizontal alignment, or addition of lanes. Rehabilitation includes resurfacing and other minor repairs intended to extend the service life of the existing facility and enhance highway safety.

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

hourly traffic volume – The number of vehicles that use a given road during 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 in which there is no free oxygen in the soil around roots. Hydric soils correspond to federally and state-regulated wetlands in many circumstances.

hydrologic regime – The frequency and duration of inundation or soil saturation of a given area.

impacts – A term used to describe the positive or negative effects on the natural or human environment as a result of a specific project(s).

impervious surface – Relates to hydrology; a surface through which precipitation cannot penetrate, causing direct runoff or perching (e.g., asphalt paving, roofs, and densely compacted gravel).

independent utility – The ability of a transportation improvement to be a usable and reasonable expenditure even if no additional transportation improvements are made in the area.

indirect effects (or secondary impacts) – Effects caused by a given action occurring later in time or farther removed in distance but that are reasonably foreseeable (e.g., induced changes to land-use patterns, population density, and growth rate).

Integrated Transportation Decision-Making (ITD) Process – The requirements of Maine's Sensible Transportation Policy Act and the National Environmental Policy Act have been integrated within a single ITD process to guide the planning of new transportation construction projects in the state.

Intelligent Transportation Systems (ITS) – The application of technology to goods and people movement to reduce delay and improve safety. The main applications of ITS in place today involve the monitoring of real-time traffic flows and weather conditions and then transmitting this information to the appropriate authorities and the motoring public. The authorities use this information to send response teams to the scene of an accident, whether it is an emergency medical team or a hazardous material team. The motoring public is alerted to potential hazards or delays on roadways through the use of highway advisory radio, variable message signs, or broadcast radio traffic reports.

interagency meeting – One of several scheduled gatherings held during the transportation project development process to present project studies and data to government agencies and to receive comments and responses to assist in further project development. Typically, these meetings are held to discuss data such as plans of study, project-need analyses, alternatives-analysis information, elimination and selection of alternatives, and environmental documents.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) – a United States federal law that posed a major change to transportation planning and policy, as the first U.S. federal legislation on the subject in the post-Interstate Highway System era. It presented an overall intermodal approach to highway and transit funding with collaborative planning requirements, giving significant additional powers to metropolitan planning organizations. Signed into law on December 18, 1991 by President George H. W. Bush, it expired in 1997. It was followed by the Transportation Equity Act for the 21st Century (TEA-21) and most recently in 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

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

Interstate Highway System – The network of interstate highways established by the Federal-Aid Highway Act of 1956. The statute established a 41,000-mile network of controlled-access highways (expanded to 42,000 miles by legislation in 1968) intended to connect all metropolitan areas with populations of more than 50,000 and all state capitals.

Labor Market Area (LMA) – 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 (LWCF) – A system for funding federal, state, and local parks and conservation areas, created by the Land and Water Conservation Fund Act of 1964.

lead agency – The federal project proponent with primary responsibility for preparing an environmental document.

Least Environmentally Damaging Practicable Alternative (LEDPA) – This is identified by the U.S. Army Corps of Engineers in compliance with Section 404(b)(1) of the U.S. Clean Water Act. Critical to the selection of the LEDPA is the recognition of the full range of National Environmental Policy Act alternatives and impacts in determining which alternatives are (1) practicable, and (2) environmentally less damaging. The U.S. Army Corps of Engineers is the only federal agency that can permit the LEDPA.

legal notice – A formal announcement or finding published in a periodical or newspaper to provide official public notice of an action or approval that is of public interest.

level of detail – A general term referring to the amount of data collected and the scale, scope, extent, and degree to which item-by-item particulars and refinements of specific points are necessary or desirable in carrying out a study. Level of detail is an important factor in the quality of a study, overall study costs, and length of time needed to perform study work.

Level of Service (LOS) – A qualitative measure describing operational conditions in a traffic stream and their perception by motorists and/or passengers. Six levels of service are defined and given letter designations from A to F, with LOS A representing the best operating conditions (i.e., very light, free-flowing traffic) and LOS F the worst (i.e., congested, stop-and-go traffic).

link – A new or existing highway segment between two defined end-points.

local roads and streets – All public roads and streets not classified as arterials or collectors have a local classification. Local roads and streets are characterized by many points of direct access to adjacent properties

and have a relatively minor role in accommodating mobility. Speeds and traffic volumes are usually low.

logical termini – Features such as cross-route locations that are considered rational end-points for a transportation improvement and that serve to make it useable.

Magnuson-Stevens Fishery Conservation and Management Act – Legislation (16 USC 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 MaineDOT 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 Sensible Transportation Policy Act (STPA) – 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, capital-investment, and project-selection decisions made by the MaineDOT.

major collector road – Collector roads that tend to serve higher traffic volumes than other collector roads. Major collector roads typically link arterials. Traffic volumes and speeds are typically lower than those of principal arterials.

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.

minor arterial – Highways that tend to link collector roads to principal arterials and serve lower traffic volumes than typical arterials. Minor arterials are typically designed at lower travel speeds than principal arterials.

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

mitigation measures – Specific design, commitment, or compensation made during the environmental evaluation and study process that serve to moderate or lessen impacts from a proposed action. In accordance with CEQ Regulations, mitigation includes

avoidance, minimization, rectification, reduction, and compensation.

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 (NEPA) of 1969, as amended – 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 analysis of potential impacts to the natural, social, and economic environments.

National Highway System (NHS) – A system of those highways determined to have the greatest national importance to transportation, commerce, and defense in the United States. It consists of the Interstate Highway System and logical additions to it, selected other principal arterials, and other facilities that meet the requirements of one of the NHS subsystems.

National Historic District – An area consisting of numerous buildings and their setting and identified as historic on the National Register of Historic Places.

National Priority List (NPL) – The "Superfund" statute (42 USC Section 9601) requires the U.S. Environmental Protection Agency to establish a NPL of sites that are to be given top-priority consideration for removal of hazardous substances and remedial action.

National Register of Historic Places (NRHP) – the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

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

Natural Resources Conservation Service (NRCS) – Formerly the Soil Conservation Service, NRCS is a department in the U.S. Department of Agriculture responsible for conserving all natural resources on

private lands and administering the Farmland Protection Policy Act.

needs analysis – Data collection and analysis to document the purpose and need for a project. This document may draw on any number of transportation, master-planning, socioeconomic, traffic, safety, system-linkage, growth-management, or other community or regional issues of importance.

new location highway – A highway proposed to be constructed on land not currently used for transportation facilities.

nitrogen oxides (NOx) – Nitric oxide (NO) and nitrogen dioxide (NO_2) are collectively referred to as nitrogen oxides (NOx). NO forms during the high-temperature combustion process. NO_2 forms when NO further reacts in the atmosphere. NOx reacts with 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.

No-Build Alternative – Typically includes short-term, minor restoration types of activities (e.g., safety and maintenance improvements) that maintain the continuing operation of an existing facility. The No-Build Alternative serves as a baseline for the comparison of other alternatives.

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 barriers, 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.

non-community drinking water system – A public water system that serves at least 25 people at least 60 days of the year and is not a community or seasonal water system.

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

other principal arterials – Highways that provide access between arterials and a major port, airport, public-transportation facility, or other intermodal-transportation facility. Other principal arterials tend to serve lower traffic demands than principal arterials.

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

ozone – A gas that 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 rather is formed when oxides of nitrogen react with sunlight.

palustrine – The group of vegetated wetlands traditionally called by names such 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 emergent wetlands (PEM) – A palustrine wetlands dominated by herbaceous species, typically cattails, sedges, and grasses, and commonly referred to as a marsh.

palustrine forested wetlands (PFO) – A palustrine wetlands dominated by trees, commonly referred to as a swamp.

palustrine scrub-shrub wetlands (PSS) – A palustrine wetlands dominated by shrubs.

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 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 and short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time.

