

Final

# Programmatic Environmental Impact Statement For Northern Border Activities

## Section 3: Framework



July 2012

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### **3 FRAMEWORK FOR ANALYSIS**

This Programmatic Environmental Impact Statement (PEIS) provides an analysis of U.S. Customs and Border Protection (CBP) activities for which less-than-significant impacts are expected. It also provides an analytical tool to assess activities that may cause significant adverse impacts or specifies if the appropriate information is not currently available to determine the level of impact. The analysis is limited (or “bounded”) based on CBP’s uppermost projection of activity levels conceivable under each action alternative. The activity levels depicted within the PEIS would represent a considerable response to significant changes in the cross-border threat environment. The PEIS characterizes potential impacts as negligible, minor, moderate, or major using resource-specific criteria, and outlines regulatory requirements, best management practices, and possible ways to mitigate significant impacts. The PEIS also includes planning guidelines for avoiding, managing, mitigating, or minimizing impacts.

This chapter provides the framework for describing environmental resources that would be affected if CBP implemented the proposed action or any of the program alternatives. It also outlines the approach CBP used to determine the type and intensity of environmental impacts likely to occur from each alternative course of action. The goal of this PEIS is to present conclusions about the general level and nature of potential impacts to each resource category from program alternatives, and also to provide descriptive indicators for conducting impact analyses and making impact determinations at the site and project levels. This PEIS also broadly addresses cumulative impacts to resources from CBP planned and existing activities and activities beyond CBP’s control.

Chapters 4 through 7 present the northern border area of study in four geographical regions: West of the Rockies (WOR), East of the Rockies (WOR), Great Lakes, and New England. These chapters focus on the unique aspects of the regional affected environments and particular considerations for environmental consequences that predominate in each region.

Chapter 8 presents direct and indirect impacts to affected resources for CBP activities, as well as cumulative impacts from CBP action alternatives combined with other activities beyond CBP’s control. Chapter 9 presents mitigation measures being considered by CBP beyond those incorporated into CBP’s normal practices. The appendices provide supplemental information and resource descriptions, relevant guidelines and legal requirements, scenarios used to shape analysis, relevant statistics and data used in calculations, and additional information on CBP’s mission and public participation in the National Environmental Policy Act (NEPA) process for this PEIS.

#### **3.1 ENVIRONMENTAL RESOURCE AREAS ANALYZED FOR IMPACTS**

This PEIS analyzes potential impacts from CBP activities to 16 categories of environmental or socioeconomic resource areas. The resource areas and general impacts considered are as follows:

- Air Quality: Contribution of air pollutants with respect to regional air quality goals;
- Biological Resources: Influence on the viability of regional animal and plant species;

- Geologic Resources: Alterations to regional geologic structures and soil characteristics;
- Water Resources: Influence on quality and quantity of surface and subsurface supplies;
- Noise: Creation of nuisance sound-levels relative to the expected soundscape;
- Climate Change and Sustainability: Contribution to greenhouse gas (GHG) emissions and long-term enjoyment of natural resources and quality of life;
- Land Use: Alteration of existing, expected, or planned regional uses of land and land covers;
- Aesthetic and Visual Resources: Alteration of existing or desired visual resources;
- Socioeconomic Resources: Changes to the local or regional economic profiles or social conditions;
- Cultural and Paleontological Resources and Native American Issues: Potential to effect above- and below-ground historic and cultural resources and potential to obscure evidence of prehistoric life;
- Environmental Justice and Protection of Children: Potential to have disproportionate adverse effects on minority or low-income populations or to harm children;
- Human Health and Safety: Actual alteration of or risk of impacting well-being of workers and the general population;
- Hazardous and Otherwise Regulated Materials: Generation, use, and disposal of harmful chemicals and other materials;
- Utilities and Infrastructure: Alterations in delivery or capacity of utility services to a region or locality;
- Roadways and Traffic: Alterations in flow of traffic or capacity of road infrastructure within a region or locality; and,
- Recreation: Changes in recreational value of areas used for leisure, exercise, and enjoyment of natural resource areas.

### **3.1.1 METHODOLOGY FOR RESOURCE ANALYSIS**

The analysis of environmental consequences for each resource topic is based on application of scenarios employing CBP activities included in the alternatives within the applicable resource setting. Types of potential impacts from CBP activities are determined on the basis of professional judgment. The analysis explores the chain of causes that could trigger those impacts, given the activity scenarios, and that chain is then used to define the affected environment on the basis of where the activities may occur. The specific approach to each resource differs because of the wide range of CBP activities within the umbrella of the program alternatives. Thus, the potential “area of impact,” for example, could range from a narrow noise envelope for aerial patrols to possible regional or national economic impacts for changes in inspection technologies at several ports of entry (POEs). This approach provides a programmatic analysis of potential environmental impacts on manmade and naturally occurring environmental resources.

The two principle categories of activity included in CBP's security program are construction and operational activities. CBP also undertakes maintenance and repair of constructed facilities and technologies used under each of these categories. The scenarios for construction and operational activities are based on a representative or "typical" activity for each type of construction project and each type of operational activity that could occur. Standard dimensions, frequencies of occurrence, and other factors characterize the size and extent of the representative activities.

Causes-Effects-Questions (C-E-Q) networks prepared for this PEIS (Appendix E) were used to construct the chain of activities, impacts, and affected environmental resources. The C-E-Q diagrams show the actions, operations, and components analyzed; the chains of potential direct, indirect, and cumulative impacts studied; and the interrelationships of these elements on environmental resources. The C-E-Q diagrams include references that direct the reader to the section or sections that address each identified impact. This PEIS presents assessment of cumulative impacts using descriptions of CBP and non-CBP projects and actions that could jointly impact resources identified in the affected environment sections. The scenarios used as the basis for cumulative impacts analysis in this PEIS is described in Appendix F.

### 3.1.2 IMPACT DETERMINATIONS

In Chapter 8, discussion on environmental consequences of the proposed action and alternatives, each resource category contains a prediction of impact determinations in the conclusion. This document details four impact levels – negligible, minor, moderate, and major – to characterize the intensity and persistence of adverse effects. In general, the significance levels are based on the likelihood of an action alternative damaging a resource beyond its ability to recover back to the previous level of productive use. When beneficial impacts are also predicted to occur within a resource area, they are also identified in the conclusion. The level of any beneficial impact is always considered to be minor since it would at best periodically improve the condition of immediately impacted resources, but not increase their viability.

The criteria for the impact levels for the natural environment (biological and physical resources) are similar to those for the societal environment (land use, recreation, socioeconomic and cultural resources, environmental justice, aesthetic and visual resources, and cultural resources), but some variations exist. In all cases, "negligible" impacts are those that have no measurable, persistent impact upon the resources in a given resource category. Description of the criteria pertaining to minor, moderate, and major impact determinations follow.

**Minor impacts:** CBP could mitigate actions to avoid causing these impacts. Otherwise, these are impacts that an affected environmental resource would completely recover from once the impacting agent (activity) was eliminated. Impacts to the societal environment would not disrupt the normal or routine functions of the affected activity or community.

**Moderate impacts:** These impacts to an affected resource would be unavoidable, but once the impact causing activity was removed, the resource would recover to a level of negligible impact if proper remediation measures were taken. Affected resources within the natural environment would not have their viability threatened, but some impacts might prove irreversible. Affected resources within the societal environment would face disruptions forcing users to adjust to project impacts in some manner.

**Major impacts:** These impacts to the affected resource would be unavoidable and lasting. The viability of an affected natural resource may be threatened. After the activity impacts ceased, an affected natural resource would not fully recover, or measurable degradation of an affected societal resource would persist. Affected societal resources would experience disruptions to a degree beyond what is normally acceptable.

The remaining sections of Chapter 3 detail the basis for describing each resource area’s affected environment and for determining what types of activities analyzed under each alternative may impact a resource.

The remainder of this chapter describes the underlying context for regional descriptions of the affected environment for each of the 16 resource areas. It also explains the resource-specific basis for determining impacts and impact levels and categorizes and lists CBP activities that could cause impacts to each resource.

## 3.2 AIR QUALITY

### 3.2.1 CONTEXT FOR AFFECTED ENVIRONMENT

The air quality for a given region or area is measured with respect to the presence of various pollutants and their concentrations in the air. The entire northern border study area contains many air quality control regions (AQCR) and Class I areas that could experience impacts if the proposed alternatives are implemented. An AQCR is an area (interstate or intrastate) designated by the U.S. Environmental Protection Agency (USEPA) for the attainment and maintenance of National Ambient Air Quality Standards (NAAQS). Class I areas are Federal lands with more stringent air quality restrictions under Section 162(a) of the Federal Clean Air Act. These restrictions are largely meant to maintain unimpaired visibility in areas such as national parks, national wilderness areas, and national monuments. For descriptions of the regional affected environments for the air quality resource area see Sections 4.2.2 (WOR), 5.2.2 (EOR), 6.2.2 (Great Lakes), and 7.2.2 (New England).

#### 3.2.1.1 National Ambient Air Quality Standards and Attainment Status

The USEPA as well as individual state environmental regulatory agencies, regulate air quality along the northern border (Table 3.2-1). The Clean Air Act (CAA) (42 U.S.C.7401–7671q), as amended, gives USEPA the responsibility to establish the primary and secondary NAAQS (40 CFR 50) that set acceptable concentration levels for six criteria pollutants: particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), ozone (O<sub>3</sub>), and lead (Pb). Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term standards (annual averages) have been established for pollutants contributing to chronic health effects. Each state has the authority to adopt standards stricter than those established under the Federal program; however, all states along the northern border accept the Federal standards.

**Table 3.2-1. State Environmental Agencies and the Environmental Protection Agency Region**

State	State Agency	USEPA
Northern Border Activities	3-4	July 2012

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		<b>Region</b>
<b>WEST OF THE ROCKIES REGION</b>		
Idaho	Idaho Department of Administration	10
Western Montana	Montana Department of Environmental Quality	8
Washington	Washington Department of Natural Resources	10
<b>EAST OF THE ROCKIES REGION</b>		
Minnesota	Minnesota Pollution Control Agency	5
Eastern Montana	Montana Department of Environmental Quality	8
North Dakota	North Dakota Department of Environmental Health	8
<b>GREAT LAKES REGION</b>		
Michigan	Michigan Department of Environmental Quality	3
New York	New York State Department of Environmental Conservation	2
Ohio	Ohio Environmental Protection Agency	5
Pennsylvania	Pennsylvania Department Environmental Protection	3
Wisconsin	Wisconsin Department of Natural Resources	5
<b>NEW ENGLAND REGION</b>		
Maine	Maine Department of Environmental Protection	1
New Hampshire	New Hampshire Department of Environmental Services	1
Vermont	Vermont Department of Environmental Conservation	1

Source: (USEPA, 2010).

Federal regulations designate AQCRs that have concentrations of one or more of the criteria pollutants that exceed the NAAQS as “nonattainment areas.” Major cities usually have high traffic volumes and large industrialized areas that can contribute to elevated O<sub>3</sub> and PM<sub>2.5</sub> (USEPA, 2010). Federal regulations designate AQCRs that were once classified as nonattainment and that have lowered the levels of pollutants through the use of regional controls as “maintenance areas.”

### **3.2.1.2 General Conformity**

Two independent legal requirements address air quality management in the preplanning stages: (1) NEPA and (2) the general conformity provision of CAA §176(c). Under the CAA section, Federal agencies are prohibited from engaging in, supporting, providing assistance for, or approving activities (e.g., issuing a license or permit) that are inconsistent with State Implementation Plan (SIP) requirements. This section is known as the General Conformity Rule (GCR). Depending on the action and the attainment status of the county, a CBP activity might have to complete a separate conformity analysis in addition to the NEPA analysis. Exemption from one requirement does not automatically exempt the action from the other requirement, nor does fulfillment of one requirement constitute fulfillment of the other. The GCR, however, was

written with NEPA in mind, and CBP integrates the two requirements to save time and resources.

According to CAA §176(c), CBP activities must conform to an implementation plan’s purpose of “eliminating or reducing the severity and number of violations” of NAAQS and achieving “expeditious attainment” of such standards. Such activities must not cause or contribute to a new violation; increase the frequency or severity of an existing violation; or delay timely attainment of any standard, required interim emission reduction, or other milestone. Pursuant to that rule, conformity determinations are required to ensure that state air quality standards will not be exceeded, and that an action will comply fully with the SIP.

