Calais-St. Stephen Area International Border Crossing Study

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PIN 008483.30

Draft Environmental Assessment

December 2001

Submitted Pursuant to 42 U.S.C. 4332(2)(c)
and 23 CFR 771 by:

U.S. Department
of Transportation
Federal Highway
Administration

Maine Department
of Transportation

In cooperation with:

United States
General Services
Administration

In conjunction with:

New Brunswick
Department of
Transportation

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Comments on this Environmental Assessment are due by February 14, 2002 and should be sent to the addresses above.

U.S. Department of Transportation
Federal Highway Administration

Maine Department of Transportation

In cooperation with:

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In conjunction with:

New Brunswick Department of Transportation

FOREWORD

This is a unique and complex study because the proposed action, in its entirety, crosses an international border and waterway between two countries.

To help understand the entire action, including the planning; the compliance with laws and requirements; and the benefits and impacts to both countries, two separate documents have been prepared. The first is an Environmental Assessment prepared by the Federal Highway Administration, the U.S. General Services Administration, and the Maine Department of Transportation (MDOT). The second is a Highway Corridor Assessment prepared by the New Brunswick Department of Transportation (NBDOT). Together, these documents are intended to give the reader an understanding and appreciation of the overall action being proposed.

For the portion of the overall action in Maine, the Environmental Assessment was prepared in accordance with the regulations set forth in Maine's Sensible Transportation Policy Act and the National Environmental Policy Act. The requirements of these two acts were integrated to provide a broad umbrella for the direction of the study. Under this broad umbrella, compliance with many other federal and state laws and policies is required.

For the portion of the overall action in New Brunswick, the highway corridor assessment was prepared by NBDOT in accordance with the highway planning and design protocol in the NBDOT's Environmental Protection Plan.

MDOT and NBDOT, each in consultation with many others that they are responsible to in each country, must reach agreement on a Preferred Alternative that will meet at a common location at the border and fulfill the purpose, needs, requirements, and policies of each country. The transportation planning and project development processes used in each country are different. Each DOT, together with their respective partners, acknowledged and respected the planning and project development processes used in the other country. Both MDOT and NBDOT have adapted their normal planning and studies processes to achieve this objective.

Circulating these two documents together provides a full account of the impacts from the alternatives developed for meeting the study Purpose and Needs, in both countries. It is intended to help public officials in the decision-making process of identifying a Preferred Alternative and reach an agreement on what actions to take regarding a new border crossing. This decision will be based upon an understanding of the environmental consequences of the overall action, and to take actions that protect, restore, and enhance the environment.

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ACRONYMS

Acronym	Meaning
AADT	Average Annual DailyTtraffic
AASHTO	American Association of State Highway and Transportation Officials
ac.	Acre
ACHP	Advisory Council on Historic Preservation
ACOE	United States Army Corps of Engineers
ADT	Average Daily Traffic
BMP	Best management practices
BTIP	Biennial Transportation Improvement Program
CAAA	Clean Air Act Amendments of 1990
CCRA	Canadian Customs and Revenue Agency
CEDS	Comprehensive Economic Development Strategy
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
cms	Cubic Meter Per Second
CO	Carbon monoxide
CRCOC	Calais Regional Chamber of Commerce
CVO	Commercial Vehicle Operations
CWA	Federal Clean Water Act
CZM	Coastal Zone Management
dBA	decibels using an A-weighted frequency filter
DHV	Design Hour Volume
DWP	Maine Drinking Water Program
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMO	Floodplain Management Ordinances
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GIS	Geographic Information Systems
GPS	Global Positioning System
GSA	U.S. General Services Administration
GST	Goods and Service Tax
GWA	Groundwater A
ha	Hectares
HAPC	Habitat Area of Particular Concern

ACRONYMS (CONT'D)