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

permit – Written permission given by a governmental agency to take certain action during specific steps of a transportation project development process. Permits may include permission for any construction, excavation, depositing of material, or other work in navigable waters (U.S. Corps of Engineers); permission required for the discharge of dredged or fill material into waters of the United States (U.S. Corps of Engineers); and permission to construct bridges, causeways, and drawbridges in navigable waters (U.S. Coast Guard). A permit also may refer certain other clearances or certifications, such as clearance from the Federal Aviation Administration for proposed highway construction in the vicinity of public-use and military airports, and water-quality certifications for the licensing of an action that would result in a discharge into regulated waters. These approvals, as well as certain others relating to solid-waste management, underground storage tanks, coastal zone areas, and so forth, involve approvals and documentation commonly referred to as permits.

plan of study – A detailed, item-by-item outline of the objectives, scope, methodology, and schedules for the analysis and development of a specific transportation project.

posted speed limit – The speed posted for a facility based on engineering and traffic investigations.

preliminary engineering – A general term to describe early phases of technical studies undertaken to determine all relevant aspects of transportation location, to identify feasible route alternatives or design options, and to assess various cost and benefit parameters before advancing the project into more detailed final design.

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.

principal arterials – Highways in rural and urban areas that connect urban areas, international border crossings, major ports, airports, public-transportation facilities, or other intermodal-transportation facilities.

project development – The overall process of advancing a transportation project from concept to implementation. Project development typically encompasses environmental and engineering tasks including planning, location, preliminary design, final design, and construction.

public hearing – A meeting designed to afford the public the fullest opportunity to express opinions on a transportation project. A verbatim record (i.e., transcript) of the proceedings is made part of the project record.

public involvement – Activities that present information to the public, seek public comments, and serve to ensure consideration of public opinion.

public meeting – An announced meeting conducted by transportation officials designed to facilitate participation in the decision-making process and to assist the public in gaining an informed view of a proposed project at any level of the transportation project development process. Such a gathering may be referred to as a public information meeting.

rare and exemplary natural community – An assemblage of interacting plants and animals and their common environment, recurring across the landscape, in which the effects of recent human interference are minimal. Rare natural communities are those that occur infrequently. Exemplary natural communities are exceptional representatives of more common natural communities.

RCRA generator – An entity that produces hazardous waste regulated under the Resource Conservation and Recovery Act (RCRA) (42 USC Section 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 ROD has been signed. A ROD is prepared no sooner than 30 days after the public release of the Final EIS (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.

REMI Model – The Regional Economic Models, Inc., is a widely used and accepted econometric model maintained and updated by the Center for Business and Economic Research at the University of Southern Maine.

right-of-way – Land acquired by purchase, gift, or eminent domain to build and maintain a public road, bridge, railroad, or public utility.

riparian – An area of land that is adjacent to a stream or other water body.

riverine – Of and relating to rivers.

rural – A rural community is defined as an area with a population of fewer than 2,500 people or a population between 2,500 and 6,000 people and a worker-to-resident-worker ratio less than 1.0.

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

Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC 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 it has been demonstrated that there is to be no prudent and feasible alternative to using the land and that the project includes all possible planning to minimize harm resulting from the use.

Section 6(f) of the Land and Water Conservation Fund Act of 1963 (Section 6(f)) – Legislation that provides for the public purchase and preservation of tracts of land.

Section 10 of the Rivers and Harbors Act of 1899 (Section 10) – Legislation (33 USC Section 403) that resulted in a permit being required from the U.S. Army Corps of Engineers (USACE) for projects requiring construction in or over navigable waters, the excavation from or dredging or disposal of materials in such waters, or any obstruction or alteration in a navigable water (e.g., stream channelization).

Section 106 of the National Historic Preservation Act (Section 106) – The National Historic Preservation Act of 1966 (16 USC 470f), Section 106, requires federal agencies to consider the effect of their undertakings on properties included in or eligible for inclusion on the National Register of Historic Places and to

afford the Advisory Council on Historic Preservation the opportunity to comment on such undertakings.

Section 404 of the Clean Water Act (Section 404) – The Federal Water Pollution Control Act Amendments of 1972 (33 USC 401 et seq.) is the legislation for protection of waters of the United States by the USACE and the U.S. Environmental Protection Agency. In accordance with Section 404 of the Clean Water Act, a permit is required from the USACE for projects requiring discharge of dredged or fill material into waters of the United States.

shrub – A woody plant of relatively low height, having several stems arising from the base and lacking a single trunk.

sight distance – The distance that a driver can see along the roadway before curvature or obstructions block the view.

significant impacts – Any number of social, environmental, or economic effects or influences that may occur as a result of the implementation of a transportation improvement. "Significant impacts" may include effects that are direct, secondary, or cumulative. The term *significant* is used to measure both context and intensity and interpreted by the Federal Highway Administration in determining that type of National Environmental Policy Act document is appropriate. Categorical exclusions are those actions that do not involve significant effects. In most cases, Environmental Impact Statement projects can and do involve significant impacts.

significant wildlife habitat – as defined by Maine Law – Wildlife habitats, including deer-wintering yards, waterfowl and wading-bird habitat, seabird-nesting habitat, and significant vernal pools, that are protected under the State of Maine's 38 MRSA § 480-B.

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

Stormwater Pollution Prevention Plan (SWPPP) – A plan required for major construction projects under the U.S. Environmental Protection Agency National Pollutant Discharge and Elimination System 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 water bodies as surface flow.

study area – An identified expanse of land or topography selected and defined at the outset of engineering or environmental evaluations that is sufficiently adequate in size to fully identify, analyze, and document impacts and effects for proposed projects within its boundaries.

study need – A detailed explanation of the specific transportation problems or deficiencies that have generated the search for improvements. It refers to technical information, as necessary, such as measures of traffic efficiency or demand (e.g., origin–destination patterns, modal links, queue lengths, motorist delays, and level of service) and other goals (e.g., economic development, safety improvement, and legislative directives). Much of this information should be generated by the transportation planning process at an early stage. The explanation of need should be a problem-statement discussion, not a solution-oriented discussion.

study purpose – A broad statement of the overall intended objective to be achieved by a proposed transportation facility. Typically, the purpose can be defined in a few sentences. For instance, it may address expanded capacity in a given transportation corridor to facilitate the safe and efficient movement of people and goods or improved access to a given area or community.

Supplemental Draft Environmental Impact Statement (SDEIS) – The document prepared by the Federal Highway Administration (FHWA) in accordance with FHWA National Environmental Policy Act regulations (23 CFR Part 771.130). A DEIS will be supplemented when the FHWA determines that (1) changes to the proposed action would result in significant impacts not evaluated in the DEIS, 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 DEIS. An SDEIS document generally presents new and updated information with regard to changes in the study and environment that have occurred since the publication of a DEIS.

Surface-water supply watershed – The watershed that contributes to a public drinking-water supply.

system compatibility – Describes how well alternatives, either new highways or upgrades, fit into an

existing highway network and the transportation-improvement plan.

system continuity – Defined by how often highways transition between wide, higher-speed segments to narrow, lower-speed segments.

system linkage – A planning concept that refers to the interconnecting of roadways that comprise an overall transportation network. A discussion about how a proposed project fits into an existing and future transportation system (i.e., network) and how it contributes to developing a sound transportation network in an area or region is termed *system linkage*. In describing this concept, the terms *connector road, missing link, gap completion,* and *circumferential link* are sometimes used.

system planning – A methodical approach to the formulation of plans and programs for safe, efficient, and balanced transportation networks. The process includes the setting of goals and objectives; the collection of data of existing conditions; the simulation of future activities; the formulation of alternative planned changes; the evaluation of the changes against the desired goals and objectives; and the decisions about recommendations that are feasible, desirable, and appropriate.

threatened species – Any species that is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range (in reference to the Endangered Species Act [16 U.S.C. Chapter 35 Section 3(20)] and the Maine Endangered Species Act).

Traditional Cultural Property (TCP) – A property or site that is eligible for inclusion on 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 Demand Management (TDM) – A system of actions whose purpose is to alleviate traffic problems through improved management of vehicle trip demand as opposed to adding new highway segments.

transportation project development process – An interactive, multiphase series of activities typically

spanning a period of years that involves comprehensive planning, prioritization, detailed engineering and environmental studies, and agency and public involvement that lead to the selection, design, and construction of identified transportation improvements.

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

unfragmented habitat block – An undeveloped area that is not impacted by roads, vegetation clearing, or development.

upgrade – A geometric improvement to an existing highway segment.

urban – An urban community is defined as an area with a population of more than 7,500 people or a population between 2,500 and 7,500 people and a worker-to-resident-worker ratio greater than 1.0.