The GCR divides the air conformity process into two distinct areas: applicability analysis and conformity determination. The GCR requires Federal agencies to determine whether their actions would increase emissions of criteria pollutants above preset threshold levels (40 CFR 93.153(b)). Total direct and indirect emissions of a criteria pollutant caused by a Federal action in a nonattainment area (NAA) or a maintenance area are de minimis if they are at rates less than the specified applicability thresholds. These de minimis rates vary depending on the type of pollutant and the geographic location for the level of nonattainment (Table 3.2-2).

**Table 3.2-2. Applicability Thresholds for Nonattainment Areas**

Criteria Pollutants	Threshold (tons per year)
<b>O<sub>3</sub> (VOCs or NO<sub>x</sub>)</b>	
Serious NAAs	50
Severe NAAs	25
Extreme NAAs	10
Other O <sub>3</sub> NAAs outside an O <sub>3</sub> transport region	100
Marginal and moderate NAAs inside an O <sub>3</sub> transport region	
VOC	50
NO <sub>x</sub>	100
<b>CO</b>	
All NAAs	100
<b>SO<sub>2</sub> or NO<sub>x</sub> PM<sub>10</sub></b>	
Moderate NAAs	100
Serious NAAs	70
<b>Pb</b>	

Source: (40 CFR 93.153).

**3.2.1.3 Permitting Requirements**

Air permitting is required for many industries and facilities that emit regulated pollutants. Based on the size of the emissions units and the type of pollutants emitted (criteria pollutants or hazardous air pollutants [HAPs]), each state environmental agency sets permit rules and standards for emissions sources. Permitting scenarios may vary based on the equipment, the timing of the projects, and the types of controls ultimately selected. Actual scenarios may differ in specific features from the ones described in this PEIS. However, during the final design stage and the permitting process, either (1) the actual equipment, controls, or operating limitations would be selected to reduce the “potential to emit” (PTE) below the major source threshold, or (2) the permitting process would require emission offsets be obtained from other previously decommissioned sources within nonattainment areas where applicable. This cap-and-trade type system is inherent to Federal and state air regulations, and leads to a forced reduction in regional emissions. Therefore, regardless of the ultimate permitting scenario, these impacts would be considered minor under NEPA. Notably, sources subject to major source permitting are not subject to general conformity.

**Construction Permits**

The air quality permitting process begins with the application for a construction permit. Typically there are three types of construction permits available for the construction and temporary operation of new emissions sources: Major New or Modified Source Construction in Nonattainment Areas (Nonattainment New Source Review [NNSR]) permits; Prevention of Significant Deterioration (PSD) permits in attainment areas; and Minor New Source Construction (Minor New Source Review [NSR]). permits

Attainment areas are managed under the PSD program of the CAA. The goal of this program is to prevent the degradation of air quality, while at the same time allowing for moderate economic growth. Thresholds requiring a PSD permit are outlined in Table 3.2-3. PSD review and permitting is required for sources emitting 100 tons per year (tpy) of any regulated pollutant for any of 26 named PSD source categories. One of the named source categories is fossil-fuel boilers that singly, or in combination at a single facility, total more than 250 MMBtu/hr heat input. For all other sources not in the 26 named source categories, PSD review is required if the source emits 250 tpy or more of any regulated pollutant. Sources subject to PSD are typically required to complete Best Available Control Technology (BACT) review for criteria pollutants, predictive modeling of emissions from proposed and existing sources, and public involvement.

**Table 3.2-3. Major Modification Thresholds of Criteria Pollutants**

Pollutant	New Major Source (tpy)	Major Modification to an Existing Source (tpy)
CO	250 (100)	100
NO <sub>x</sub>	N/A	N/A
SO <sub>2</sub>	250 (100)	40

PM	250 (100)	25
PM <sub>10</sub>	250 (100)	15
PM <sub>2.5</sub>	250 (100)	10
VOCs	N/A	N/A

*Notes:* PSD review and permitting is required for sources emitting or with the potential to emit 100 tpy of any regulated pollutant for (combinations of) fossil fuel boilers totaling more than 250 MMBtu/hr heat input.

N/A = Not applicable.

Source: (40 CFR Part 52).

A Minor NSR permit would be required to construct minor new sources and to make minor modifications of existing sources. The NSR permitting process typically takes four to five months to complete. Sources subject to Minor NSR could be required to complete a BACT review for each criteria pollutant, a Maximum Available Control Technology (MACT) review for regulated HAPs and designated categories, and predictive air dispersion modeling, as well as establish procedures for measuring and recording emissions and process rates.

### Operating Permits

Under state and Federal Title V regulations, a Title V permit is required for facilities whose increases in emissions exceed the thresholds outlined in Table 3.2-3. In addition, a significant permit modification would be required if it became necessary to establish federally enforceable limitations to reduce potential emissions below the thresholds. A minor permit modification would be required if emissions were below the thresholds and a federally enforceable limit was not necessary. Submission of an application for these permit modifications would be required within one year of the first operation of a new emissions source.

#### 3.2.1.4 Other Requirements

In addition to the permitting requirements to construct and operate new or modified emissions sources, New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) set emissions control standards for categories of new stationary emissions sources of both criteria pollutants and HAPs. The NSPS process requires EPA to list categories of stationary sources that cause or contribute to air pollution that might reasonably be anticipated to endanger public health or welfare. The NSPS program sets uniform emissions limitations for many industrial sources such as boilers and stand-by generators. Under NESHAP, new stationary sources whose potential to emit HAPs exceeds either 10 tpy of a single HAP or 25 tpy of all regulated HAPs would be subject to MACT requirements.

### 3.2.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS

To analyze the potential for CBP activities to produce air quality impacts, this PEIS:

- Characterizes the areas within which CBP’s proposed action and alternatives would be implemented as:
  - Attainment/unclassified;

- Nonattainment;
- Maintenance; and,
- Class I.
- Characterizes various direct and indirect sources of air emissions associated with the action such as:
  - Stationary (e.g., permanent, stationary sources of air emissions);
  - Mobile (e.g., on-road automobile and truck traffic);
  - Non-road (e.g., heavy equipment and off-road vehicles); and,
  - Area (e.g., fugitive dust and lawn maintenance equipment).
- Compares the direct and indirect emissions from the activities to the regulatory thresholds, such as the de minimis thresholds under the general conformity regulation or the major source threshold for the permitting of stationary sources.

This approach assumes that a project or activity has the potential to create a major adverse impact to air quality if:

- The total direct and indirect emissions would exceed the de minimis thresholds as outlined under the general conformity regulations for a nonattainment or maintenance area (e.g., more than 100 tons per year of nitrogen oxides [NO<sub>x</sub>] and a moderate nonattainment area for the 8-hour ozone NAAQS);
  - New stationary sources of air emissions would exceed the nonattainment new source review major source threshold in a nonattainment area;
  - New stationary sources of air emissions would exceed the prevention of significant deterioration major source threshold in an attainment area; or,
  - New stationary sources of air emissions would be large enough and/or close enough to potentially affect a Class I area.

The study area contains many AQCRs and Class I areas that could experience impacts due to the proposed action and alternatives in this PEIS. However, the mere presence of a sensitive area, such as a nonattainment, maintenance, or Class I area, does not guarantee that it would be impacted by CBP's activities. Impacts would be considered minor unless they exceeded the applicability threshold for a CAA nonattainment area or contributed to a violation of any Federal, state, or local air regulation. While there are scattered areas of air quality nonattainment in Montana and Idaho, and in urban areas of the Great Lakes and New England Regions, air quality over the majority of the northern border is in attainment with the relevant air quality standards. All CBP actions would normally conform to each SIP.

### **3.2.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO AIR QUALITY**

Several activities do not generate any direct or indirect emissions that would require CBP to maintain an ongoing program to control them. These activities include nonmotorized ground operations, operation of nonintrusive inspection systems, and operation of sensor and other

technologies. This PEIS does not carry these activities forward into the analysis of potential impacts to air quality. Additionally, some of CBP's activities analyzed for adverse impacts could have minor beneficial impacts, in addition to those outlined in the appropriate section, based on the site-specific context. For example, constructing new CBP facilities closer to areas with housing occupied by CBP employees or available to CBP employees would reduce their commute time and distance, and the associated air emissions.

CBP-related activities that could affect air quality include:

- Large construction projects;
- Small construction projects;
- Motorized ground operations;
- Aircraft operations; and,
- Vessel operations.

### **3.3 BIOLOGICAL RESOURCES**

#### **3.3.1 CONTEXT FOR AFFECTED ENVIRONMENT**

The area of consideration for the northern border PEIS is vast and includes a variety of ecosystems and habitats that may extend in parts beyond the 100-mile range south of Canada and also into parts of Canada. Appendix L provides detailed narratives about the ecosystems included in the northern border area, including additional information about habitat and species varieties found within the ecosystems. To provide a useful context for identifying impacts of CBP program alternatives and activities, the description of the affected environment focuses on the following areas.

##### **3.3.1.1 Blocks of Regionally Significant Habitat**

Activities in relatively undisturbed habitats can have more far-reaching environmental impacts than similar activities in already disturbed areas. The importance and sensitivity of such habitats may vary based on the presence and variety of native species, the size and shape (and connectivity) of the habitat, and its contribution to ground and surface water supply and quality. Habitat fragmentation (the breakup of intact habitat into increasingly smaller and more segregated areas) can isolate wildlife populations; in turn, this isolation can lead to declines in wildlife population. Fragmentation is a growing and significant threat to species persistence (Reed, 2004). Some of the areas addressed in this PEIS reach across the northern border into Canada.

The Wilderness Act of 1964 established a system for identifying important wilderness areas and protecting the wilderness character of these areas. Over 103 million acres of land in the U.S. are protected as Wilderness Areas. Wilderness designation carries the most stringent protections from development and use of any special designations (see the National Park Service (NPS) and the U.S. Fish and Wildlife Service (USFWS) Wilderness websites). To receive Wilderness designation, the proposed area must be recommended by the President and approved by Congress. An example of the Wilderness designation process can be viewed on the U.S. Forest Service website at <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=designateFS>.

Therefore, projects that could impact wilderness areas will be given special attention in reviews of specific impacts.

### **3.3.1.2 Sensitive Habitats**

Delineation of sensitive habitats is important because disturbance of such areas can cause rapid ecological change (Turner, 2010). These sensitive ecological communities are less able to withstand the effects of human activities and disturbance than agricultural areas, deciduous forests, or other more-resistant habitats. For the purposes of this PEIS, sensitive habitats are identified based on those enumerated and described by the World Wildlife Fund (2001), ecological system descriptions within the NatureServe.org database, and information from state natural resources agencies.

### **3.3.1.3 Threatened and Endangered Species**

Endangered species are those species of plants and animals determined to be in danger of extinction throughout a significant portion of their natural range. Threatened species are those that will imminently become endangered without intervention. The U.S. Endangered Species Act (ESA) of 1973 provides for making Federal listings of threatened and endangered species and for protecting and recovering these imperiled species along with the habitat and ecosystems upon which they depend. (Threatened and endangered species found within the area covered by this PEIS are listed in Appendix M.) The ESA prohibits “take” of listed, threatened, and endangered fish and wildlife. Section 3(18) of the ESA defines the term ‘take’ as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on Federal land. The ESA also prohibits interstate or international trade in listed plants and animals, except under Federal permit usually implemented for conservation and scientific purposes.

Multiple agencies enforce provisions of the ESA. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the Department of Commerce’s National Marine Fisheries Service (NMFS) mainly protects marine wildlife and anadromous fish. The Canadian equivalent of the ESA is the Species at Risk Act (SARA) of 2002. Actions within the United States are not bound by the Canadian SARA.

### **3.3.1.4 Critical Habitat**

Critical habitat is a term defined and used in the ESA (16 U.S.C § 1532). It is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species, and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as “critical habitat” after the USFWS publishes a proposed Federal regulation in the *Federal Register*, and after public comments are considered on the proposal (USFWS, 2011d).

### **3.3.1.5 Wildlife**

Healthy ecosystems depend on diverse and balanced wildlife populations. Land use changes may disrupt movement of wildlife during migration or dispersal, and affect breeding, nesting, and other normal behaviors. Therefore, removal of a wildlife population or its habitat, or

alteration of its ability to use the habitat to complete its life cycle successfully, could significantly alter ecosystem function.