Acronym	Meaning
HST	Harmonized Sales Tax
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation Systems
km	Kilometers
LEDPA	Least Environmentally Damaging Practicable Alternative
Leq (h)	one-hour equivalent sound level
LMA	Labor market area
LOS	Level of Service
LURC	Maine Land Use Regulation Commission
LUST	Leaking Underground Storage Tank
m	Meter
MASC	Maine Atlantic Salmon Commission
MDECD	Maine Department of Economic and Community Development
MDEP	Maine Department of Environmental Protection
MDIF&W	Maine Department of Inland Fisheries and Wildlife
MDOC	Maine Department of Conservation
MDOT	Maine Department of Transportation
ME-GAP	Maine Gap Analysis Program
MGS	Maine Geological Survey
MHPC	Maine Historic Preservation Commission
mi.	Mile
ml	Milliliters
MNAP	Maine Natural Areas Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRSA	Maine Revised Statutes Annotated
MSPO	Maine State Planning Office
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAFTA	North American Free Trade Act
NBDOT	New Brunswick Department of Transportation
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
NPS	Nonpoint source
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places

ACRONYMS (CONT'D)

Acronym	Meaning
NRIMC	Natural Resource and Information Mapping Center
NRPA	Maine Natural Resources Protection Act
NSA	Noise Sensitive Area
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
OGIS	Maine Office of Geographic Information Systems
PAC	Public Advisory Committee
PEM	palustrine emergent wetlands
PFO	palustrine forested wetlands
ppm	parts per million
ppt	parts per thousand
PSS	palustrine scrub-shrub wetlands
RCRIS	Resource Conservation and Recovery Information System
ROW	Right-Of-Way
RTAC	Regional Transportation Advisory Committee
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SSA	Sole Source Aquifer
STIP	Statewide Transportation Improvement Program
STPA	Sensible Transportation Policy Act, Maine
TDM	Travel Demand Management
TEA -21	Federal Transportation Equity Act for the 21st Century
TIFD	Tax Increment Financing District
TSDF	Treatment, Storage, and Disposal Facility
TSM	Transportation Systems Management
USC	United States Code
USCA	United States Code Annotated
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
V/C	Volume to Capacity
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
vpd	Vehicles Per Day
WMA	Wildlife Management Area
WPA	Wellhead protection area

TERMS

85th Percentile Speed – The 85th-percentile speed is the speed below which eighty-five (85) percent of the vehicles travel on a given highway. The most common application of the value is its use as one of the factors for determining the posted, legal speed limit of a highway section. In most cases, the field measurements for the 85th-percentile speed will be conducted during off-peak hours.

additional farmland soils of statewide importance - These soils, in addition to Prime Farmland, are important for production of crops. These soils have properties that produce high yields of crops when treated and managed according to acceptable farming methods. They are nearly equal to those of Prime Farmlands.

adverse noise impact – A condition which exists if sound levels approach or exceed the Noise Abatement Criteria (NAC), or a 10-decibel (dBA) increase in ambient noise levels.

Advisory Council on Historic Preservation (ACHP) - An independent Federal agency that provides a forum for influencing Federal activities, programs, and policies as they affect historic resources. The Council is the only entity with the legal responsibility to balance historic preservation concerns with Federal project requirements.

American Association of State Highway and Transportation Officials (AASHTO) - An organization that creates policies on highway and street design.

Annual Average Daily Traffic (AADT) – The total yearly volume in both directions of travel divided by the number of days in the year.

aquifer – Rock or sediment in a formation, group of formations, or part of a formation which is saturated with water and sufficiently permeable to transmit economically significant quantities of water to wells and springs.

archaeological resources - historic – Areas known or suspected to contain subsurface artifacts of pre-European or post-European settlement populations. Areas of expected moderate to high archaeological sensitivity according to various factors including present and past topography, exposure, slope, distance to water, and availability of food.

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

arterials – Arterial highways are characterized by high-volume roadways that provide linkage between major cities and towns and developed areas. They provide service to interstate and intercounty travel demand. The arterial system typically provides for high travel speeds and the longest trip movements. The degree of access control on an arterial may range from full control (freeways) to entrance control on, for example, an urban arterial through a densely developed commercial area.

at-grade – The intersection of two roads, or a road and a railway, which cross at the same elevation. This intersection can be controlled by traffic signals or stop signs.

Average Daily Traffic (ADT) – The total volume of vehicle travel during a given time period (in whole days), greater than one day and less than one year, divided by the number of days in that time period.

BTIP - Biennial Transportation Improvement Program. The BTIP addresses capital improvement needs associated with all modes of transportation and outlines the anticipated allocation of Federal and State funds. MDOT presents this budget-funding request to the Legislature every 2 years for approval.

ballast – Gravel or broken stone laid in a railroad bed.