U.S. 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.

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

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

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

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) – A measure of automobile use and trip time. One vehicle traveling 1 hour constitutes 1 vehicle-hour.

vehicle-miles traveled (VMT) – A measure of automobile use and trip length. One vehicle traveling 1 mile constitutes 1 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.

waterfowl and wading bird habitat (WWH) – Wetlands that provide habitat for waterfowl (i.e., geese, brant, and ducks) and wading birds (i.e., heron, egrets, bitterns, and rails) and meet certain criteria for size, quality, and percentage of open water as established by the Maine Department of Inland Fisheries and Wildlife regulations.

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 in which human activities are regulated to protect the quality of groundwater that supplies public drinking-water wells.

wetlands – Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support – and that under typical 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 USC 1271-1287).

Acronyms

AADT	Average annual daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ac.	Acre
ACHP	Advisory Council on Historic Preservation
ADT	Average daily traffic
APE	Area of potential effect
BACTS	Bangor Area Comprehensive Transportation System
BMP	Best management practices
BCWP	Biennial Capital Work Plan
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CRF	Critical Rate Factor
CWA	Clean Water Act (U.S.)
cy	Cubic yards
CZMA	Coastal Zone Management Act
dBA	Decibels using an A-weighted frequency filter
DEIS	Draft environmental impact statement
DHV	Design hour volume
DPS	Distinct population segment
EA	Environmental assessment
EFH	Essential fish habitat
EIS	Environmental impact statement
EO	Executive order
ESA	Endangered Species Act (U.S.)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FEIS	Final environmental impact statement
FONSI	Finding of no significant impact
FPPA	Farmland Protection Policy Act (U.S.)
GAP	Gap Analysis Program (Maine)
GOM	Gulf of Maine
gpm	Gallons per minute
HAPC	Habitat area of particular concern
HCL	High crash location
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent transportation systems
IWWH	Inland waterfowl and wading bird habitat
LAWCON	Land and Water Conservation Fund Act of 1965

LEDPA	Least environmentally damaging practicable alternative
Leq(h)	One-hour equivalent sound level
LMA	Labor market area
LOS	Level of service
MaineDOT	Maine Department of Transportation
MASC	Maine Atlantic Salmon Commission
MASCP	Maine Atlantic Salmon Conservation Plan
MCP	Maine Coastal Program
MDEP	Maine Department of Environmental Protection
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDMR	Maine Department of Marine Resources
MDOC	Maine Department of Conservation
MGS	Maine Geological Survey
MHPC	Maine Historic Preservation Commission
mi.	Mile
MNAP	Maine Natural Areas Program
MOA	Memorandum of agreement
mph	Miles per hour
MRSA	Maine Revised Statutes Annotated
MSAT	Mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NCHRP	National Cooperative Highway Research Program
NAC	Noise abatement criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NNEPRA	Northern New England Passenger Rail Authority
NOAA	National Oceanographic and Atmospheric Administration
NOI	Notice of intent
NOx	Nitrogen Oxide
NPDES	Nationial Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRPA	Natural Resources Protection Act
NSA	Noise sensitive area
NWI	National Wetlands Inventory
PAC	Public Advisory Committee
Pb	Lead
PEM	Palustrine emergent wetlands
PFO	Palustrine forested wetlands
PM	Particulate matter
ppm	Parts per million
ppt	Parts per thousand
PSS	Palustrine scrub-shrub wetlands
ROD	Record of decision
SADT	Summer average daily traffic
SHPO	State Historic Preservation Officer
SO2	Sulfur dioxide
SPO	State Planning Office
STPA	Maine Sensible Transportation Policy Act
TDM	Travel demand management

TNM	Traffic Noise Model
TSM	Transportation systems management
TSS	Total suspended solids
TWWH	Tidal waterfowl and wading-bird habitats
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground storage tank
v/c	Volume to capacity ratio
VOCs	Volatile organic compounds
VHT	Vehicle hours traveled
VMT	Vehicle miles traveled
vpd	Vehicles Per Day
vph	Vehicles per hour
YOY	Young of the year

· THIS PAGE INTENTIONALLY LEFT BLANK ·

Summary

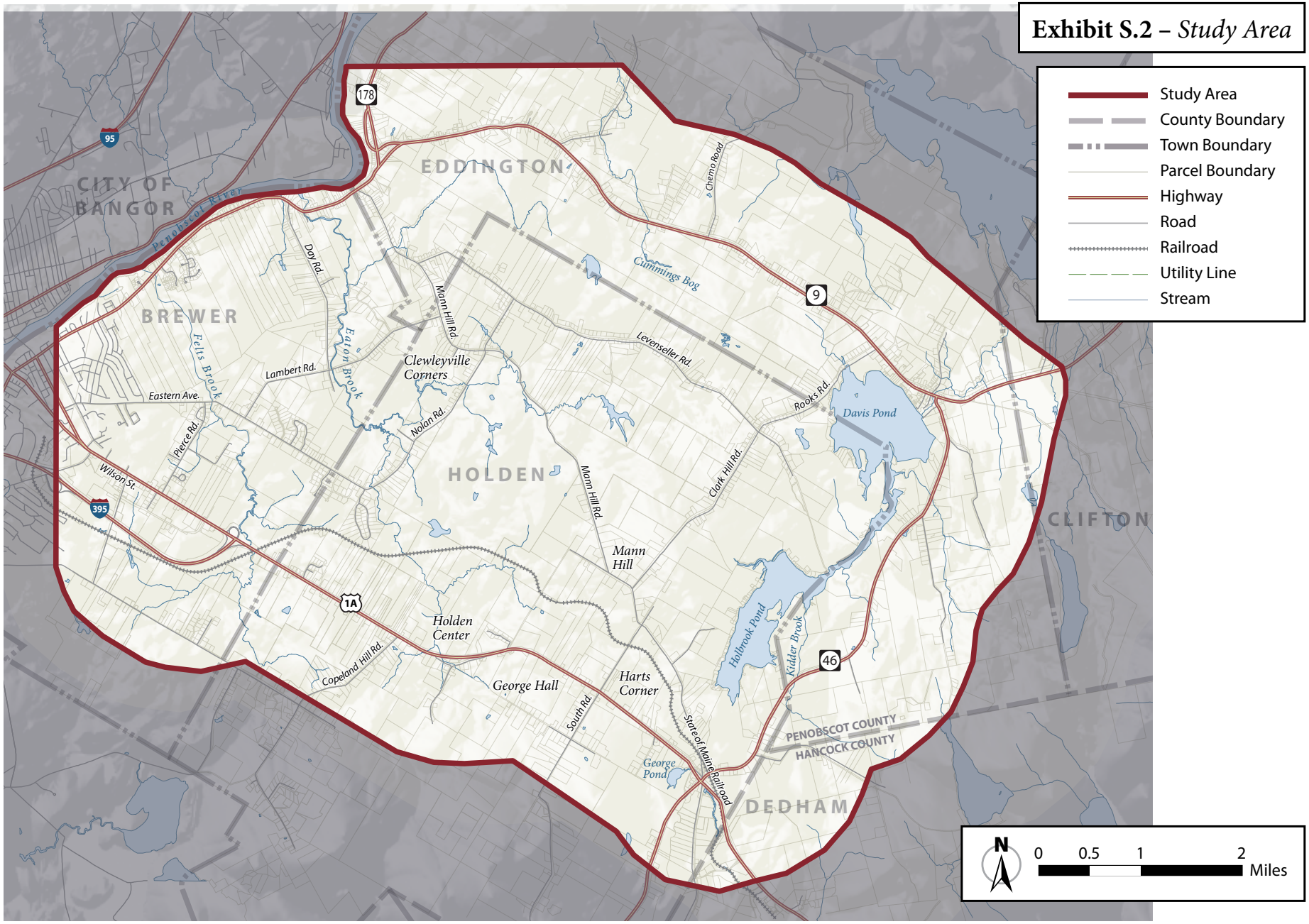
The Maine Department of Transportation (MaineDOT) and the Federal Highway Administration (FHWA) have undertaken the Interstate 395/ Route 9 transportation study to identify a regional solution that would improve transportation-system linkage, safety, and mobility between I-395 and Route 9 along Routes 1A and 46, and to improve the current and future flow of traffic and the shipment of goods to/from the Interstate system in southern Penobscot County, Maine (exhibits S.1 and S.2). The U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration–National Marine Fisheries Service, Maine Department of Environmental Protection, and Maine Historic Preservation Commission acted as cooperating agencies for the study.