Although most of the species referenced in this section of the document are not threatened or endangered, they may be protected by other legislation. The Migratory Bird Treaty Act (MBTA) protects migratory birds, their eggs, feathers, and nests from “take” resulting from human activities. The MBTA defines “take” to include “by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.” The Bald and Golden Eagle Protection Act (BGEPA) affords additional protection to all bald and golden eagles.”<sup>1</sup> The BGEPA prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The BGEPA defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, “take”<sup>2</sup> or “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal” in U.S. waters and by U.S. citizens on the high seas; and the importation of marine mammals and marine mammal products into the U.S.”<sup>3</sup> In some cases, wildlife species protected by the aforementioned statutes may also be protected under the ESA.

### **3.3.1.6 Vegetative Habitat**

Healthy ecosystems depend on robust vegetation and local plant communities. Removal of a native vegetative population or its habitat could significantly alter ecosystem function. A growing threat to healthy native plant communities is the introduction of nonnative invasive species. The negative effects of these introduced species contribute to habitat destruction. In fact, introduced species pose a greater threat to native biodiversity within all ecoregions than the threats from pollution, harvest, and disease combined (Simberloff, 2000).

### **3.3.1.7 Wetlands and Waterways**

Wetlands are often ecologically important, very sensitive to disturbance, and have a greater likelihood of slow recovery compared to adjacent uplands. Large-scale wetland disappearance and disturbance represent the current status of wetlands across the Nation, with loss estimates of one-half of the country’s original 221 million acres of these highly productive lands (Feierabend, 1992).

### **3.3.1.8 Aquatic Resources**

The major types of aquatic habitats that CBP activities may affect along the northern border are estuaries, streams, lakes, rivers, and wetlands. The WOR and New England Regions also have ocean coastal areas. Aquatic organisms found in these habitats include fish (marine and freshwater), amphibians, reptiles, marine mammals, and plants. Waterborne human operations as well as runoff from human activities on the land have the potential to affect aquatic resources.

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<sup>1</sup><http://www.fws.gov/pacific/migratorybirds/mbta.htm>

<sup>2</sup> The MMPA uses the same definition of “take” as the ESA.

<sup>3</sup><http://www.nmfs.noaa.gov/pr/laws/mmpa/>

### 3.3.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS

This PEIS evaluates the potential for CBP activities to have impacts within each biological resource consideration area discussed in Section 3.3.1. In general, the potential for major impacts occurs when any of the habitats or resources would be stressed beyond the ability to fully recover once the impacting agent is removed, even with mitigations orchestrated. In particular, any activity with the following results would have potentially major impacts:

- Take (whether permitted or not) of species protected under the ESA, MBTA, BGEPA, or MMPA through harassment, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting any of the aforementioned (16 U.S.C. § 1532 (19));
- Destruction of habitat (directly or indirectly) resulting in take or otherwise past the point of recovery;
- Diminishment of the quality of wetlands or waterways through pollution, destruction, damage, or other impairment; or,
- Introduction of nonnative (alien or invasive) species into an ecosystem.

The scale and intensity of impacts would have bearing on their “significance,” but any of the above acts that resulted in regional or local extirpation of a protected species would be significant. CBP activities could interact within a wide spectrum of biological resources and areas with a wide-spectrum of activity levels. This PEIS identifies the potential level of impacts to biological resources from CBP activities based on the general level of impacts expected to different resource categories presuming site-specific consultation, planning and execution that would incorporate practices to mitigate against major impacts in the vast majority of cases.

When conducting analysis of impacts to biological resources from site-specific proposed projects, CBP would take into account the ecological integrity of resources by employing analytical tools such as conceptual ecological models when appropriate. In particular, CBP would use conceptual ecological models as a tool to address resources on DOI managed lands or otherwise protected natural resources under DOI jurisdiction. Because CBP does not have a mission to manage biological resources outside of mitigation and compensation responsibilities that may be associated with its construction or operation-related activities, CBP would use models to determine the relative amount of impairment or reduction of a resource by CBP activities. CBP will rely largely on existing information from recognized sources on the attributes of ecological integrity for biological resources. These sources might include NatureServe, final Federal or state management plans [for species, habitat, and designated land use areas], or other available conservation data sets with scientifically collected information on ecological attributes. This PEIS hereby incorporates by reference, the “Ecological Integrity Assessment Framework”<sup>4</sup> prepared for the NPS as a basis for framing analysis of site specific impacts to biological resources managed within the purview of DOI units.

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<sup>4</sup> [Unnasch et al., 2009] Unnasch, R. S., D. P. Braun, P. J. Comer, and G. E. Eckerty. 2009. The ecological integrity assessment framework: A framework for assessing the ecological integrity of biological and ecological resources of the national park system. Technical report.

CBP will use attributes of ecological integrity of a given resource based around its size/number, its existing condition/health, and the landscape/resource context. CBP, as appropriate and feasible, will determine indicators within each attribute that indicate how much an activity's impacts retard the viability of the resource. CBP will base these indicators using existing information on species viability and will develop them in coordination or consultation with or advisement of agencies with jurisdiction and or/authority to protect, preserve, or conserve specific biological resources.

Beneficial impacts would occur if any activity improved habitat stability, added to habitat size or connectivity, or improved conditions for protected and native species in a sustainable manner.

### **3.3.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO BIOLOGICAL RESOURCES**

Activities considered with the proposal and alternatives of this PEIS that could affect biological resources are grouped into three general categories (construction, operation, and maintenance) and may include, but are not limited to, the following activities:

- Construction of:
  - Pedestrian or vehicle fences or other physical barriers;
  - Extensions, upgrades, or repairs of access roads, fences, drag roads, bridges, culverts, and low-water crossings;
  - New Border Patrol stations (BPSs), forward operating bases (FOBs) , communications towers, and air and marine operational facilities;
  - Modifications/upgrades of existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,
  - Construction/set-up of permanent traffic checkpoints.
- Operation activities including
  - Ground surveillance/patrols and situational response activities (including motorized and nonmotorized, on-road and off-road, snowmobiles, canine, and horseback patrols);
  - Set up/operation of mobile traffic checkpoints;
  - Use of unattended ground sensors (UGS) and other technology;
  - Aircraft surveillance/patrols and situational response activities (manned and unmanned);
  - Maritime surveillance/patrols and situational response activities; and,
  - Implementation and deployment of remote video surveillance systems (RVSS), mobile surveillance systems (MSS), Customs Area Surveillance Centers (CASC), and Operational Integration Centers (OIC).
- Operations at fixed facilities including:
  - Routine activities at POEs including agricultural inspections;

- Continued standardizing and modernizing of the Office of Air and Marine (OAM) fleet;
  - Use of nonintrusive/nondestructive inspection and detection technologies;
  - Operation of small-arms weapons training ranges; and,
  - Enforcement of I-68 Canadian Border Boat Landing Program for recreational boaters.
- Maintenance and repair of all of the above.

## **3.4 GEOLOGY AND SOILS**

### **3.4.1 CONTEXT FOR AFFECTED ENVIRONMENT**

Geology is the study of the earth's history as recorded in rock formations. Often these rocks serve as the parent rock for soils present at and below the surface of the earth. Geologic resources are the subsurface and surficial materials of the earth. Within a specific physiographic province (area of land formations), these resources can be described according to soils, minerals, or topography. Soils analysis uses soil-order classifications, which group soil characteristics specific to location, parent material, and other factors that influence formation.

The geologic aspects along the Northern Border PEIS area of consideration vary widely along the entirety of the border and within the four geographic regions subdividing this PEIS. The analysis here is based on the broad characterization of geologic formations and geographical locations.

#### **3.4.1.1 Geologic Conditions**

##### **Regional Glaciation**

Changes to the land surface are caused over time by the action of glaciers forming and retreating through time. Glaciers ("permanent" bodies of ice, including mountain glaciers, ice sheets, and ice shelves) are responsible for both transporting and depositing sediment materials across distances, and for eroding landforms at small (polishing rock formations) and large (creating or expanding valley formations) scales.

##### **Seismicity and Tectonics**

"Seismicity" refers to the geographical and historical distribution of earthquakes. "Tectonics" refers to rock-deforming processes and the resulting structures that occur over large sections of the outer solid part of the earth, including the crust and the uppermost mantle.

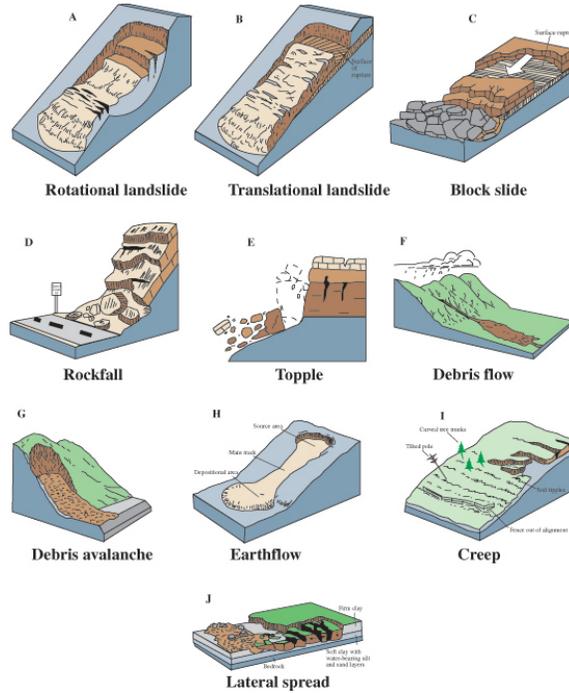
##### **Landslides**

A landslide is the downward movement of rock, soil, mud, and/or other debris on a slope (Figure 3.4-1). The mass movement of earth materials can be either fairly slow or very sudden.

Landslide is a general term; there are many different types and causes of landslides. Along the northern border, most landslides occur along the steep slopes of the many mountain ranges.

Landslides can be triggered by various mechanisms, including seismicity, rainfall, snowmelt, volcanic events, and human activities (e.g., site development, mining, and deforestation). The water content of the soil or rock in a sloped area is a major factor in an area's risk for landslides (Lane County, 2010).

**Figure 3.4-1. Landslide Types**



Source: USDO, 2004a

### Karst Topography

Karst topography is a landscape dominated by carbonate bedrock, including limestone, dolomite, and marble. These formations are susceptible to dissolution by water, which can make an area prone to land subsidence (Figure 3.4-2). Throughout the United States, subsidence occurs in at least 45 states and affects approximately 17,000 square miles of land. NPS land requires special protections for karst terrain. The existence of karst topography is often related to aquifers. Along the northern border, karst landscapes occur from coast to coast.

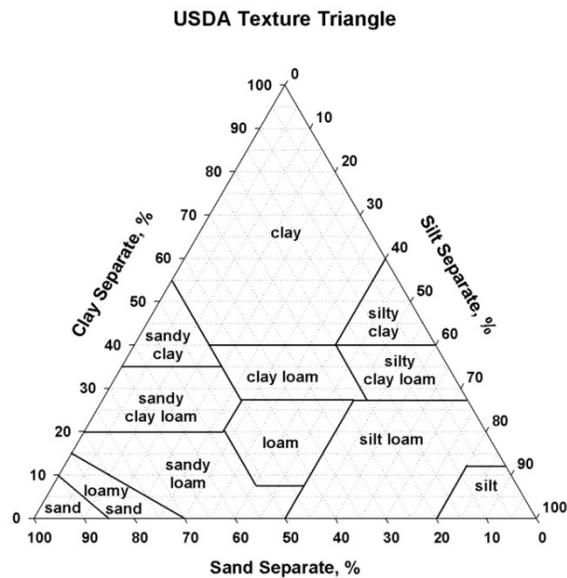
**Figure 3.4-2. Sink Hole in Karst Topography**



**Soils**

Soil taxonomy is the science of classifying soils based on physical qualities and characteristics (Figure 3.4-3). Appendix N provides detailed descriptions of these soil orders.

**Figure 3.4-3. Soil Classification Based on the Fraction of Clay Sand and Silt in a Soil**



The erosion potential for various soil types can be determined by quantifying factors such as:

- Soil permeability;
- Slope gradient;
- Wind and water action; and,
- Soil particle texture (Table 3.4-1).