Best Management Practices (BMPs) – Techniques and measures employed during and after construction to treat surface runoff and protect receiving water quality.

biodiversity – Biological diversity in an environment as indicated by numbers of different species of plants and animals.

capacity – The capability of a roadway to accommodate traffic usually expressed as the number of vehicles per lane per hour for a given level of service.

capacity (highway) – The maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a highway.

capacity deficiency – A deficiency that occurs when a roadway's capacity is unable to accommodate the traffic volume demands placed on it.

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

Class GW-A - The highest groundwater classification, which shall be of such quality that water can be used for public water supplies. These waters shall be free of radioactive matter or any matter that imparts color, turbidity, taste or odor which would impair usage of these waters, other than that occurring from natural phenomena. All groundwater in Maine is GW-A unless otherwise designated by the Maine State Legislature.

clear zone – The area alongside a highway clear of trees and other obstacles that a vehicle might otherwise hit if it ran off the road.

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

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

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) – A computer database that contains federal and state files regarding potential oil and hazardous waste sites that are candidates for the National Priority List .

cost effectiveness - Achieves objective at lowest possible cost.

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

daily traffic volume – The number of vehicles that use a given roadway over a 24-hour period in either direction.

dBA - Loudness is a sound pressure level measured on a logarithmic scale in units of decibels (dB). For community noise impact assessment, sound level frequency characteristics are based upon human hearing using an A-weighted (dBA) frequency filter, which approximates the way humans hear sound.

deciduous – Refers to woody vegetation, such as oak or maple trees, that shed leaves during the non-growing season.

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

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

Design Speed – The maximum safe speed that can be maintained over a specified section of highway when conditions are so favorable that the design features of the highway govern. The design speed should equal or exceed the posted/regulatory speed limit of the facility.

development node - An area that has experienced or is expected to experience development and a resulting growth in employment and/or population.

displacement – The act of removing businesses, persons, or households from structures for transportation right-of-way and later demolishing these structures to permit construction.

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

estuarine – Of, or relating to, where the tide meets a river's current.

Essential Fish Habitat – Presence of waters and substrate necessary to support the federally managed fish species for spawning, breeding, feeding, and growth maturity.

Farmland Protection Policy Act (FPPA) - Was enacted in 1981 by the United States Department of Agriculture (USDA) to ensure that significant agricultural lands be protected from conversion to non-agricultural uses. For highway projects receiving federal aid, the regulations promulgated under the FPPA (7 CFR part 658, 1984) require the State highway authority to coordinate with the USDA Natural Resources Conservation Service. The FPPA regulates four types of farmland soils; prime farmland, unique farmland, farmland of state-wide importance, and farmland of local importance.

farmland soils – Soils suited to producing crops; those with soil quality, growing season and moisture supply needed to produce a sustainable yield when treated and managed using acceptable methods. Specifically, farmland soils are those soil types

designated by the Natural Resource Conservation Service (NRCS) in accordance with the Farmland Protection Policy Act (FPPA) of 1981 by the United States Department of Agriculture.

Federal Emergency Management Agency (FEMA) – A federal agency that regulates federal actions in floodplains.

Federal Transportation Equity Act for the 21st Century (TEA-21) - Public Law 105-178 authorizes highway, safety, transit and other surface transportation programs for 6 years (Federal Fiscal Year 1998-2003).

Federal-Aid System – Consists of the routes which are eligible for the categorical Federal highway funds.

floodplain – The level land inundated during periods of high flow at times of high discharge.

Floodplain Management Ordinance – An ordinance that provides standards for the purpose of floodplain damage prevention and reduction.

floodway – A channel for diverting floodwaters.

forest block – Units of forest uninterrupted by roads or other disturbance.

freeways – The freeway is the highest level of arterial. Full control of access, and high design speeds characterize these facilities.

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

geometric deficiency - A deficiency that occurs when a road's geometric characteristics (lane width, shoulder width, horizontal curvature, vertical grade, etc.) do not meet prevailing design standards.

Global Positioning System (GPS) – A "constellation" of orbiting satellites used to calculate a precise position on or near the earth's surface.