"Cooperating agency" means any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment. A state or local agency of similar qualifications…may by agreement with the lead agency become a cooperating agency (40 CFR 1508.5).

Exhibit S.1 – *Location Map*

Chapter Contents

Exhibit S.2 – *Study Area*



The opening of I-395, the State of Maine's east–west highway initiative, and the creation of the federal National Highway System (NHS) established the impetus for this study.

Purpose

The purposes of the I-395/Route 9 Transportation Study are to (1) identify a section of the NHS in Maine from I-395 in Brewer to Route 9, consistent with the current American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*; (2) improve regional system linkage; (3) improve safety on Routes 1A and 46; and (4) improve the current and future flow of traffic and the shipment of goods to the Interstate system. The logical termini of the project was identified and defined as (1) I-395 near Route 1A and (2) the portion of Route 9 in the study area.

In accordance with Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) is required to prepare a basic purpose statement to determine compliance with the CWA section 404(b)(1) guidelines. Accordingly, the USACE determined that the basic project purpose "…is to provide for the safe and efficient flow of east-west traffic and shipment of goods from Brewer (I-395) to Eddington (Route 9), Maine, for current and projected traffic volumes."

Needs

The need (i.e., the problem) for transportation improvements is based on poor roadway geometry in the study area combined with an increase in local and regional commercial and passenger traffic that has resulted in poor system linkage, safety concerns, and traffic congestion.

Poor System Linkage

Vehicles traveling through the study area from I-395 to Route 9 generally proceed from I-395 to Routes 1A, 46, and 9 — a path that has abrupt transitions in travel speed, roadway geometry, and capacity, as follows:

- I-395 is a principal arterial highway between I-95 in Bangor and Route 1A in the study area. I-395 is a controlled-access highway with two eastbound and two westbound lanes separated by an approximate 50-foot grass median. It connects to Route 1A in Brewer with a partial cloverleaf interchange. I-395 has a posted speed of 55 miles per hour (mph) and has a paved shoulder approximately 10 feet wide.
- Route 1A is a principal arterial highway connecting the greater Bangor and Brewer area with Ellsworth and the coast at Bar Harbor. West of the I-395 interchange, Route 1A has two eastbound lanes and two westbound lanes.

East of the I-395 interchange, Route 1A has one eastbound lane, one westbound lane, and a center turn lane from Brewer to approximately 1.3 miles east of the I-395 interchange. The remainder of Route 1A in the study area and to the coast has one eastbound and one westbound lane with no center turn lane. Access to Route 1A from its adjacent properties is not controlled and is subject to the state's rules on access management. Route 1A in the study area is posted at 25 to 45 mph, depending on location, and has a paved shoulder approximately 6 feet wide. The land uses adjacent to Route 1A in the study area are primarily commercial and residential with some undeveloped and underdeveloped areas. Over time, the areas adjacent to Route 1A are becoming increasingly more commercial.

- Route 46 is a two-lane collector road connecting Route 1A to Route 9. Access to Route 46 from adjacent properties is not controlled and is subject to the Maine's rules on access management. Portions of Route 46 are steep and exceed the State of Maine's design criteria. Route 46 is posted at 35 or 45 mph and has a gravel shoulder approximately four feet wide. The land cover adjacent to Route 46 is primarily mature forested areas with scattered residences and open areas. Approaching Route 9, the land uses adjacent to Route 46 are primarily residential. Because of the mature forest canopy, considerable portions of Route 46 are shaded, and snow and ice cover does not melt rapidly.
- Route 9 is a two-lane principal arterial highway connecting the greater Bangor and Brewer area with Washington County and the Canadian Maritime Provinces to the east. Access to Route 9 from its adjacent properties is not controlled and is subject to Maine's rules on access management. Route 9 is posted at 35 or 55 mph with some school zones, depending on location in the study area, and has a paved shoulder approximately eight feet wide. The land uses adjacent to Route 9 in the study area are primarily commercial and residential with some undeveloped and underdeveloped areas. Over time, the areas adjacent to Route 9 are becoming increasingly more developed. To the east of the study area, the land uses and land cover adjacent to Route 9 quickly become less developed and more forested, and the speed limit increases to 55 mph. Most of the land adjacent to Route 9 east of the study area to the Canadian border is undeveloped.

The portions of Routes 1A and 46 in the study area do not provide a high-speed, controlled-access arterial

highway between I-395 and Route 9 to the east. These two roads do not provide an operationally efficient transportation facility for regional connectivity and mobility through the study area. The results of these deficiencies in system linkage are safety concerns, delays in passenger and freight movement, and conflicts between local and regional traffic.

Safety Concerns

Locations in the study area exhibit higher crash rates than other locations in Maine with similar characteristics. Data were collected and analyzed to identify high crash locations (HCLs) using a critical rate factor (CRF). The CRF of an intersection or roadway section is a statistical measure of that location's crash history as compared to locations with similar geography, traffic volume, and geometric characteristics. When a CRF exceeds 1.00, the intersection or portion of a roadway has a higher-than-expected crash rate. Those locations with a CRF higher than 1.00 and more than eight crashes in a three-year period are considered HCLs. Data were collected and analyzed to identify HCLs in the study area. MaineDOT crash data for January 2004 through December 2008 indicate 10 HCLs that meet the criteria in the study area. The majority of crashes occurred on clear days with dry road conditions.

Traffic Congestion

Since the extension of I-395 from Bangor to Route 1A in 1987, traffic volumes in the study area have increased steadily. This growth has been most pronounced along Route 46 between Routes 1A and 9, which has become more widely used by both passenger vehicles and trucks as a connection among I-95, I-395, and Route 9. Much of the truck traffic in the study area is through-traffic. Most of the truck trips are between the Canadian Maritime Provinces and Washington County at the eastern end, and Penobscot County and the New England states at the western terminus of the trips. Approximately 80 percent of truck traffic on Route 9 uses Route 46, and approximately five of six heavy trucks that use Routes 46 and 1A also use I-395. Route 46 south of Route 9 exhibited the greatest annual growth rate (i.e., annual growth factor of 1.121) in heavy-truck traffic between 1983 and 1996 of all roads in the greater Bangor area.

Estimates of the current and future annual average daily traffic (AADT) for all vehicles and heavy trucks were determined based on MaineDOT traffic count data (exhibit S.3). With the recent economic downturn and increase in the price of gas, traffic in the study area has not grown as fast as previously thought. The MaineDOT and FHWA believe the growth in traffic and traffic volumes originally forecast for the study area for the year 2030 won't materialize until the year

Exhibit S.3 – *Existing and Future Traffic*

Location	1998 AADT	2006 AADT	2010 AADT	2035 AADT	2010 Truck AADT	2035 Truck AADT	% Growth 1998–2035	Growth Per Year 1998–2035
Route 1A east of I-395	18,140	20,370	22,236	33,070	1,569	2,449	82%	2.57%
Route 1A west of Route 46	16,550	15,220	16,976	30,600	1,569	2,449	85%	2.65%
Route 1A east of Route 46	11,220	11,260	12,116	18,870	1,569	2,449	68%	2.13%
Route 46 south of Route 1A	1,920	1,870	2,021	3,130	265	281	63%	1.97%
Route 46 north of Route 1A	2,270	2,270	3,058	8,570	604	1,167	278%	8.67%
Route 9 east of Route 178	6,440	6,870	7,156	8,730	569	662	36%	1.11%
Route 9 west of Route 46	4,780	5,050	5,129	5,410	604	1,167	13%	0.41%
Route 9 east of Route 46	5,100	5,400	5,830	10,940	879	1,535	115%	3.58%

2035. By 2035, traffic volumes on Route 46 between Routes 1A and 9 are forecasted to increase by approximately 6,300 vehicles.