**Table 3.4-1. Soil Texture and Particle Size**

Type of Material	Size (mm)
Sand	2.0 – 0.06
Silt	0.06 – 0.002
Clay	Under0.002

Soils with low permeability have more potential for erosion by both wind and water due to the inability for water or wind to move through its strata. These soils often have small particle textures, and are therefore less likely to allow water or wind to infiltrate. Soils with high amounts of silt and fine sand are the most susceptible to erosion by wind or water. The smallest particles, clays, usually have lower erosion potential because the particles tend to bind to one another. However, some clays are prone to erosion due to expansion or swelling when wet, followed by desiccation or shrinking when dried. The dry stage can lead to desiccation cracks, thus lessening particle binding and increasing erosion potential. Though clays may not be as affected by water as silts and fine sands, they can contribute to higher runoff due to their low permeability (NCSCC, 2006). Where erosion ends, deposition begins. This is the point that the eroded particles drop from the medium that carried them, and are deposited on surrounding areas of land or water.

Slope gradient is a major factor in erosion potential. Many of the soils on the northern border fall into a high-gradient category. In areas of high relief, rain can cause erosion due to the water’s downslope movement at high velocity. A soil’s susceptibility to erosion on a slope depends upon the amount of vegetative cover as well as the soil texture. Vegetative cover is the best method of reducing erosion on slopes, because it slows flow velocity, allows infiltration, disperses flow, and protects the surface from the impact of falling rain (NCSCC, 2006).

Soil erosion also decreases soil productivity by removing and displacing topsoil. While erosion is a normal and natural geologic process, manmade actions can increase its rate and impacts.

The Farmland Protection Policy Act (FPPA) was created to minimize impacts by the Federal Government on farmland by regulating the conversion of agricultural land to other uses. “Prime and Unique Farmland” is a designation created by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) to identify lands with soils that are highly productive and economically valuable to the country. To qualify as prime farmland, land must meet specific criteria, including access to a dependable water supply, a sufficient growing season, adequate amounts of acid or base in the soil, specific sodium content, and small particle size. Prime farmland soils are typically well-drained and permeable (USDA, No Date). The NRCS has developed a rating system through which farmland is scored; the score must sit within the recommended allowable range. Form AD-1006 is used to complete the assessment and assign the farmland conversion impact rating.

**3.4.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

This PEIS does not attempt to categorize every potential geologic structure or soil type along the entire northern border. It provides the analytical tools to conduct a specific impact assessment for a given future site-specific project or activity, and offers examples of the types of geological

resource considerations along the border. It also analyzes how, in which settings, and to what extent various CBP activities might create impacts and it provides guidelines as necessary to minimize, mitigate, or avoid such impacts. Relevant physical considerations for analyzing impacts include factors such as:

- Erodibility;
- Permeability;
- Prime farmland status;
- Seismicity;
- Productivity; and,
- Changes to the character of the landscape.

The following alterations could potentially have major adverse impacts on geological aspects, including soil performance characteristics:

- Substantial changes in soil stability, permeability, or productivity, such as the removal of surface vegetative cover or an increase in impermeable surfaces, allowing increased erosion of soil by wind and stormwater runoff; and,
- Substantial changes in risk to humans and property due to seismic events, such as the construction of facilities that do not adhere to applicable building codes in areas of high seismic risk.

CBP does not undertake any activities, such as subsurface injection of fluids or wastes (excluding use of onsite septic systems at some facilities), that could substantially change the physical characteristics of subsurface geological formations. Nor does CBP substantially alter the physical character of natural landforms and surface features by cutting roads into hillsides or participating in mining operations. CBP may need to put a facility or a structure (tower) on a hillside requiring some alteration of slopes in the immediate footprint of the construction. Tunnel-remediation and hillside construction would be exceptional activities along the northern border. These activities would require detailed site-specific analysis to address the unique characteristics of their implementation.

### **3.4.3 CBP ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO GEOLOGIC AND SOIL RESOURCES**

Activities considered within the proposal and alternatives of this PEIS that could affect geological and soil resources fall into three general categories (construction, operation, and maintenance) and may include, but are not limited to, the activities below:

- Construction of:
  - Pedestrian or vehicle fences or other physical barriers;
  - Extensions, upgrades, or repairs of access roads, fences, drag roads, bridges, culverts, and low-water crossings;
  - New BPSs, FOBs, communications towers, and air and marine operational facilities;

- Modifications/upgrades to existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,
- Set up of permanent traffic checkpoints.
- Operation activities including:
  - Small-arms weapons training ranges; and,
  - Ground surveillance/patrols and situational response activities (including motorized and nonmotorized, on-road and off-road, snowmobiles, canine and horseback patrols, set up/operation of mobile traffic checkpoints, use of UGSs and other technology).
- Maintenance and repair of all of the above.

### **3.5 WATER RESOURCES**

#### **3.5.1 CONTEXT FOR AFFECTED ENVIRONMENT**

Due to the vast area considered in this document, as well as the terrorism and criminal activity threat-driven nature of CBP operations, site-specific characteristics of water resources are too numerous to depict in detail and cannot be definitively aligned with changes in activity intensity over the next five to seven years. Instead, the affected environment is described using resources categorized by the potential impact from a proponent's typical actions and alternatives, performing broad-based analyses, and developing best management practices and mitigations. These will prove useful to decision-makers and for future site-specific assessments and other environmental analyses. Following this principle, the resources in this section are characterized in one of three categories as follows.

##### **3.5.1.1 Hydrology and Groundwater**

The hydrology and groundwater resources of a region refer to the quality and availability of a safe water supply for drinking and other purposes for which an uncontaminated water source is necessary. Groundwater is extracted for beneficial use from below ground where it rests in geologic storage reservoirs known as aquifers. Percolation of rainwater and other precipitation through overlying layers of soil recharges the aquifers. Surface waters, such as a river or stream, can also recharge an aquifer. Primary regulatory protection for hydrologic and groundwater resources is provided by the Safe Drinking Water Act and its amendments, and by waste regulations such as the Resource Conservation and Recovery Act and its amendments that prevent entry of hazardous wastes into areas that will contaminate water sources.

##### **3.5.1.2 Surface Waters and Waters of the United States**

Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers and USEPA to regulate activities that affect U.S. waters; this section defines those resources described as surface waters and waters of the United States. Although Section 404 specifically regulates wetlands, for the current analysis, surface waters and waters of the United States refer to water bodies generally referred to as lakes, reservoirs, rivers, streams, ponds, and creeks. Wetlands are addressed in the biological resources section (3.2) of this chapter due to their unique value as a habitat and the particular qualities that define wetlands. The quality and quantity of water in

surface waters and waters of the United States are primarily affected by precipitation and ensuing runoff, in addition to usage through activities such as irrigation and industrial use.

### **3.5.1.3 Floodplains**

Floodplains sit adjacent to surface waterways and store or hold floodwaters. These lands are typically low, flat areas. Generally, they are identified and regulated as 100-year floodplains—areas subject to a 1 percent chance of flooding in any given year. Preserving the area's functionality and minimizing the spread of floodwaters by regulating development that can occur within the designated floodplain limits is desirable. Floodplain preservation and development restrictions are managed in accordance with EO 11988, Floodplain Management. Federal Emergency Management Agency (FEMA) flood insurance rate maps identifying land falling within the 100-year floodplain boundaries can be obtained for most of the study area along the northern border.

### **3.5.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

This section provides the analytical tools to conduct a specific impact assessment for a future site-specific project or activity. It also offers examples of the types of water resources that exist along the northern border. It analyzes how, in which settings, and to what extent various CBP activities might affect water resources and provides guidelines, as necessary, to minimize, mitigate, or avoid such impacts. Using resource-specific criteria, this section characterizes potential impacts as major, moderate, minor, or negligible.

Anticipated activities and actions that result in the following consequences can affect water resources:

- Fuel spills and leaks from vehicles, equipment, or storage tanks that runoff impervious surfaces or otherwise transport to make a groundwater aquifer unsuitable for withdrawing drinking water or impair surface waters;
- High sediment loads in runoff from construction sites or that harm impair surface waters and aquatic organisms;
- Construction projects that redirect surface waters during or after completion of the facilities and infrastructure; and,
- Substantial withdrawals from an aquifer that change the local water table and cause some existing wells to dry up.

A proposed project or activity would potentially have a major impact on water resources under these conditions:

- Substantial adverse changes in the quality of water supply sources due to contamination from activities;
- Substantial adverse changes in the availability or quantity of a water supply source;
- Substantial adverse changes in surface water quality due to contamination from activities;
- Substantial adverse changes in streamflow patterns; and,

- Substantial adverse changes in the capacity of watercourses to carry floodwaters.

### **3.5.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO WATER RESOURCES**

Activities considered within the proposal and alternatives of this PEIS that could affect the supply (availability) or quality of water resources are grouped into three general categories (construction, operation, and maintenance) and may include, but are not limited to, the activities below:

- Construction of:
  - Pedestrian or vehicle fences or other physical barriers;
  - Extensions, upgrades, or repairs of access roads, fences, drag roads, bridges, culverts, and low-water crossings;
  - New BPSs, FOBs, communications towers, and air and marine operational facilities;
  - Modifications/upgrades of existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,
  - Set up of permanent traffic checkpoints.
- Operation activities including:
  - Ground surveillance/patrols and situational response activities (including motorized and nonmotorized, on-road and off-road, snowmobiles, canine and horseback patrols, set up/operation of mobile traffic checkpoints, use of UGSs and other technology);
  - Aircraft surveillance/patrols and situational response activities (manned and unmanned);
  - Maritime surveillance/patrols and situational response activities; and,
  - Implementation and deployment of RVSS, MSS, CASC, and OIC.
- Operations at fixed facilities including:
  - Continued standardizing and modernizing of the OAM fleet;
  - Operation of small-arms weapons training ranges; and,
  - Enforcement of I-68 Canadian Border Boat Landing Program for recreational boaters.
- Maintenance and repair of all of the above.

Although CBP does perform work in waters such as constructing low-water crossings in streams, piers, and boat slips in or around lakes, it does not engage in permanent construction within floodways that could raise floodwater elevations thereby endangering people and property.

### 3.6 NOISE

#### 3.6.1 CONTEXT FOR AFFECTED ENVIRONMENT

Sound is a physical phenomenon consisting of vibrations that travel through media, such as air or water, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, the distance between the noise source and the receptor, the receptor sensitivity, and the time of day. Noise is often generated by activities essential to a community’s quality of life, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Because the human ear responds differently to different frequencies, “A-weighting” was developed to approximate the frequency response of the human ear. The A-weighting curve has been widely adopted for environmental noise measurement and is standard in many sound level meters. The A-weighted decibel (dBA) levels of common sounds of daily life are provided in Table 3.6-1.

The dBA noise metric describes steady noise levels, although, in fact, very few noises are constant. Therefore, the measurement Day-Night Sound Level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because: (1) it averages ongoing yet intermittent noise and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level ( $L_{eq}$ ) is often used to describe the overall noise environment.  $L_{eq}$  is the average sound level in dB.

**Table 3.6-1. Common Sound Levels**

Outdoor	Sound level (dBA)	Indoor
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Notes: dBA = A-weighted decibel. Sound level provided is as generally perceived by an operator or a close observer of the equipment or situation listed.

Source: (Harris, 1998).

The northern border study area contains many soundscapes and noise-sensitive receptors (such as national parks, residences, or schools) that could be impacted by implementation of any of the proposed alternatives. The mere presence of a noise-sensitive area, such as a national park, residence, or school, does not guarantee that it would be significantly impacted by CBP activities or that the overall impacts would be major under NEPA. For descriptions of the regional affected environments for noise, see Sections 4.6.2 (WOR), 5.6.2 (EOR), 6.6.2 (Great Lakes), and 7.6.2 (New England).

### **3.6.1.1 Regulations and Requirements for Noise Control**

The Noise Control Act of 1972 (PL 92-574) directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations. In 1974, the USEPA provided information suggesting continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals.

State and local governments have the opportunity to regulate noise in their jurisdictions. These regulations are typically guidelines for activities that generate noise and the hours that such activities may be performed. A municipal noise ordinance might address the hours that heavy equipment can be operated, the distance heavy equipment can be operated in proximity of noise-sensitive receptors (i.e., schools, hospitals, churches, and residences), and the duration of operation of a single noise source considered to be annoying to the public, such as a diesel-powered generator. Some set specific not-to-exceed noise levels and others are simple nuisance noise ordinances.