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

grade separation – The intersection of two roadways, or a roadway and a railway, which cross at different elevations. One roadway overpasses or underpasses the other roadway with a structure(s).

grade slope – The rate of slope between two adjacent Points of Vertical Intersection expressed as a percent. The numerical value for percent is the vertical rise or fall in feet for each 100 feet of horizontal distance. Upgrades in the direction of stationing are identified as plus (+). Downgrades are identified as minus (-).

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

Habitat Area of Particular Concern (HAPC) – A habitat that is particularly rare, important, and/or vulnerable to impacts.

herpetofauna – Refers to reptile and amphibian species.

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

hourly traffic volume – The number of vehicles that use a given roadway over a 1-hour period.

hydric soils – Soils that are saturated, flooded, or ponded long enough during the growing season to develop at least temporary conditions where there is no free oxygen in the soil around the roots. Hydric soils correspond to federally and state regulated wetlands in many circumstances.

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

impervious surface – A surface through which nothing, particularly precipitation, can penetrate.

interstate – The current Interstate system of highways retains its separate identity within the National Highway System (NHS). Provisions also exist to add mileage to the existing Interstate subsystem.

latitude from – Field measurement of a location by GPS, which determines a position north or south of the equator in degrees, minutes, and seconds.

Least Environmentally Damaging Practicable Alternative - The LEDPA is selected by the US Army Corps of Engineers.

length of vertical curve (L) – The horizontal distance in feet from the PVC to the PVT.

Level B Aquifer Protection Area – The mapped groundwater recharge area for a stratified-drift aquifer supplying at least 1,000 people.

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

light rail – A means of urban railway transportation using electric rail cars.

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

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

longitude from – Field measurement of a location by GPS, which determines a position east or west of the prime meridian in degrees, minutes and seconds.

Maine Highway Design Guide – A guide developed by the Maine Department of Transportation (MDOT) which presents criteria on many aspects of highway design in addition to the Federal Highway Administration controlling design criteria. The guide applies to all projects on State Highways or the Federal-Aid System, or for highways where Federal Aid or State funding is involved. MDOT, local governments and private developers use the guide for preparation of plans for all projects that the guide applies.

Maine Natural Areas Program – Serves as the most comprehensive source of information on the State's important natural features. The program inventories lands that support rare and endangered plants and animals, rare natural communities, and outstanding examples of natural communities.

Maine State Design Standards – The State adopted (February 1997) travelway and shoulder design width criteria for non-National Highway System facilities.

mesoscale air quality analysis – A regional analysis of air for chemical constituents.

Metropolitan Planning Organization (MPO) - The organization designated as being responsible, together with the state, for carrying out a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes in an urbanized area.

microscale air quality analysis – A localized analysis of air for chemical constituents

multi-modal service – the act of providing alternative modes or choices of transportation service, such as bus, rail, taxi, etc.

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

National Environmental Policy Act (NEPA) – An act signed into law on January 1, 1970. Section 102 of the Act sets the requirements for and outlines the contents of environmental impact statements that are to accompany every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment.

National Flood Insurance Program – The Federal program which makes federally subsidized flood insurance available to property owners in communities which agree to adopt an ordinance regulating new development in flood prone areas.

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

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

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

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

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

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

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

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

noise sensitive area – An area that may be sensitive to changes in noise levels.

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

palustrine – The group of vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes.

passing sight distance (PSD) – The distance a passing vehicle on a two lane road will travel during the time it is making a pass, plus an equal distance that an oncoming vehicle will travel during that time, plus a clearance distance or safety factor.

peak hour – The hour of the day when traffic volume on a given roadway is highest.

peak hour factor – The percentage of total daily traffic that occurs during the peak hour. A typical peak hour factor is 10 percent, meaning that 10 percent of total daily traffic occurs during the peak hour.

physical geography – The science that brings together and interrelates the important elements of the environment. Physical geography draws on natural sciences for its subject matter: atmospheric (meterology, climatology), geology, soils, vegetation, and landforms. Physical geography emphasizes spatial relationships and the systematic arrangement of environmental elements on the earth's surface.

point of vertical curvature (PVC) – The point at which the tangent grade ends and the vertical curve begins.