The projected increases in traffic would lead to more traffic congestion. To help measure the traffic-congestion problem and the quality of traffic flow, the MaineDOT modeled existing (1998 and 2006) and future (2035) design hour volumes (DHVs) of traffic for three roadways in the study area: Routes 1A, 9, and 46. The DHV is the 30th highest hour of travel during a year at a given location; therefore, it accurately reflects the heaviest summer travel congestion. The MaineDOT used the DHVs to determine the volume-to-capacity (v/c) ratio, operating speeds, and overall level of service (LOS) for the following five roadway segments within the study area: (1) Route 1A east of the I-395 interchange and west of Route 46; (2) Route 1A east of Route 46; (3) Route 46 between Routes 1A and 9; (4) Route 9 east of Route 178 and west of Route 46; and (5) Route 9 east of Route 46.

The MaineDOT estimated the DHV, v/c ratios, LOS, and average travel speed of these roadway segments using peak season 1998 and 2006 travel conditions and forecasted peak season 2035 travel conditions (exhibit S.4). Route 1A east of the I-395 interchange and west of Route 46 is forecasted to decrease in service from LOS E in 1998 to LOS F by 2035. LOS F represents heavily congested flow with traffic demand exceeding

capacity. Route 1A east of Route 46 is forecasted to decrease from LOS D in 1998 to LOS E by 2035. LOS E is defined as traffic flow on two-lane highways having a time delay of greater than 75 percent. Passing under LOS E conditions is virtually impossible. LOS E is seldom attained over extended sections of level terrain on more than a transient condition; most often, small disturbances in traffic flow as LOS E is approached causes a rapid transition to LOS F.

The intersection of Routes 1A and 46 is a signalized intersection. This intersection serves traffic traveling to and from the areas of Downeast Maine and traffic to and from the Ellsworth area and the coast. In 1998, the overall performance of this intersection was estimated using peak-volume conditions at LOS B. By 2035, with increases in traffic volume and corresponding increases in delays, this intersection is forecasted to decline to an overall performance of LOS F. LOS F at a signalized intersection describes a control delay exceeding 80 seconds per vehicle. This LOS occurs when arrival flow rates exceed the capacity of the intersection.

In 1998, the delay on northbound Route 46 to the intersection of Routes 46 and 9 was estimated using peak-volume conditions to be 6.5 seconds (LOS A). By 2035, with increases in traffic volume, this delay is forecasted to increase to 119.4 seconds (LOS F).

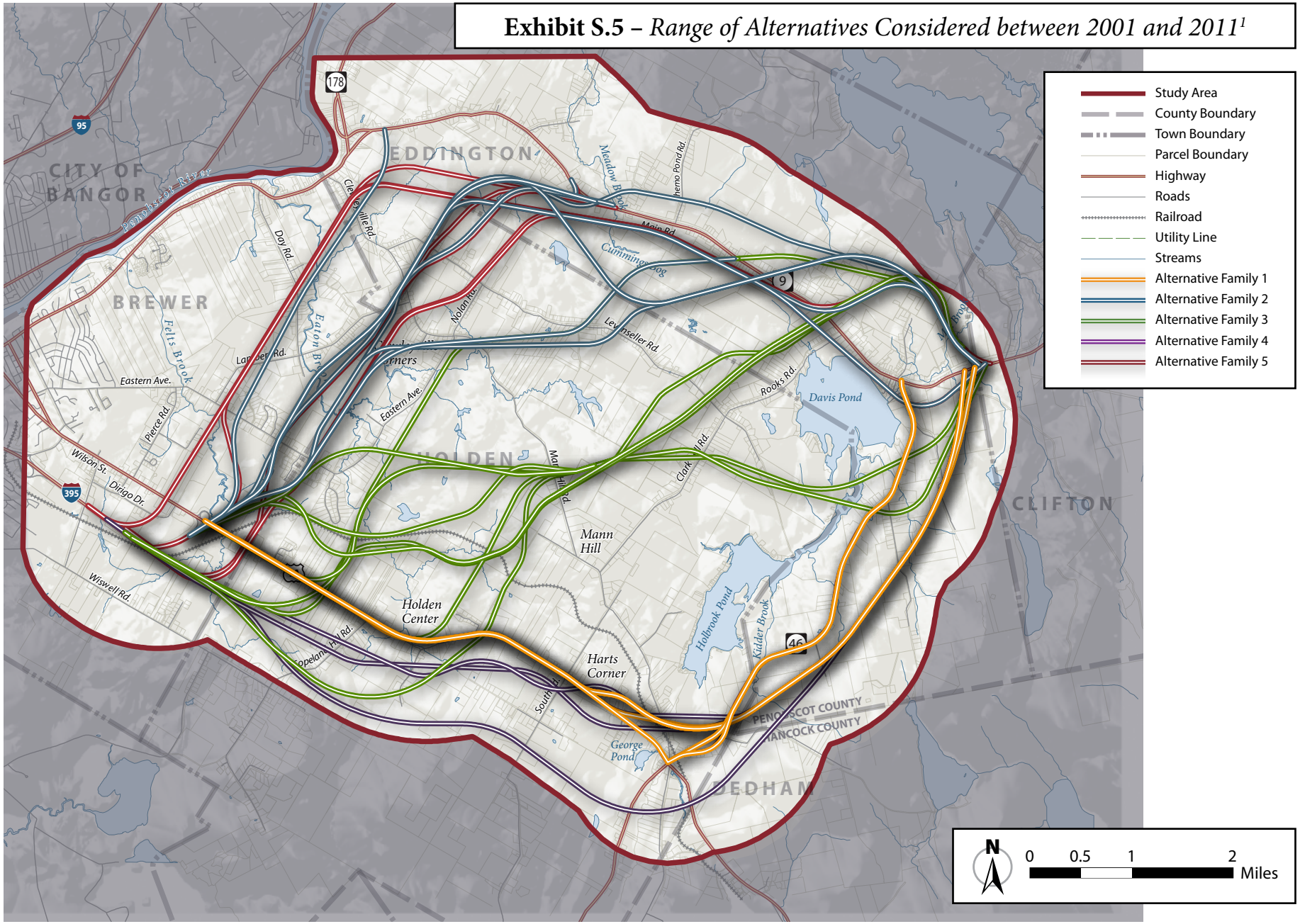
Exhibit S.4 – *DHV, v/c Ratio, LOS, and Average Travel Speed for Roadways Segments*

Year	DHV	v/c Ratio	Average Travel Speed (mph)	LOS Rural Two–Lane Road
Route 1A east of I-395				
1998	1,840	0.63	34.6	E
2006	2,001	0.69	33.2	E
2035	3,269	1.12	varies	F
Route 1A east of Route 46				
1998	1,282	0.43	44.1	D
2006	1,268	0.43	44.2	D
2035	2,123	0.72	37.5	E
Route 46 between Routes 1A and 9				
1998	244	0.14	45.1	C
2006	197	0.12	45.6	C
2035	1,006	0.40	40.8	D
Route 9 east of Route 178				
1998	641	0.27	41.2	D
2006	629	0.26	41.3	D
2035	873	0.36	39.5	E
Route 9 east of Route 46				
1998	505	0.20	43.9	D
2006	573	0.23	43.5	D
2035	1,267	0.46	39.3	E

Alternatives

From 2001 to 2010, the MaineDOT and the FHWA conceptually designed and analyzed the No-Build Alternative and more than 70 build alternatives that could potentially satisfy the study purpose and needs and the USACE basic project purpose (exhibit S.5). The build alternatives would be controlled-access

Exhibit S.5 – *Range of Alternatives Considered between 2001 and 2011*[1]



[1] **Note:** *Alternative alignments shown here have been grouped into families. For a detailed discussion of each family, please refer to Appendix C*

highways and were conceptually designed using the MaineDOT design criteria for freeways.

Two lanes would be constructed and used for two-way travel within an approximate 200-foot-wide right-of-way. In designing and analyzing alternatives, the MaineDOT and the FHWA consulted with regulatory and resource agencies at the state and federal level, local officials, special-interest groups, the Public Advisory Committee (PAC), and the public. At the end of the process of identifying, developing, analyzing, and screening alternatives, four alternatives, including the No-Build Alternative, were retained for further consideration and detailed study.