A number of sources of noise may be addressed for rural areas such as parades, vendors, social engagements with music, and animal noises. Construction noise is typically exempt from noise ordinances in rural areas. In addition, noise regulations in urban settings take into account the constant noise sources of urban living, such as large HVAC units, public transportation (trains and buses), emergency vehicles, and heavy traffic. Because urban noise levels are already relatively high, adding a noise source for an extended period of time can be highly annoying to some people, thus hours of construction and operation of heavy equipment are often limited. A typical ordinance in a major city will restrict construction-related noise sources between the hours of 10:00 p.m. and 7:00 a.m.

### **3.6.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

To analyze the potential for CBP activities to increase noise along the northern border, this PEIS makes the following assessments:

- Characterizes the areas where CBP's activities would be implemented as:
  - Very rural and remote;
  - Very quiet suburban and rural residential;
  - Quiet suburban residential;
  - Urban and noisy suburban residential; or,
  - Areas of special interest such as national parks.

- Characterizes the sources of noise as either:
  - Short-term sources (e.g., construction and infrastructure upgrades); or,
  - Long-term sources (e.g., generators, automobiles, off-road vehicles, unmanned aircraft systems, and truck traffic).
- Compares noise associated with the activities to incompatibility and regulatory thresholds, such as the 65 dBA DNL limit.

This PEIS uses a systematic process to evaluate the level of impact for noise. This process compares predictions to significance criteria based on legal and regulatory constraints, along with team members' professional technical judgment. Specifically, this approach assumes that a project or activity has the potential to create a major adverse effect due to noise if it:

- Affects a substantial swath of land by generating long-term or permanent sound levels greater than 65 dBA DNL in noise-sensitive areas;
- Generates noise that is not manageable through scheduling, or uses engineering controls that may violate Federal, state, or local noise regulations; or,
- Generates noise in a unit of the NPS that exceeds significant effects thresholds as outlined by the NPS.

### **3.6.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO NOISE**

CBP activities considered within the proposal and alternatives of this PEIS that could affect the noise environment include the following:

- Construction of:
  - Pedestrian or vehicle fences or other physical barriers;
  - Extensions, upgrades, or repairs of access roads, fences, drag roads, bridges, culverts, and low-water crossings;
  - New BPSs, FOBs, communications towers, and air and marine operational facilities;
  - Modifications/upgrades of existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,
  - Set up of permanent traffic checkpoints.
- Operational activities including
  - Ground surveillance/patrols and situational response activities (including motorized and nonmotorized, on-road and off-road, snowmobiles, canine and horseback patrols, set up/operation of mobile traffic checkpoints, use of UGSs and other technology);
  - Aircraft surveillance/patrols and situational response activities (manned and unmanned);
  - Maritime surveillance/patrols and situational response activities; and,
  - Implementation and deployment of RVSS, MSS, CASC, and OIC.
- Operations at fixed facilities including:

- Continued standardizing and modernizing of the OAM fleet;
  - Use of nonintrusive/nondestructive inspection and detection technologies;
  - Operation of small-arms weapons training ranges;
  - Operation of standby generators; and,
  - Enforcement of I-68 Canadian Border Boat Landing Program for recreational boaters.
- Maintenance and repair of all of the above.

### **3.7 CLIMATE CHANGE AND SUSTAINABILITY**

#### **3.7.1 CONTEXT FOR AFFECTED ENVIRONMENT**

##### **3.7.1.1 Global Climate Change**

The goal of Executive Order (EO) 13514, “Federal Leadership in Environmental, Energy, and Economic Performance”(October 5, 2009), is “to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies.”

According to the United Nations (UN), climate change “refers to a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or to external forces, or to persistent anthropogenic changes in the composition of the atmosphere or land use.”

Climate change research reports from the United Nations Intergovernmental Panel on Climate Change (IPCC), the U.S. Climate Change Science Programs Science Synthesis and Assessment Products, and the U.S. Global Change Research Program (USGCRP) conclude that the Earth’s climate is already changing. The change is expected to accelerate (USDA, 2009). Some observed changes include shrinking of glaciers, thawing of permafrost, delayed freezing and earlier break-up of ice on rivers and lakes, lengthening of growing seasons, shifts in plant and animal ranges, and earlier flowering of trees (IPCC, 2007).

Temperature increases may be associated with human-induced increases in GHG emissions released into the atmosphere as a result of combustion. Common GHGs such as carbon dioxide, methane, and nitrous oxide trap radiant heat from the Earth, causing the average temperature to rise. Federal agencies, states, and local communities address global warming by preparing GHG inventories and adopting policies that will result in a decrease of GHG emissions. EO 13514 specifically requires Federal agencies to measure, report, and reduce GHG emissions from both their direct and indirect activities. Direct activities include actions related to sources the agencies own and control and the generation of electricity, heat, or steam they purchase. Indirect activities include actions of vendor supply chains, delivery services, and employee travel and commuting. “Instructions for Implementing Climate Change Adaptation Planning in Accordance with EO 13514” was also issued on March 4, 2011 to provide more guidance for Federal agencies.

The Council on Environmental Quality (CEQ) has issued draft guidance for considering global climate change in documents prepared pursuant to NEPA (CEQ, 2010; USDA, 2009). The draft guidance identifies two aspects of global climate change:

- The potential for Federal agencies to influence global climatic change (e.g., increased emissions or sinks of GHG); and,
- The potential for global climatic change to affect Federal actions (e.g., feasibility of coastal projects in light of projected sea level rise).

### **3.7.1.2 Sustainability**

Sustainable development means meeting the needs of the present without compromising the ability of future generations to meet their own needs. For CBP, sustainability includes the ability to adjust to changing geopolitical realities while preserving the environment and working to improve the quality of life for American residents and visitors to the United States.



To reduce environmental impacts and address potential future resource limitations, the Department of Homeland Security (DHS) prepared a Strategic Sustainability Performance Plan (SSPP) to promote sustainable planning, design, development, and operations. The SSPP sets goals for DHS to decrease energy use, minimize reliance on traditional fossil fuels, protect and conserve water, and reduce the environmental impact of materials use and disposal. In compliance with the DHS SSPP, CBP developed an operational sustainability performance plan (OSPP) which lays out a strategy for meeting sustainability-related federal requirement goals and targets. CBP's overarching goal is to size, plan, and develop future facilities in a manner that is sustainable, aiding preservation and protection of finite resources.

### **Regulations and Requirements Related to Climate Change and Sustainability**

All Federal agencies must take necessary actions to integrate environmental accountability into day-to-day decision making and long-term planning processes, across all agency missions, activities, and functions. Consequently, environmental management considerations must be a fundamental and integral component of all Federal agencies' policies, operations, planning, and management. The following Federal mandates and regulations shape CBP's responsibilities related to climate change and sustainability:

- EO 13514, "Federal Leadership in Environmental, Energy, and Economic Performance";
- EO 13423, "Strengthening Federal Environmental, Energy, and Transportation Management";
- The Energy Independence and Security Act of 2007;
- The Federal Leadership in High Performance and Sustainable Building Memorandum of Understanding (MOU) 2006;
- The Energy Policy Act of 2005;
- EO 13031, "Federal Alternative Fuel Vehicle Leadership";

- EO 13352, “Facilitation of Cooperative Conservation”;
- Pollution Prevention Act; and
- Resource Conservation and Recovery Act

### **Operational Sustainability Performance Plan**

To comply with EO 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” DHS must adhere to sustainable principles and implement sustainable practices throughout the Agency. In keeping with this mandate, DHS directed all of its components to complete implementation plans known as Operational Sustainability Performance Plans, or OSPPs. The purpose of an OSPP is to outline a series of milestones and objectives that will accomplish the goals of EO 13514. CBP updates the OSPP every year.

CBP’s is currently revising its environmental management policy. The CBP Office of Administration (OA), Facilities Management and Engineering (FM&E), Environmental and Energy Division (EED) plans to issue the revised policy in the fourth quarter of FY2012.

The OSPP lists 8 goals and outlines CBP’s strategy to achieve these goals. Numerous accomplishments related to these goals have already been made. The goals are as follows:

- Goal 1: Scope 1 and 2 GHG Reduction
- Goal 2: Scope 3 GHG Reduction & Inventory
- Goal 3: High-Performance Sustainable Building (HPSB) Design and Regional and Local Planning
- Goal 4: Water Use Efficiency and Management
- Goal 5: Pollution Prevention and Waste Limitation
- Goal 6: Sustainable Acquisition
- Goal 7: Electronic Stewardship Training
- Goal 8: Departmental Innovation

### **3.7.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

An impact on climate or resource sustainability occurs when an activity:

- Contributes cumulatively to change in regional climate along the northern border;
- Causes substantial emissions of GHG;
- Uses a substantial amount of non-renewable resources; or,
- Is inconsistent with existing climate authority, guidelines, or management plans.

Consideration of whether a CBP activity could have a major adverse impact on climate or resource sustainability would largely be based on determinations made in other resource areas such as emissions of greenhouse gases, impacts to utility systems, or large-scale failure to meet goals in EOs or DHS sustainability initiatives.

### **3.7.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO CLIMATE CHANGE AND SUSTAINABILITY**

This PEIS characterizes climate and resource use across the northern border at a general level. It also analyzes the potential of CBP's proposed actions to contribute to climate change precursors and otherwise impact resource sustainability.

The study area includes portions of the United States within 100 miles of the border and land in Canada within two miles of the border. Due to the nature of climate change, direct climate impacts from CBP activities cannot be measured, would not necessarily occur proximate to the border (on either side), and would by their very nature be combined with other factors and sources. For example, construction projects near the border that cause GHG emissions could potentially contribute to climatic alterations locally, regionally, nationally, or globally.

Activities included within CBP's proposals and alternatives that could contribute to climate change precursors or decreased sustainability of resources include:

- Construction or expansion of facilities, towers, and associated infrastructure;
- Increases in various patrol types that emit GHGs; and,
- Construction of access roads.

## **3.8 LAND USE**

### **3.8.1 CONTEXT FOR AFFECTED ENVIRONMENT**

The study area for land use includes areas in the United States within 100 miles of the border and within two miles of the border in Canada. Land cover and land use classifications are defined by the U.S. Geological Survey (USGS) and Natural Resources Canada (NRC).

Land use classifications reflect a spectrum of levels of more natural preservation versus more human development or resource use related activities at a given location. The spectrum of undeveloped uses to more developed uses roughly progresses as: undeveloped land and water areas (conservation areas, wild lands, parks); military and defense (training areas); resource production and extraction (forestry, mining, or agriculture); culture and recreation; commercial trade and services; transportation and utilities; industrial/manufacturing; and residential. Management plans, policies, and regulations specify the type and extent of land use allowable in specific areas, as well as the protection designated for environmentally sensitive areas.

#### **3.8.1.1 Land Use Management**

Some impacts to land use discussed in Chapter 8, Environmental Consequences, are as likely to occur on the Canadian side of the border as on the U.S. side. This is particularly true for impacts that could reduce the suitability of land to support its current or planned use. For example, construction projects along the border that introduce noise and light pollution as well as checkpoints that stop traffic may affect land use activities on both sides of the border. On the other hand, some types of impact, such as direct removal of land from existing uses for CBP-related infrastructure construction, would not be relevant on the Canadian side. The analysis for this PEIS evaluates impacts in Canada within a decreased area (two miles from the border) to

account for only those land uses closest to border activities that may be affected by the CBP activities covered here.

The land use analysis discusses the types of impacts that specific actions within the proposed action and alternatives could cause. It analyzes the potential extent of such impacts given the existing context for the action at the program level, which includes adjacent land use, zoning, regulatory compliance, and extent of physical impacts, among others. It also includes planning guidelines for avoiding, managing, mitigating, or minimizing these impacts.

### **3.8.1.2 Recreation and Conservation Resource Areas**

CBP's law enforcement jurisdiction frequently places its operational activities within areas designated or otherwise used for recreation and conservation purposes. This PEIS's analysis of areas most likely used for recreation in the United States includes lands within the designations listed beneath (government landowner in parentheses, when applicable):

- National park units – national park, national historic park, national parkway, national recreation area, national trail (NPS);
- National scenic byways (DOT);
- Other state parks and recreation lands;
- Parks – city, county, state/state historical, private;
- Recreation areas – national recreation area, recreational trail, scenic area U.S. Forest Service (USFS) or military or national recreation area (DOD);
- Recreation areas (city or state);
- Recreation trails;
- Scenic areas; and,
- Rivers – wild, scenic, and recreational rivers (Bureau of Land Management [BLM] or (USFS).