point of vertical intersection (PVI) – The point where the extension of two tangent grades intersects.

posted speed limit – The speed posted for a facility based on engineering and traffic investigation, based on several factors, although the 85th percentile speed usually serves as the maximum speed limit.

primary/direct impacts – The immediate effects on the social, economic, and physical environment caused by the construction and operation of a highway; these impacts are usually experienced within the right-of-way or in the immediate vicinity of the highway or other project element.

prime farmland soil – Soil map units, which are designated by the Natural Resource Conservation Service as having the properties needed to produce sustained high, yield crops when managed with modern farming techniques.

principal arterials – These are highways in rural and urban areas that provide access between an arterial and a major port, airport, public transportation facility or other intermodal transportation facility.

Project Scope of Work –The project scope of work will reflect the basic intent of the highway project and will determine the overall level of highway improvement.

Project Scope of Work – 3R Projects (Non-Freeway) - 3R (rehabilitation, restoration and resurfacing) projects are primarily intended to extend the service life of the existing facility and to enhance highway safety. In addition, 3R projects should make improvements to the existing geometrics, where practical.

Project Scope of Work – 4R Projects (Freeways) – 4R projects (resurfacing, restoration, rehabilitation and/or reconstruction) on existing freeways are primarily intended to extend the service life of the existing facility, to enhance highway safety and to make improvements to the existing geometrics, where practical.

Project Scope of Work – Reconstruction –If a new pavement structure (from the subgrade on up) will be constructed for more than half of the project length, this will typically be considered a reconstruction project. Reconstruction of an existing non-freeway may also include significant drainage improvements, the addition of travel lanes and/or significant changes to the existing horizontal and vertical alignment, within the existing highway corridor. The primary reason to perform reconstruction is that the existing facility (e.g., its pavement structure or traffic capacity) cannot accommodate its current or future traffic demands or because the existing alignment is deficient. Because of the level of work for reconstruction, the design of the project should be determined by the criteria for new construction.

property takings – The acquisition of a portion or all of a property by eminent domain.

Record of Decision (ROD) – A decision document issued by FHWA in response to a Final Environmental Impact Statement.

Regional Transportation Advisory Committee (RTAC) – Committee that advised MDOT during planning efforts.

relocations – Residents or businesses moved to an alternate location because of the acquisition of a residence, business or other structure from a property owner, for public use.

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 encompasses and is contiguous to a stream or other water body.

runoff – The portion of precipitation, snow melt or irrigation water that does not infiltrate the ground and makes its way toward stream channels, lakes, rivers, ponds, ocean or other water bodies as surface flow.

rural – A rural community is defined as an area with: 1) a population less than 2,500 persons or; 2) a population between 2,500 and 6,000 persons and a worker-to-resident worker ratio less than 1.0.

secondary impacts – The impacts that are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable; secondary impacts may include induced changes to land use patterns, population density or growth rate, and related effects on natural systems, including ecosystems

Section 10 of the Rivers and Harbors Act of 1899 – Legislation which resulted in a permit being required from the Army Corps of Engineers for projects requiring construction in or over navigable waters, the excavation, 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 Historic Preservation Act – A process involving the Federal Highway Administration, Maine Department of Transportation, State Historic Preservation Office, and the Advisory Council on Historic Preservation. This process must be followed for any federal-aid highway project affecting historic resources potentially eligible, eligible, or on the National Register of Historic Places. In this process, historic resources are identified and steps are taken to avoid, minimize, and mitigate the impacts to historic resources.

Section 4(f) of the Department of Transportation Act of 1966, as amended – Legislation requiring FHWA approval for any Federal-aid highway project using land from a significant publicly owned park, recreation area, historic property or wildlife and waterfowl refuge. FHWA must find that (1) there is no feasible and prudent alternative to the use of land from the property; and (2) the action includes all possible planning to minimize harm to the property resulting from such use.

Section 404 of the Clean Water Act – Provides the enabling legislation for regulation of wetland resources by the Army Corps of Engineers and the U.S. Environmental Protection Agency. A permit is required from the Army Corps of Engineers for highway projects involving discharge of dredged or fill material into waters of the United States. Jurisdiction under this law extends to lakes, rivers, streams, wetlands, and mudflats.