A screening process, undertaken in several stages, was established to systematically consider the wide range of potential alternatives and to identify a reasonable number to be retained for detailed analysis (see Appendix C). The screening analysis considered alternatives that fit into five broad "families", as follows:

- **Family 1: The Upgrade Alternatives.** Widening and other improvements to Route 1A (from I-395 to Route 46) and Route 46 (from Route 1A to Route 9) approximately 10 miles long. Although one upgrade alternative was initially considered, six upgrade and five partial-upgrade alternatives ultimately were considered.
- **Family 2: The Northern Alternatives.** Alternatives that began at the I-395/Route 1A interchange and generally proceeded in a northerly direction to connect with Route 9. These alternatives were five to 10 miles in length, depending on the distance on Route 9 used as part of the alternative. Twelve alternatives in this family were ultimately studied.
- **Family 3: The Central Alternatives.** Alternatives that began at or near the I-395/Route 1A interchange and generally proceeded east and west through the study area to Route 9 east of Route 46. These alternatives were seven to 11 miles in length, depending on the distance on Route 9 used as part of the alternative. Using all possible combinations of the six western components, the four eastern components, and component 3K, 36 possible central alternatives were initially created. Five other alternatives (for a total of 41) in this family were ultimately developed by modifying some of the initial 36 alternatives.
- **Family 4: The Southern Alternatives.** Alternatives that began near the I-395/Route 1A interchange and that were south of Route 1A and east of Route 46. These alternatives paralleled Routes 1A and 46, and intersected Route 9 in East Eddington. These alternatives were

approximately 11 miles in length. Four alternatives were identified and considered: 4A, 4B, 4C, and 4D.

- **Family 5: Alternatives Paralleling Existing Utility Easements.** Alternatives that began at or near the I-395/Route 9 interchange and proceeded in a northerly direction paralleling the utility easements (to the extent possible) to connect with Route 9 in East Eddington. These alternatives were approximately 11 miles in length. Eight alternatives in this family were ultimately studied.

The No-Build Alternative was fully developed to allow an equal comparison to the build alternatives and was carried through the screening process.

In 2001, the MaineDOT and the FHWA, using results of the preliminary impacts analysis, dismissed from further consideration 37 of the initial 45 alternatives because other alternatives were less environmentally damaging, or it did not meet the purpose or all of the needs of the study. The analysis performed in 2001 retained the alternative from each family with the least adverse impact to the features and resources and resulted in the No-Build Alternative and seven alternatives.

The development of alternatives continued and screening through 2008. New alternatives, modifications of alternatives, and combinations of alternatives were considered. In 2004, alternatives were identified and developed parallel to the utility easements with the Bangor Hydro-Electric Company transmission lines noted as Family 5. The process of identifying, developing, and screening alternatives or modifying alternatives continued. In January 2008, seven new alternatives, including the No-Build Alternative, were preliminarily identified for further consideration and development and detailed study.

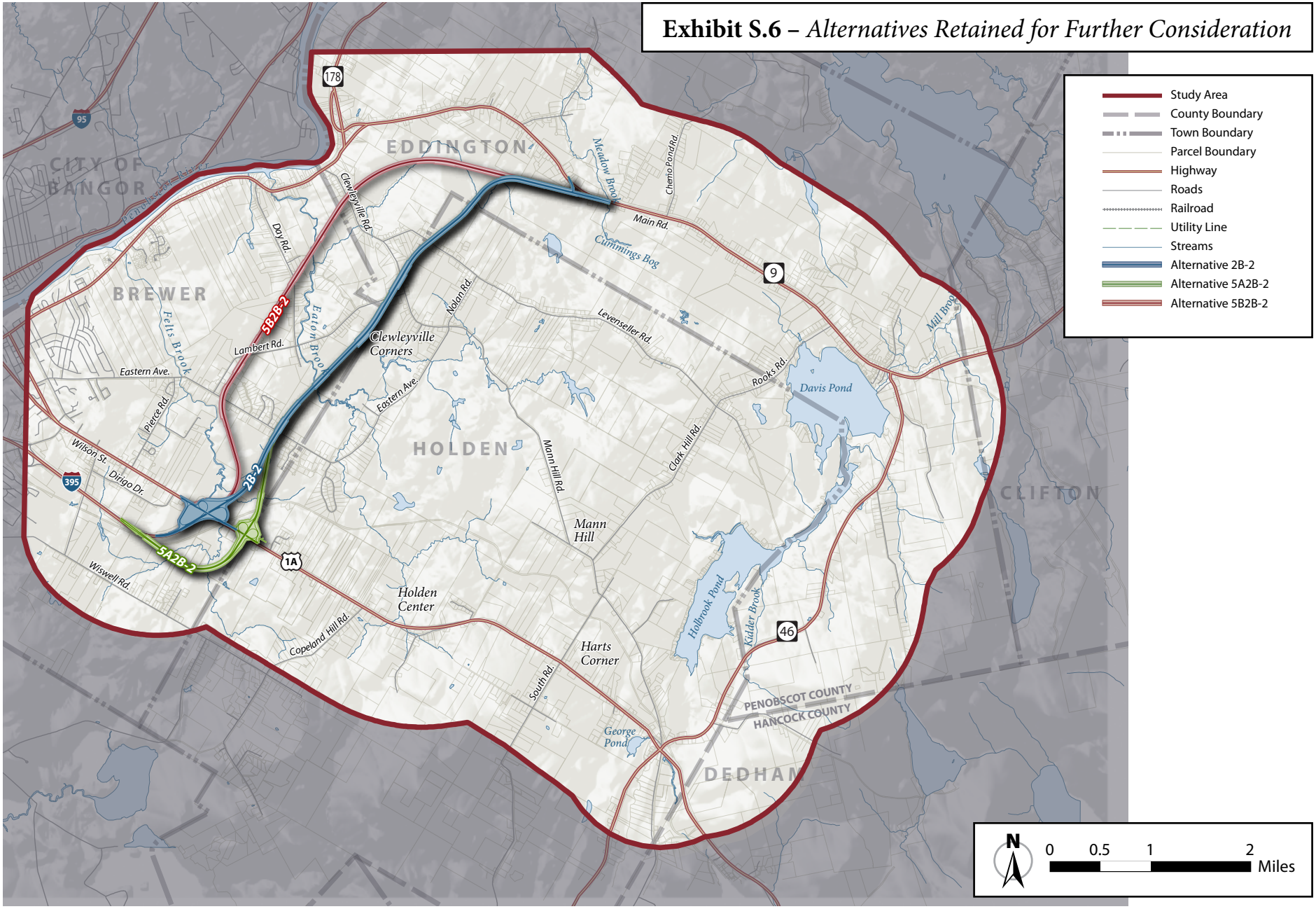
In a continued effort to avoid and minimize adverse impacts in December 2008, six connectors between the three westernmost build alternatives were identified, developed, and analyzed at the beginning of the phase of considering alternatives in detail.

The process of identifying, developing, and screening alternatives or modifying alternatives continued. New alternatives, modifications of alternatives, and combinations of alternatives were considered. In September and December 2010, meetings with the federal cooperating agencies took place, the purpose of which was to solidify the range of alternatives to be considered in detail (see Appendix C in the DEIS).

The following four alternatives were retained for further consideration and detailed study (exhibit S.6):

- No-Build Alternative
- Alternative 2B-2

Exhibit S.6 – *Alternatives Retained for Further Consideration*



- Alternative 5A2B-2
- Alternative 5B2B-2

The cooperating agencies concurred with this range of alternatives to be retained for detailed analysis.

The No-Build Alternative

The No-Build Alternative proposes that there be no new construction or major reconstruction of the transportation system in the study area; regular maintenance to I-395 and Routes 1A, 46, and 9 would be continued at its present level, and the intersection of Routes 46 and 9 would be improved.

Although the No-Build Alternative does not satisfy the study's purpose and needs or the USACE's basic purpose, it is retained for detailed analysis to allow equal comparison to the build alternatives and to help decision makers understand the ramifications of taking no action. The impacts of the No-Build Alternative were fully developed for design year 2035 to demonstrate the full impact of taking no action. Comparing the build alternatives with the current and future No-Build Alternative is essential for measuring the true benefits and adverse impacts of the build alternatives considered in detail.