To identify the lands most likely used for recreation in Canada, this analysis considers the following land owners and designations (government landowner in parentheses, when applicable):

- Game preserves;
- National parks – national park of Canada, national park and historic site, or national park and reserve (Parks Canada Agency);
- Nature parks – natural environment park and nature park (Parks Canada Agency);
- Parks – provincial camping park, provincial park, territorial park, and wilderness park;
- Provincial recreation areas;
- Recreation areas; and,
- Recreation sites.

Together, these land types form the category of recreational land for the land use analysis. The category includes more land than that referenced in Section 3.17 (Recreation), which focuses specifically on major Federal recreation sites.

Recreation also occurs on other land not specifically designated for the activity. For example, wildlife viewing or hiking may be permitted on some conservation or natural areas in the study area. In addition, hunting and snowmobiling may occur on public or private forested land areas. Absent information on the specific distribution of recreational activities across the landscape, this analysis relies on the above categories of land as a low-end estimate of the area in which recreation is likely taking place.

To identify the lands most likely used for conservation in the United States, this analysis combines the following land designations (government landowner in parentheses, when applicable):

- City conservation easement, preserve, or natural areas;
- Conservation easements (USFWS, NPS, or USFS);
- Conservation/natural areas;
- County areas – county conservation easements or preserves, county wildlife refuges or wildlife management areas;
- Ecological preserve or natural areas;
- Ecological reserves (DOD);
- Habitat protection areas (USFS);
- International historic sites (NPS);
- Local land trust easement or land trust preserves;
- National outstanding natural areas (BLM);
- National preserve or natural reserves (NPS);
- National wildlife refuges (USFWS);
- Natural areas (USFS);
- Natural resource management areas;
- Nature Conservancy cooperative managed properties;
- Nature Conservancy fee lands;
- Other NPS protected areas (NPS);
- Private conservation easement/conservation deed restrictions;
- Private institutions—managed for biodiversity;
- Research natural areas (BLM, USFWS, or USFS);
- Research or demonstration areas (USFS);

- State lands – state conservation lands, state ecological reserves, state habitat areas, state managed conservation easements, state natural reserves or preserves, state trust lands, state wetland conservation areas, state wilderness areas, and state wildlife management areas;
- University research and demonstration land;
- Waterfowl production area (USFWS);
- Watershed conservancy land;
- Wilderness area (USFWS, NPS, or USFS);
- Wilderness study area (BLM);
- Wildlife management area (USFWS); and,
- Wildlife protection area (USACE/DOD).

To identify the lands most likely used for conservation in Canada, this analysis considers the following landowners and designations:

- Biodiversity reserve;
- Community pasture;
- Conservancy;
- Conservancy protected area;
- Conservation area or conservation reserve;
- Ecological reserve;
- Exceptional forest ecosystem;
- Fish and Wildlife development fund lands;
- Game sanctuary;
- Grizzly bear sanctuary;
- Habitat of a threatened or vulnerable plant or wildlife species;
- Habitat protection act lands;
- Habitat protection area;
- Heritage area, heritage rangeland, or heritage rangeland natural area;
- Inlet marine, marine park, marine protected area, or national marine park of Canada;
- Migratory bird sanctuary;
- National park reserve;
- National wildlife area;
- Natural area;

- Park reserve;
- Proposed aquatic reserve;
- Proposed biodiversity reserve;
- Protected area;
- Provincial parks of historical, natural environment, nature reserve, waterway, or wilderness class designations;
- Public reserve;
- Special management area;
- Watershed authority lands;
- Waterfowl gathering area;
- Wilderness area, preserve, or reserve;
- Wildlife management area, refuge, preserve, or reserve; and,
- White-tailed deer yard.

### **3.8.1.3 CBP Responsibilities on Federal Lands**

When operating on Federal lands, CBP has responsibilities under several Federal land management laws, including NEPA, the National Historic Preservation Act, the Wilderness Act, and the ESA. CBP must obtain permission or a permit from Federal land management agencies before CBP can maintain roads and install surveillance equipment on these lands. Because land management agencies are also responsible for ensuring compliance with land management laws, CBP generally coordinates its responsibilities under these laws with land management agencies through national and local interagency agreements. The most comprehensive agreement is a 2006 Memorandum of Understanding (MOU) intended to guide CBP's U.S. Border Patrol (USBP) activities on Federal lands (USDHS, 2006). This MOU affirmed CBP's commitment to coordinate efforts in several key areas, including:

- Sharing information regarding border security threats on Federal lands;
- Sharing budget requests, deployment plans, and maintenance plans for infrastructure and technology for use on Federal lands;
- Sharing operational plans, including deployment of staff and resources, changes in staffing levels, and patrol methods that best align with Federal laws to protect the environment and endangered species; and,
- Allowing USBP access to Federal lands and waterways to conduct border security operations, such as tracking and interdicting individuals and installing remote-detection systems, consistent with applicable Federal laws.

In addition, the MOU states, "DHS, DOI and USDA recognize that Border Patrol access to Federal lands can facilitate the rescue of cross-border violators, protect these lands from environmental damage, and have a role in protecting wilderness and wildlife resources." It includes provisions that detail the conditions and processes by which CBP is authorized to

conduct surveillance, pursuit, and apprehension using motorized vehicles in areas not previously authorized for such use (wilderness areas, areas recommended for wilderness designation, or wilderness study areas).

For projects on non-Federal lands, CBP will comply with state or local land use regulations where applicable or where not specifically preempted from doing so, as long as such compliance does not impede execution of its congressionally mandated mission.

#### **3.8.1.4 Consistency with Enforceable Policies of the Coastal Zone Management Act**

The National Oceanic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management administers the Coastal Zone Management Act (CZMA) of 1972, 16 U.S.C. §1451 et seq. with the goal of providing management of the Nation's coastal resources, including the Great Lakes, and balancing economic development with environmental conservation. The CZMA outlines two national programs: the National Coastal Zone Management Program (CZMP) and the National Estuarine Research Reserve System. State coastal programs balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and the human impact on them. The CZMP does not create any new Federal regulatory authority, nor does it mandate the adoption of any additional state regulations. The overall program objectives, as expressed in Section 303 of the Act (16 U.S.C. § 1452), are to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone.”

Section 307 of the Act (16 U.S.C. §1456) requires that Federal agency activities be consistent to the maximum extent practicable with the enforceable policies of an approved management program. The consistency requirement is an important mechanism to address coastal impacts, ensure Federal consideration of state management programs, and avoid conflicts between states and Federal agencies by fostering early consultation and coordination. The Federal regulations implementing Section 307 are found in 15 C.F.R. Part 930.

A Federal activity is any development or function performed by or for a Federal agency, and requires a “Federal consistency determination.” The determination describes the activity and whether that activity affects coastal resources within a state's coastal zone as defined for the purposes of the CZMA. If the activity does affect coastal resources, a statement must be provided stating that the activity is consistent, to the maximum extent practicable, with the enforceable policies in the relevant state laws.

#### **3.8.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

This PEIS characterizes land uses across the northern border at a general level and analyzes potential land use impacts by integrating the following land cover and landownership classifications:

- Land cover – developed, cultivated crops, forested, pasture/hay, barren, snow/ice, open water;
- Public and other non-private land ownership – by Federal agency, Canadian National Parks and Indian Reservations, and state; and,

- Designations of CBP facilities and identification of cities with populations in excess of 250,000 residents.

There is the potential for a land use impact to occur when an activity:

- Disrupts an existing or planned land use;
- Reduces the land's suitability to support its current or planned use;
- Constitutes a fundamental change in land use;
- Is inconsistent with existing land use authority, guidelines, or management plans; and,
- Is incompatible with plans and management objectives of adjacent areas under the control of other entities.

### **3.8.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO LAND USE**

Activities considered with the proposal and alternatives of this PEIS that could affect land use are grouped into three general categories (construction, operation, and maintenance) and may include, but are not limited to, the activities below:

- Construction of:
  - Extensions, upgrades, or repairs of access roads, fences, drag roads, bridges, culverts, and low-water crossings;
  - New BPSs, FOBs, communications towers, and air and marine operational facilities;
  - Installation of communications or surveillance towers and associated infrastructure;
  - Modifications/upgrades of existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,
  - Set up of permanent traffic checkpoints.
- Operational activities including:
  - Increases in various patrol types when they compete with recreational value for existing use; and
  - Ground surveillance/patrols and situational response activities (including motorized and nonmotorized, on-road and off-road, snowmobiles, canine and horseback patrols);
  - Set up/operation of mobile traffic checkpoints;
  - Use of UGS and other technology;
  - Aircraft surveillance/patrols and situational response activities (manned and unmanned);
  - Maritime surveillance/patrols and situational response activities; and,
  - Implementation and deployment of RVSS, MSS, CASC, and OIC.
- Operations at fixed facilities including:

- Routine activities at POEs including agricultural inspections;
  - Continued standardizing and modernizing of the OAM fleet;
  - Use of nonintrusive/nondestructive inspection and detection technologies;
  - Operation of small-arms weapons training ranges; and,
  - Enforcement of I-68 Canadian Border Boat Landing Program for recreational boaters.
- Maintenance and repair of all of the above.

Land use analysis in areas proposed for site-specific projects would be carried out at a narrowly defined geospatial level, providing information on specific types of human activities (mining, silviculture, zoning-level uses) within the broad categories considered.

### **3.9 AESTHETIC AND VISUAL RESOURCES**

#### **3.9.1 CONTEXT FOR AFFECTED ENVIRONMENT**

Visual resources include those features that define the visual character of an area: natural features, vistas, or viewsheds, and even urban or community visual characteristics that include architecture, skylines, or other characteristics. Visual resources and aesthetics are important because of their unique qualities and the responses they inspire in human beings. This section provides the analytical tools to conduct a precise visual impact assessment for future site-specific projects or activities; it also offers examples of the types of landscapes that exist along the northern border. It does not characterize every potential vista or visual landscape along the entire northern border, but provides guidelines for minimizing, mitigating, or avoiding such impacts. This section:

- Characterizes the visual landscape types that could be affected by CBP's No Action Alternative and action alternatives;
- Describes the types of landscapes most sensitive to visual impacts (wilderness areas, recreation areas, etc.); and,
- Characterizes various viewer/user groups based on the context in which they could experience visual impacts.

Developed over 30 years ago, the BLM's Visual Resource Management (VRM) system is a tool that provides a way to identify and evaluate the aesthetic value of an area and analyze a project's potential impact on the visual resources of that area (See Appendix G for more detailed information). BLM's VRM system assigns visual resource classes to public lands to provide:

- (1) an inventory tool that portrays the relative value of the visual resources; and,
- (2) a management tool that portrays the visual management objectives for the affected resources (USDOI, 2012).

For the purposes of this PEIS, BLM's VRM classification system was used as basis for defining the aesthetic value of an area and the potential impact of a project on a visual resource.

### **3.9.1.1 Affected Landscapes and Visual Resources**

Four broadly defined landscapes occur within the potential settings of the proposed project: natural, rural, urban, and industrial (USDOT, 1999).

#### **Natural Landscapes**

Natural landscapes are those in which natural landforms and vegetation predominate, and signs of human activity are not apparent (USDOT, 1999). Coastlines, water bodies, mountains, and areas of varied relief are the most striking and tend to be the most conspicuous. Some natural landscapes are designated specifically for outdoor recreation. BLM, USFS, USFWS, NPS, and state and local parks own most of these recreational lands.

The “natural lightscape” or “night sky” is often a specific aspect of a natural landscape. The U.S. Department of the Interior (DOI) defines a “natural lightscape” as an environment that is undisturbed by light and air pollution. (See Chapter 3.2 for discussion of air pollution in Class I areas). As defined by the NPS, such places or environments are “characterized by the natural rhythm of the sun and moon cycles, clean air, and of dark nights unperturbed by artificial light” (USDO, 2007a).

“Natural lightscapes” have natural, cultural, and scenic importance. Animals often depend on darkness in order to hunt, conceal their location, navigate, or reproduce, and for nocturnal animals, light pollution is a disruption in habitat. Additionally, plants can be affected by artificial light because it disrupts their natural cycles. Dark night skies are also culturally important because they are a resource common to all cultures (USDO, 2012).