Section 6(f) of the Land and Water Conservation Funds Act – Legislation that provides for the purchase and preservation of tracts of land whose open space and water quality protection characteristics are desirable.

side friction – The resistance between the tires of a vehicle and the surface of the highway. Encompasses such variables as type and condition of tires and treads, differences in vehicles and drivers and various environmental conditions. Used in various contexts to determine values for sight distance requirements and superelevation.

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

sole source aquifer (SSA) – An aquifer designated by EPA as the "sole or principal source" of drinking water for a given aquifer service area; that is, an aquifer which is needed to supply 50% or more of the drinking water for that area and for which there are no reasonably available alternative sources should the aquifer become contaminated.

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

Statewide Transportation Improvement Program (STIP) - The STIP is a schedule of projects and a financial management plan that is produced following BTIP completion. It lists all funded transportation projects, including those remaining from previous BTIP's that will require authorization from the Federal Highway and Transit Administrations.

superelevation – The practice of elevating the highway surface on the outside of a curve or turn, to improve the ability of vehicles to traverse the curve or turn at higher speeds. It is measured as the increase in vertical elevation divided by the width of the highway.

terrain-level – Highway slopes are minimal.

terrain-mountainous – Longitudinal and transverse changes in elevation are abrupt, and benching and side hill excavation is frequently required to provide the desirable highway alignment.

terrain rolling – Occurs when natural slopes consistently rise above and fall below the highway grade and, occasionally, presents some restriction to the desirable highway alignment.

tidal –An area subject to tidal fluctuations.

traffic generator – Any business, government office, or place of employment or destination that generates or attracts traffic.

trans-border –Traffic that crosses the International border.

transportation deficiencies – Highways related facility that is unable to safely and efficiently satisfy travel demands because of the intensity of traffic volumes, capacity, and/or safety.

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

transportation systems management (TSM) – A system of effecting improvements on the existing transportation system to increase capacity, thereby avoiding expensive new construction.

travel demand management (TDM) – A system of actions whose purpose is to alleviate traffic problems through improved management of vehicle trip demand.

United States Customs Service – The primary enforcement agency protecting the Nation's borders. It is the only border agency with an extensive air, land, and marine interdiction force and with an investigative component supported by its own intelligence branch.

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

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

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

United States Geological Survey (USGS) – A department within the U.S. Department of the Interior that serves as an independent fact-finding agency that collects, monitors, analyzes, and provides scientific understanding about natural resource conditions, issues, and problems.

urban – An urban community is defined as an area with: 1) a population greater than 7,500 persons or; 2) a population between 2,500 and 7,500 persons and a worker-to-resident worker ratio greater than 1.0.

vegetation cover type – A biological community characterized by certain vegetation characteristics, such as hardwood forest, mixed forest, shrub/oldfield, herbaceous, and urban/residential managed vegetation**.**

vehicle capacity – The maximum number of vehicles that can reasonably traverse a given section of roadway in a specified time period (usually one hour). Capacity is based on a number of physical characteristics of an individual roadway, including the number and width of travel lanes, shoulder width, functional classification, terrain, and the roadway's general environment.

vernal pool – A temporary pool of surface water or groundwater discharge to a topographic depression that provides breeding habitat for certain amphibian and invertebrate species.

vertical curve – Vertical curves have a parabola shape and are used to produce a gradual change between tangent grades.

volatile organic compounds (VOCs) – Colorless gaseous compounds originating, in part, from the evaporation and incomplete combustion of fuels. VOCs react, in the presence of sunlight, to form ozone, a pollutant regulated by the CAAA.

volume-to-capacity ratio (V/C ratio) – The two-way, hourly traffic volume divided by the two-way, hourly vehicle capacity of the roadway. Where V/C ratios are lower than 0.80, a roadway is considered to be operating under capacity with little or no delay. V/C ratios between 0.80 and 1.00 indicate that a roadway is operating near, or at, capacity with vehicle delay becoming moderate to long. V/C ratios greater than 1.00 indicate that a roadway is operating over capacity with severe congestion and excessive delays.

watershed – A region or area bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water.

wellhead protection area – Areas of land where human activities are regulated to protect the quality of groundwater that supplies public drinking water wells.

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