Alternative 2B-2

Alternative 2B-2 would continue north from the I-395 interchange with Route 1A, roughly paralleling the Brewer/Holden town line, and connect with Route 9 west of Chemo Pond Road. Route 9 would not be widened to four lanes. The existing I-395/Route 1A interchange would be used (to the extent possible) and expanded to become a semidirectional interchange. A semidirectional interchange reduces left turns and cross traffic; the only traffic movement that would require a left turn would be Route 1A south to Alternative 2B-2 north. The land required for the northern portion of the interchange is owned by the State of Maine.

Alternative 2B-2 would bridge over Felts Brook in two locations at the I-395 interchange. It would pass underneath Eastern Avenue between Woodridge Road and Brian Drive. Alternative 2B-2 would bridge over Eaton Brook, bridge over Lambert Road, pass underneath Mann Hill Road, and bridge over Levenseller Road connecting to Route 9 at a "T" intersection. Route 9 eastbound would be controlled with a stop sign.

Alternative 2B-2 would further the study's purpose and satisfy the system linkage need in the near term. Alternative 2B-2 would be a controlled-access highway and conceptually designed using the MaineDOT design criteria for freeways. Two lanes would be

constructed and used for two-way travel within an approximate 200-foot-wide right-of-way. Route 9 would not be improved, and it would not provide high-speed, limited access connection to the east of East Eddington village. It would satisfy the study need related to traffic congestion and safety. It would satisfy the USACE's basic purpose statement.

Alternative 5A2B-2

Alternative 5A2B-2 would start from I-395 for approximately one mile along the southern side of Route 1A in the town of Holden before turning northward, crossing over Route 1A and paralleling the Bangor Hydro-Electric Company utility easement to connect with Route 9 west of Chemo Pond Road (exhibit S.5). Route 9 would not be widened to four lanes. Alternative 5A2B-2 would connect to Route 1A with a modified diamond interchange, which would provide all traffic movements and require two left turns across traffic. A left-turn lane would be provided on Route 1A to 5A2B-2 north. The modified-diamond interchange design would reduce the amount of property that must be acquired. It would connect to Route 9 at a "T" intersection. Route 9 eastbound would be controlled with a stop sign.

Alternative 5A2B-2 would bridge over Felts Brook in two locations at the I-395 interchange. It would pass underneath Eastern Avenue between Woodridge Road and Brian Drive. Alternative 5A2B-2 would bridge over Eaton Brook, bridge over Lambert Road, pass underneath Mann Hill Road, and bridge over Levenseller Road connecting to Route 9 at a "T" intersection. Route 9 eastbound would be controlled with a stop sign.

Alternative 5A2B-2 would further the study's purpose and satisfy the system linkage need in the near term. Alternative 5A2B-2 would be a controlled-access highway and conceptually designed using the MaineDOT design criteria for freeways. Two lanes would be constructed and used for two-way travel within an approximate 200-foot-wide right-of-way. Route 9 would not be improved, and it would not provide a high-speed, limited-access connection to the east of East Eddington village. It would satisfy the study need related to traffic congestion and safety. It would satisfy the USACE's basic purpose statement.

Alternative 5B2B-2

Alternative 5B2B-2 would continue north from the I-395 interchange with Route 1A before turning east and connecting with Route 9 west of Chemo Pond Road (exhibit S.5). Route 9 would not be widened to four lanes. The existing I-395/Route 1A interchange would be used (to the extent possible) and expanded to become a semidirectional interchange. The only traffic movement that would require a left turn would

be Route 1A south to Alternative 5B2B-2 north. The land required for the northern portion of the interchange is owned by the State of Maine.

Alternative 5B2B-2 would bridge over Felts Brook in two locations at the I-395 interchange. It would bridge over Eastern Avenue to the immediate east of Lambert Road and bridge over Lambert Road. It would pass under Day Road and Chewleyville Road before turning east and connecting to Route 9 at a "T" intersection. Route 9 eastbound would be controlled with a stop sign.

Alternative 5B2B-2 would further the study's purpose and satisfy the system linkage need in the near term. Alternative 5B2B-2 would be a controlled-access highway and conceptually designed using the MaineDOT design criteria for freeways. Two lanes would be constructed and used for two-way travel within an approximate 200-foot-wide right-of-way. Route 9 would not be improved, and it would not provide a high-speed, limited-access connection to the east of East Eddington village. It would satisfy the study need related to traffic congestion and safety. It would satisfy the USACE's basic purpose statement.

Identification of a Preferred Alternative

After careful consideration of the range of alternatives developed in response to the study's purpose and needs and in coordination with its cooperating and participating agencies, the MaineDOT and the FHWA identified Alternative 2B-2 as the preferred alternative because they believe it best satisfies the study purpose and needs, would fulfill their statutory mission and responsibilities, and has the least adverse environmental impact.

In identifying Alternative 2B-2 as the preferred alternative, the MaineDOT and the FHWA believe they have identified the environmentally preferable alternative because it best meets the purpose and needs for the study; causes the least damage to the biological and physical environment; and best protects, preserves, and enhances the historic, cultural, and natural resources of the study area.

As part of the review of this EIS, the MaineDOT and the FHWA invite comments on its decision identifying Alternative 2B-2 as its preferred alternative.

The final selection of an alternative will not be made until comments on this draft EIS and from the public hearing have been received and analyzed by the MaineDOT and FHWA, and comments have been received in response to the USACE's public notice; all reasonable alternatives are under consideration and a decision will be made after the alternatives' impacts and comments on the draft EIS and from the public hearing have been fully evaluated.

Impacts to the Natural and Social Environment

A study area of approximately 34,416 acres encompassing the range of reasonable alternatives was identified, and a detailed analysis of the natural, social, and economic features of the study area was performed. The study area covers not only the land that would be used for the build alternatives but also the areas that would experience direct, indirect, and cumulative impacts from them.

The No-Build Alternative would adversely impact the study area by failing to reduce traffic backsups on Routes 1A, 9, and 46; failing to address safety problems at 10 HCLs; and negatively impacting the community character of Brewer, Holden, and Eddington by not reducing heavy traffic in the study area. Traffic congestion in the study area is projected to worsen under the No-Build Alternative.

From a broad perspective, the build alternatives retained for further consideration are quite similar. They would begin in the same area of I-395 and Route 1A near the Brewer/Holden town line, carry traffic north, and connect with Route 9 in Eddington. The build alternatives would have considerable beneficial impacts to the study area and region. Each alternative would have similar positive impacts to mobility and congestion on Routes 1A, 9, and 46. The build alternatives would have the added benefit of improving safety throughout the study area and region.

Although the majority of the potential adverse impacts from the build alternatives are similar at a high level, a few distinct differences exist (exhibits S.7, S.8, and S.9).

The build alternatives would not impact the physical geography; climate; geological resources; significant sand and gravel aquifers; wild and scenic rivers; essential habitat; tribal trust lands; sites containing uncontrolled petroleum and hazardous wastes; historic resources; archaeological resources; and traditional cultural properties. Section 4(f) states that publicly owned parks, recreation lands, wildlife and waterfowl refuge areas, or historic sites of national, state, or local significance may not be used for USDOT funded projects unless there is no feasible and prudent alternative to the use of such land and such projects include all possible planning to minimize harm to these lands. The build alternatives would not impact public parks or recreation lands or other lands or facilities afforded consideration and protection under Section 4(f) of the USDOT Act of 1966.