#### **Rural Landscapes**

Rural landscapes include features such as croplands, orchards, fields, fences, and farm-related structures (USDOT, 1999). While border POEs and BPSs along the northern border tend to be in rural, less densely populated areas well outside of major cities, the majority of the population in the study area lives in larger, more densely populated centers. Agricultural areas are predominantly flat or have gently rolling hills; these landscapes tend to be restricted to valleys and lowlands, and they are not typically found at higher elevations or in areas with complex topography. Native vegetation is often found in confined areas where land is steep or soils are unproductive. Views may extend for some distance, with vertical elements typically consisting of relatively low farm buildings, silos, water towers, utility poles, fencing, and trees. Distinct geometric patterns, such as rectangular or circular fields and property boundaries divided by section lines, may characterize the landscape. Towns are small and have relatively low skylines. In general, the few structures in such areas can be of aesthetic interest. Agriculture greatly influences the landscape, and land use groups can sometimes categorize different agriculture practices. Other rural areas include forests or deserts, which are influenced by roadways, the presence of small towns, and land-clearing activities, such as timber harvesting, strip mining, ski areas, and large reservoirs.

#### **Urban Landscapes**

Urban landscapes represent only a fraction of the Nation’s entire land area, but are the dominant visual environment of roughly three-quarters of the American population (USDOT, 1999). Residential and suburban areas represent much of the urban landscape, with centralized primary

commercial centers and business districts defining the most dominant visual characteristics. The scale of development in major urban areas is large and dominated by structures, highways, infrastructure, and trees. Most urban landscapes are clustered around areas of usable natural resources, such as waterways.

### **Industrial Landscapes**

Heavy and light industrial landscapes tend to be scattered, situated in specific zones or districts such as along roads and waterfronts or near airports. The relative presence of industrial landscapes varies among the regions and states along the northern border.

#### **Industrial Plant on River**



Source: (USDOJ, 2008).

### **3.9.1.2 Areas with High Visual Sensitivity**

Visual sensitivity refers to the level of viewer awareness and the value placed on a particular scene. The VRM system applies a sensitivity rating to a tract of land according to the level of public concern for scenic quality or visual appeal. Some areas have a high degree of visual sensitivity, usually due to their unique visual features or to their use by recreational users. Highly sensitive areas are significant to the general public. In these areas, most modifications to the visual environment would result in a major significantly adverse impact, and any visual impact should be avoided or mitigated if possible. Natural areas with Federal or state protection often fall into this category. Recreational users of public lands have expressed concern about visual impacts stemming from CBP activities (USDHS, 2010a). Among the northern border regions, the WOR Region has a greater amount of public land sensitive to visual impacts than do the other regions.

The following is a list of managed land types with high visual sensitivity:

- National Landscape Conservation System lands;
- Units of the NPS;
- Areas of critical environmental concern;

- Wildlife refuges;
- Wild and scenic rivers;
- Wilderness areas;
- Wildlife management areas;
- Special recreation management areas;
- Areas allocated in existing land use plans to maintain wilderness characteristics or to have right-of-way avoidance or exclusion;
- Wildlife movement corridors;
- Areas for which an agency or organization is committed to take certain actions with respect to sensitive species habitats;
- Backcountry byways;
- National Scenic Byways;
- Areas of known tribal concerns; and,
- Areas with a known high density of cultural sites.

### **3.9.1.3 Affected User Groups**

Specific viewer groups within the study area can gauge viewer sensitivity and assure the selection of appropriate, representative viewpoints during the visual impact evaluation. While POEs and BPSs along the U.S.-Canada border are generally in rural, less densely populated areas outside of major metropolitan areas, most of the population in the study area lives in larger population centers. The following four categories of viewer/user groups were identified within the study area: commuters and through travelers, local residents, business employees, and recreational users.

#### **Commuters and Through Travelers**

These viewers pass through the study area on a regular basis in automobiles on their way to work or other destinations. On most roads within the study area, the views are from street level. Typically, drivers have limited views of CBP infrastructure and activity, except at locations where CBP actions cross the road. Commuters and through travelers are typically moving, have a relatively narrow visual field due to roadside vegetation or structures, and generally are preoccupied with traffic and navigating the roadways. For these reasons, commuters and through travelers' perception of (and sensitivity to) visual quality and changes in the visual environment are likely to remain relatively low. Passengers in moving vehicles, however, have greater opportunities for off-road views of a project than do drivers.

#### **Local Residents**

These individuals may view the proposed actions from stationary locations, such as yards and homes, and while driving along local roads. The sensitivity of residents to visual quality varies and may be tempered by a viewer's exposure to existing CBP actions and infrastructure and other visually-varied features already in existence. Presumably, most residents will be highly sensitive to changes in the landscape viewable from their homes and neighborhoods. CBP also

considers visual impacts to Native American sacred sites and trust resources before carrying out a project.

### **Business Employees**

These individuals work at local businesses, primarily in the commercial portions of the study area. Business employees will generally experience limited views of the actions being considered in the alternatives, except at road crossings while driving to work or where CBP infrastructure and activity occurs near their place of employment. Most business employees work in one- or two-story structures that may or may not have outside views. Those with views often look out on numerous, often varied, built features, and the employees within buildings are focused on their jobs. For these reasons, business employees are not likely to be sensitive to landscape changes.

### **Recreational Users**

This group generally includes local residents and tourists involved in outdoor recreation at local parks, recreational facilities, and natural areas: hikers, bicyclists, joggers, and those involved in more passive activities (e.g., picnicking, walking, and nature observation). Scenery and visual quality may or may not be an important part of the recreational experience for these viewers. In general, recreational enjoyment is almost always enhanced by a setting that has not been visually degraded. For some recreational users, scenery may constitute a very important part of their experience, and their activities may afford continuous views of landscape features over relatively long periods of time. Such viewers are likely to have a high appreciation for visual quality and a high sensitivity to visual change.

## **3.9.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

### **3.9.2.1 Analysis Methodology**

Aesthetic judgment, especially related to landscape views, is often subjective. BLM's VRM places lands into one of four visual resource inventory classes that represent their relative visual value. Visual resource inventory classes are assigned a Class I – IV through the inventory process.

Class I is assigned to those areas where a management decision has been previously made to maintain a natural landscape. This includes areas such as national wilderness areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. Classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance zones.

- Scenic quality is a measure of the visual appeal of a tract of land. The visual resource inventory process assigns a numeric value to each of seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. The values are totaled and correspond to a rating of A (16 or more) having the greatest scenic quality, B (12-16), or C (11 or less). It is important to note that all lands have scenic value, but areas with the most variety and most harmonious composition have the greatest. Another important concept is that the evaluation of scenic quality is done in relationship to the natural landscape. This means that man-made features may not

necessarily detract from the scenic value of the landscape, but instead enhance the scenic value, if complimentary to the landscape (USDOJ). Natural landscapes are typically rated “A” for scenic quality and urban and industrial landscapes “C”.

- Sensitivity levels are a measure of public concern for scenic quality. The BLM visual resource inventory process assigns lands as having high, medium, or low sensitivity levels by analyzing the various indicators of public concern. Factors considered include: type of users, amount of use, public interest, adjacent land uses, and special areas. Frequently, areas with a “high” visual sensitivity rating would also have a high scenic quality rating (“A”). Natural landscapes fall into this category.

BLM describes their objectives for visual resource classes as follows:

- Class I Objective - To preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. Natural landscapes fall into this class.
- Class II Objective - To retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Class III Objective - To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV Objective - To provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements (USDOJ). Urban and industrial landscapes usually fall into this class because major changes to the visual environment can occur without major impacts to the visual environment or viewer groups due to their existing dominant visual features.

Visual resource inventory classes, scenic quality ratings, and visual sensitivity levels are referenced throughout the remainder of this document. Delineation of distance zones was not incorporated outside of boundaries already defined for resources by their associated land management units.

### 3.9.2.2 Impact Definition

Aesthetic impact occurs when there is a detrimental impact on the perceived character of a place or structure. A major aesthetic impact is one that may diminish public enjoyment and appreciation of an inventoried resource or that impairs the character or quality of such a place. Using the concepts noted, this analytic approach assumes that a project or activity would create an adverse visual impact if it:

- Has a substantial adverse impact on a scenic vista (e.g., constructing towers in a wilderness viewshed);
- Substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings (e.g., creating cleared right-of-way in scenic areas);
- Substantially degrades the existing visual character or quality of the site and its surroundings (e.g., constructing a FOB in a protected forest); or,
- Creates a new source of substantial light or glare (e.g., locating new or substantially upgraded facilities in an area that previously did not have a significant amount of light or glare).

Impacts of project activities will be based on their:

- Effects on scenic resources;
- Effects on views;
- Modifications of the visual setting;
- Level of contrast of the project to the setting and the dominance of change within the setting; and,
- Consistency with Federal and state land management standards and guidelines.

### 3.9.2.3 Visual Feature Considerations

Certain characteristics of both a feature and the surrounding area can affect the visual impact of the feature. The characteristics evaluated here are magnitude, distance, and competing interests. Their definitions and impacts are as follows:

- The magnitude of a visual impact results from the dominance of a feature and its interpretation by the viewer, or how much attention the feature attracts. The landscape type and scenic quality, viewer group, and distance between potential viewers and the feature or action jointly determine the impact level.
- Distance affects the degree of contrast an object has with the surrounding landscape. An object loses much of its identity with greater distance. Irregular skylines are more complex and tend to mask the appearance of an added element, such as a tower.
- A competing interest exists when a feature of strong visual interest is included within the view of a proposed action. Such features commonly include farm buildings, dominant mountain crests, and lakes. Competing interests are not necessarily directly adjacent to visual features but depend on the viewer's angle. The visual impact of any single feature

or action declines if the landscape contains many competing interests or irregular skylines, such as urban, industrial, or mountainous natural landscapes.

**These photos provide a general illustration of how competing interest and structure can decrease the visual impact of a tower (left) or increase the visual impact by drawing attention (right)**



Source: (Arizona Republic, 2007; Rapp News, 2010).

### **3.9.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO AESTHETIC AND VISUAL RESOURCES**

Examples of activities that could create visual impacts include:

- Constructing, upgrading, renovating, or relocating facilities that would degrade a wilderness viewshed or introduce new sources of light and glare;
- Creating cleared rights-of-way (ROW) in scenic areas for creation or expansion of infrastructure; and,
- Constructing or installing technology or infrastructure that would degrade protected forested cover within a viewshed.

### **3.10 SOCIOECONOMIC RESOURCES**

#### **3.10.1 CONTEXT FOR AFFECTED ENVIRONMENT**

The study area includes areas in the United States and Canada within 100 miles of the border. Some socioeconomic impacts are as likely on the Canadian side of the border as on the U.S. side. For example, time delays at border crossings may affect populations and businesses on both sides of the border. In addition, much of the economic activity in U.S. border regions involves cross-border movement of people and goods; therefore, this PEIS considers the impacts of CBP activities on Canadian socioeconomic resources as well as on those of the United States. The impacts of CBP actions on communities and regional economies in Canada are most likely felt closest to the border. However, since it is not possible to delineate precisely how far beyond the border an impact may extend, this report provides information on the area up to 100 miles north

of the border, mirroring the study area in the United States. This definition of the study area does not suggest that impacts would be equivalent in Canada and in the United States.

Two approaches characterize the relevant socioeconomic resources across each border region:

- A series of tables and maps with accompanying text describing relevant statistics from the U.S. and Canadian censuses and publicly available information on regional economies with the following data for each border region:
  - Population level and distribution;
  - Recent population growth or decline;
  - POEs and BPSs within population centers (defined as metropolitan statistical areas (MSAs) in the United States and census metropolitan areas in Canada);
  - Median household income;
  - Poverty rates;
  - Unemployment; and,
  - Median property values.

The tables and accompanying text present these data for areas (i.e., census tracts or counties) that fall within the border region as well as the broader state/province and nation for comparison.

- Demographic and economic profiles of a subset of POEs within each region. These sites include the major POEs (“major” is defined by annual vehicle crossings), as well as POEs with distinctive characteristics (e.g., sites that include ferry crossings or represent a significant level of trade value). These profiles mix qualitative and quantitative information, including:
  - Total border crossings;
  - Trade value of imports and exports;
  - Key industries operating within the POE counties; and,
  - Key activities constituting POE traffic.

### **3.10.2 FRAMEWORK FOR CHARACTERIZING RESOURCES IMPACTS**

A socioeconomic impact may be caused by an activity that:

- Disrupts the flow of goods, services, and people across the border;
- Disrupts the social fabric of border communities;
- Changes regional income or employment levels, directly or indirectly;
- Affects population levels or population distribution;
- Changes a population’s demographics;
- Limits the level or quality of regional economic activity (e.g., by reducing the opportunity for regional development or degrading land used for recreation); or,

- Reduces property values or otherwise affects housing markets.