Estimated Construction Costs

The estimated construction costs of alternatives include the costs of preliminary engineering, construction engineering, utility relocation, acquisition

Exhibit S.7 – *Direct Impacts of Alternatives*

Alternatives	Physical and Biological															Land Use				
				Streams																
	Wetlands (acres)	Roadway contaminants within 100 feet[1] (acres)	Roadway contaminants within 160 feet[2] (acres)	Bridges and culverts/feet	Roadway contaminants within 100 feet[1] (acres)	Roadway contaminants within 160 feet[2] (acres)	Sediments within 3,300 feet[2] acres)	Floodplains (acres)	Vernal pools[3]/ dispersal habitat (acres)	Waterfowl and wading bird habitat[4] (acres)	Deer-wintering areas (acres)	Endangered Species	Vegetation (acres)	Undeveloped habitat	Area to be acquired (acres)	Historic Properties	4(f) Properties	Residential displacements[5]	Business displacements[6]	Business impacts[7]
No-Build	-	17	64	-	0.3 ac. (17,000 sq. ft.)	0.7 ac. (29,000 sq. ft.)	12 ac.	-	-	-	-	-	-	-	-	-	-	-	-	-
2B-2/the Preferred Alternative	26	31	66	5 bridges 3 culverts/ 554 feet	0.9 ac. (39,100 sq. ft.)	1.8 ac. (78,300 sq. ft.)	13 ac.	10	1/15	9 acres along Eaton Brook and its tributaries	-	Yes	102	Eliminates two blocks; fragments three blocks	163	No	No	8	-	Eastern Maine Healthcare parking lot – 130 parking spaces (20 percent)
5A2B-2	31	34	71	5 bridges 3 culverts/ 567 feet	0.6 ac. (24,300 sq. ft.)	1.5 ac. (63,000 sq. ft.)	18 ac.	2	1/23	20 acres along Felts Brook and 9 acres along Eaton Brook	-	Yes	136	Eliminates two blocks; fragments four blocks	215	No	No	15	Brewer Fence Company, Eden Pure Heaters, Mitchell's Landscaping and Garden Center, Town 'N Country Apartments	-
5B2B-2	32	30	80	6 bridges 1 culvert/ 222 feet	1.0 ac. (43,700 sq. ft.)	2 ac. (90,000 sq. ft)	17 ac.	11	1/6	3 acres along a tributary to Eaton Brook	3 acres along a tributary to Eaton Brook	Yes	102	Fragments four blocks	186	No	No	6	Bangor Hydro-Electric Co. Building, Maritimes and Northeast Pipeline Compressor Station	Eastern Maine Healthcare parking lot – 130 parking spaces (20 percent)

Notes:
Primary road contaminants are salt and lead.
No-Build Alternative consisted of Route 1A from I-395 to Route 46, and Route 46 from Route 1A to Route 9.
[1]***Source:*** *USACE New England District, "Compensatory Mitigation Guidance" , 2010.*
[2]***Source:*** *Maine Audubon Society, "Conserving Wildlife On and Around Maine's Roads", 2007.*
[3]*All vernal pools are insignificant.*
[4] *Upland habitat within 250 ft.*
[5] *The taking of a residence*
[6] *The taking of a business*
[7] *An impact to the business without the taking of the business*

Exhibit S.8 – *Indirect Impacts of Alternatives*

Resources		Distances (feet)		Alternative Indirect Impacts (acres)							
		Upslope/ Upwind	Downslope/ Downwind	No-Build Alternative[3] Upslope	No-Build Alternative[3] Downslope	2B-2/the Preferred Alternative Upslope	2B-2/the Preferred Alternative Downslope	5A2B-2 Upslope	5A2B-2 Downslope	5B2B-2 Upslope	5B2B-2 Downslope
Soils		Erosion could affect water quality in surface waters.									
Surface Waters	Contaminants	160[1]		0.7		1.8		1.5		2.0	
	Sediments	0[1]	3,300[1]	12		0	13	0	18	0	17
Groundwater		No indirect impacts									
Aquatic Habitat and Fisheries		160[1]		0.7		1.8		1.5		2	
Vernal Pools	Area	250[2]		54		17		25		8	
	Percent Forested			46%		60%		78%		83%	
	Area	750[2]		480		278		395		146	
	Percent Forested			53%		63%		59%		69%	
Floodplains		0	100[4]	0	1	0	11	0	5	0	15
		160[1]		4		22		8		28	
Wetlands		0	100[4]	0	17	0	31	0	34	0	30
		160[1]		64		66		71		80	
Vegetation	Contaminants	160[1]		164		232		252		202	
	Nitrogen enrichment and altered vegetation	160[1]	330[1]	95	187	88	292	92	312	116	240
	Invasive species	660[1]	3,300[1]	753	3,920	329	4,407	398	4,346	498	2,944
Wildlife	Large mammals	160[1]	330[1]	0	0	74	128	69	173	89	103
	Grassland birds	330[1]	660[1]	0	80	146	250	136	334	178	204
	IWWH	0	100[4]	0	2	0	10	0	19	0	4
Wildlife Habitat		660[1]	3,300[1]	84	2,189	278	1,416	255	1,669	423	893

Notes:

[1]Source: Maine Audubon Society, "Conserving Wildlife On and Around Maine's Roads", 2007.

[2]Source: USACE, New England District, "Compensatory Mitigation Guidance", 2010.

[3] No-Build Alternative consisted of Route 1A from I-395 to Route 46, and Route 46 from Route 1A to Route 9.

[4] USEPA, 2010

Exhibit S.9 – *Cumulative Effects for the Build Alternatives*

Alternative	Surface Waters	Floodplains (acres)	Wetlands (acres)	Forest Vegetation (acres)	Wildlife Habitat (acres)
2B-2/the Preferred Alternative	4,900 feet of streams; unknown impacts from stormwater runoff.	26	182	602	873
5A2B-2	5,000 feet of streams; unknown impacts from stormwater runoff.	18	187	636	924
5B2B-2	4,800 feet of streams; unknown impacts from stormwater runoff.	27	188	602	556

of property for right-of-way, and mitigating environmental impacts. The costs of the build alternatives would range between approximately $61 million and $81 million (in 2011 dollars).

Areas of Controversy

The Interstate 395/ Route 9 transportation study has attracted substantial local interest since the beginning of the scoping process for the Environmental Assessment (EA) in 2000. On October 11, 2005, the I-395/Route 9 transportation study was elevated to an EIS by the FHWA because of the potential impacts to wetlands, unfragmented habitat, and the potential difficulty in compensating for those impacts.

Issues to Be Resolved

There are two primary issues to be resolved. The first is the MaineDOT must obtain a Section 404 permit from the USACE; the second is MaineDOT would need to work with the affected municipalities to develop a corridor-preservation plan to protect the selected corridor from further development.

Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from regulation (e.g., certain farming and forestry activities). The Section 404(b)(1) guidelines provide guidance to the USACE for issuing permits; compliance with the Section 404(b)(1) guidelines is required for the issuance of a permit. The Section 404(b)(1) guidelines require the selection of the Least Environmentally Damaging Practicable Alternative (LEDPA). Critical to the selection of the LEDPA is the recognition of the full range of alternatives and impacts in determining which alternatives are (1) practicable and (2) environmentally less

damaging. The USACE identifies the LEDPA following its review of the permit application and completion of its public-interest finding.

The MaineDOT and the FHWA prepared a permit application in accordance with Section 404 of the CWA for the range of alternatives retained for further consideration, and it was submitted to the USACE. The USACE must identify a LEDPA. A mitigation plan for impacts to waters of the U.S. would be developed during final design.

This Environmental Impact Statement/Section 404 Permit Application Supporting Information is first circulated publicly as a Draft Environmental Impact Statement (DEIS). Following publication of the DEIS, a public hearing would be held to solicit additional public input to the federal decision-making process. Additional public input would be accepted during a minimum 45-day open public-comment period following publication of the DEIS/Section 404 Permit Application Supporting Information.

If a build alternative is selected for construction, the MaineDOT would work with the affected municipalities to develop a corridor-preservation plan to protect the selected corridor from further development. Methods to protect the corridor include development of zoning and local ordinances and selective acquisition of properties as they become available for sale or for further development. The MaineDOT may fund these property acquisitions through its customary programming of state and federal highway-funding mechanisms. Property acquisitions and residential or business relocations would be in accordance with state and federal laws dictating the acquisition of property for highway purposes. However, future development along Route 9 in the study area can impact future traffic flow and the overall benefits of the project.

Once the MaineDOT has a system in place to protect the selected corridor, it would work with regional interests to develop support for a funding plan. In recent years, many states have found that state highway funds, bonding, and federal core apportionments are needed to maintain the system as it exists, with little remaining in additional funds for new capacity projects. Therefore, the MaineDOT would devise funding strategies for property acquisition and, ultimately, construction of the selected build alternative. If the No-Build Alternative is selected, the MaineDOT would continue to work with local and regional authorities to maintain—to the extent possible—the safety and efficiency of Routes 1A, 9, and 46 in Brewer, Holden, and Eddington.

· THIS PAGE INTENTIONALLY LEFT BLANK ·

Index

· THIS PAGE INTENTIONALLY LEFT BLANK ·