### **3.10.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO SOCIOECONOMIC RESOURCES**

CBP activities that could result in one or more types of socioeconomic impact include:

- Construction or expansion of facilities (POEs, BPSs, etc.);
- Installation of communication or surveillance towers and associated infrastructure;
- Construction of new traffic checkpoints;
- Installation of pedestrian or vehicle fences or barriers;
- Construction of access roads through undisturbed areas; and,
- Increases in various patrol types.

## **3.11 CULTURAL AND PALEONTOLOGICAL RESOURCES**

### **3.11.1 CONTEXT FOR AFFECTED ENVIRONMENT**

For each state along the northern border, a document and literature search was conducted to develop prehistoric (precontact) and historic contexts. Notable resources within the 100-mile corridor are presented on the macro-level without enumerating specific resources, sites, or listed properties. Information about the potential location of Native American cultural resources, sacred sites, and traditional cultural properties (TCP) is based on the geographic location of Native American groups, both historically and in the present, and an overview of the current understanding of paleontological site probability in the WOR Region. Appendix H provides information on the cultural context and history of CBP's operational area along the northern border, which offers a basis for the relevant sections that follow.

### **3.11.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

Impacts to cultural and paleontological resources include demolition of structures listed on or eligible for listing on the National Register of Historic Places, introduction of visual intrusions to historic landscapes, and complete or partial destruction of archaeological sites, TCPs, or paleontological deposits. Impacts to historic buildings, structures, objects, or collections of above-ground resources can range from negligible to major, depending on whether the proposed design affects the historical integrity or setting of the historic property. This analysis defines impacts as negligible, minor adverse, moderate adverse, major or beneficial.

Impacts on cultural resources could be significant if a proposed undertaking directly (physically) affects properties listed, or eligible for listing, in the National Register of Historic Places. The level of impact could range from negligible to major depending on the type of resource identified. Impacts on above-ground resources could also range from negligible to major depending on whether a proposed undertaking affects the visual setting or viewshed of a historic property.

### 3.11.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO CULTURAL AND PALEONTOLOGICAL RESOURCES

CBP actions that could potentially affect cultural or paleontological resources include facility expansion, new construction, installation of detection and communication towers, as well as destructive activities, such as tunnel demolition. The specific components of the action alternatives with the greatest potential for impacts on cultural and paleontological resources could range from minor to major adverse in some cases, or beneficial in others. These include:

- Construction, modification, or repair of POEs, BPSs, OAM bases, training facilities, or permanent traffic checkpoint facilities;
- Construction of roads, fences, barriers, and related infrastructure;
- Installation of remote video surveillance systems (RVSS);
- Installation of detection and communication towers;
- Remediation of illegal tunnels; and,
- Installation of unattended ground sensors.

In general, CBP's day-to-day operations do not have a direct physical impact on cultural or paleontological resources, nor do they produce a permanent visual change in the viewshed of cultural resources. CBP's day-to-day operations activities include but are not limited to processing of visitors, cargo inspection, canine enforcement teams, fraud prevention, aerial surveillance, line-watch operations, ground patrols, and aircraft, watercraft and vehicle maintenance.

## 3.12 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

### 3.12.1 CONTEXT FOR AFFECTED ENVIRONMENT

#### 3.12.1.1 Definitions of Affected Populations

For this assessment, the following definitions apply to the relevant environmental justice populations:

- **Minority Populations:** To assess environmental justice under NEPA, the CEQ defines a minority population as one in which the percentage of minorities exceeds 50 percent or is meaningfully greater than the minority population percentage in the general population (or some other appropriate unit of geographic analysis) (CEQ, 1997). Individuals are categorized as minority if they identify themselves as belonging to any of the following protected groups: Hispanic (may include individuals of any other category); Black or African American (not of Hispanic origin); American Indian or Alaska Native; Asian, Native Hawaiian, or Other Pacific Islander. If individuals select multiple categories to reflect their ethnic or racial origins, they are considered minority if any one of the categories is among the recognized minority groups. For the Canadian portions of the study area, Aboriginal Peoples are also included in the minority category. Recognized by the Canadian Constitution, Aboriginal Peoples are descendants of the original inhabitants of North America and include Indians (commonly designated First Nations), Métis, and

Inuit populations. According to the 2006 Census of Canada, more than one million people identify themselves as Aboriginal Peoples (INAC, 2010).

- **Low-income Populations:** Identification of low-income populations in an affected area is based on the statistical poverty thresholds established by the U.S. Census Bureau (USCB) population reports on income and poverty. According to the CEQ (1997), a community is either a group of individuals living near one another, or a set of individuals (such as migrant workers or Native Americans) irrespective of geographic proximity; either group may experience common conditions of environmental exposure or effect. For the Canadian portions of the study area, a comparable rate for the poverty threshold is defined on the basis of the percentage of “low-income” persons in a geographically defined area or a set of individuals.

The Census determination of the poverty threshold is based on a comparison of the person’s total family income with the poverty threshold appropriate for that person’s family size and composition. If the total family income is less than the appropriate threshold, then the individual and all family members are considered below the poverty line. For individuals who do not live with family members, their personal income is compared with the appropriate threshold (USDOC, 2003).

- **Children:** As defined by the USCB, children are unmarried individuals under the age of 18 years (USDOC, 2003). This category may be further subdivided to include especially susceptible populations, including children less than 5 years of age and children 5 to 14 years of age.

### 3.12.1.2 Study Area and Analysis Methods

The study area for evaluating environmental justice impacts and environmental health and safety risks to children includes those border communities in or overlapping the geographic area within 100 miles of the U.S.-Canada border. The administrative boundaries of U.S. counties define the border communities. For the study area in Canada, Canadian census divisions define the border communities. For this assessment, the study area for environmental justice impacts includes the entire set of border communities on either side of the international line. The study area is further subdivided into four separate regions, with each described separately.

Analysis of environmental justice impacts begins with identification of minority and low-income populations as a percentage of the general populations for the study areas in each border state. The description of the affected environment is presented as a series of comparison tables showing relevant minority and income statistics for these areas. Age distributions for the general population of each study area and its respective state are presented in detail for the entire study area for persons less than 18 years of age in the United States and for persons less than 20 years of age in Canada. Specific areas where minority or low-income populations represent a high percentage of the affected population are noted.

The analysis then considers potential impacts to all resource areas associated with the specific actions proposed under all alternatives. Environmental justice impacts would occur if a given activity results in potentially high and adverse impacts on the natural or human environment that disproportionately affect minority communities (including Native Americans or Aboriginal

Peoples in Canada) and low-income populations, or if it created a disproportionately high and adverse risk to human health or safety for children in the resident populations.

### **3.12.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

Examining potential consequences of the proposed action for environmental justice requires three main components:

- A demographic assessment of the affected community to identify the presence of minority or low-income populations potentially affected;
- An assessment of all identified potential impacts to determine if any cause significant adverse impact to the affected environment; and,
- An integrated assessment to determine whether any disproportionately high and adverse impacts exist for minority and low-income groups in the study area.

For an environmental justice impact to occur, the human health or environmental consequences must be adverse, high, and disproportionate. CEQ guidance for establishing disproportionately high and adverse impacts includes the following criteria (CEQ, 1997):

- For human health impacts, assessing whether:
  - The impacts—including bodily impairment, infirmity, illness, or death—are significant or above generally accepted norms;
  - The risk or rate of hazard exposure by a minority population, low-income population, or Native American Tribe to an environmental hazard is significant and appreciably exceeds, or is likely to appreciably exceed, the risk or rate to the general population or another appropriate comparison group; and,
  - The impacts occur in a minority population, low-income population, or Native American Tribe affected by cumulative or multiple adverse exposures to environmental hazards.
- For environmental impacts, assessing whether:
  - There is or will be an impact on the natural or physical environment—ecological, cultural, human health, economic, or social—that significantly and adversely affects a minority population, low-income population, or Native American Tribe when that impact worsens the impacts on the natural or physical environment;
  - The environmental impacts are significant and are, or may be, having an adverse impact on minority populations, low-income populations, or Native American Tribes that appreciably exceeds, or is likely to appreciably exceed, those on the general population or another appropriate comparison group; and,
  - The environmental impacts occur, or would occur, in a minority population, low-income population, or Native American Tribe affected by cumulative or multiple adverse exposures to environmental hazards.

If a particular action is not expected to affect the general population at all, or its potential impacts are considered low for all populations, it is eliminated from further consideration as a part of this

analysis. If high and adverse impacts to the general population are identified for a particular resource area, or if a given resource area is likely to have a disproportionately high potential to affect minority or low-income communities despite minor impacts on the larger population, the potential for impact is based on the proximity of the minority or low-income community to the impact source.

This analysis does not attempt to predict environmental justice impacts for a given CBP activity or for the program as a whole. Rather, it addresses the types of impacts that relevant actions could produce on minority and low-income communities. It addresses the potential severity of these impacts in the context of site-specific circumstances. Environmental justice analysis for actions included here is necessarily site-specific; that is, the direct impacts of these actions affect resident populations at the specific locations where the actions occur and not at the larger regional or national level. As a result, evaluating individual actions on a site-specific basis through tiered Environmental Impact Statement (EIS) and Environmental Assessment (EA) processes proves more effective.

Major issues related to the actions proposed under the alternatives in this PEIS include those that might differentially affect minority and low-income populations or children, including potential risks to human health or safety near the proposed action. Impacts from any of the alternatives may also include the potential for these populations to become displaced, suffer a loss of employment or income, or otherwise experience adverse social effects.

### **3.12.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN**

Types of CBP actions that could produce environmental justice impacts include:

- Expansion of POEs, BPSs, OAM bases, and training facilities;
- Construction of new POEs, BPSs, aircraft operations, or other facilities in or close to minority or low-income communities or tribal lands;
- Upgrades, expansions, or renovations of existing facilities in minority or low-income communities;
- Installation of communications or surveillance towers and associated infrastructure; and,
- Construction of infrastructure in or passing through minority or low-income communities.

## **3.13 HUMAN HEALTH AND SAFETY**

### **3.13.1 CONTEXT FOR AFFECTED ENVIRONMENT**

The analysis of the affected environment includes a broad overview of all CBP activities that could impact human health and safety. Information is provided on the types of training for all CBP agents, covering land and water patrols, interdictions, inspections, weapons handling, contraband seizures, and emergency preparedness. The analysis also includes safety and environmental compliance measures used by CBP firing ranges. It considers CBP techniques and safety procedures regarding canine and horse training, the use of radiation technologies by CBP, and operation of electro-magnetic field (EMF)-emitting communications facilities and

nonintrusive inspection (NII) technology relating to human health and safety. Regulatory requirements related to human health and safety (such as adherence to Occupational Safety and Health Administration [OSHA] standards) are also covered.

This PEIS assesses potential impacts to human health and safety from ongoing and future CBP activities. At the programmatic level, the discussion is necessarily broad, with impacts based on where specific activities take place and which technologies are used. Both beneficial and adverse impacts are discussed (e.g., prevention of terrorist attacks from CBP patrol/interdiction would obviously be a significant beneficial impact).

### **3.13.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

The types of potential adverse impacts to human health and safety that could result from situations incidental to or stemming accidentally from CBP activities are:

- Death;
- Injury;
- Illness;
- Disability;
- Increased risk of exposure to a source of illness; and,
- Increased risk of exposure to unknown health risk factors.

Health and safety impacts from CBP activities may be:

- Long-term and chronic;
- Acute and severe;
- Unforeseen or unknown; and/or,
- Unable to be avoided, remedied, cured, or alleviated to the point of manageability.

### **3.13.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO HUMAN HEALTH AND SAFETY**

The description of human health and safety risks and impacts along the northern border is driven by the types of impacts CBP's actions have produced in the past and have the potential to produce in the future. The significance of an impact to human health and safety depends on the type of and frequency of an activity along with the incidence of accidents or exposures occurring. Information is limited to the previous ten years for all CBP activities. This information is used to extrapolate the frequency and types of accident and exposure incidence that could occur from ongoing and future CBP activities. The use of weaponry, vehicles, checkpoints, horses, radiation technologies, construction of EMF-emitting communications infrastructure, and other pursuits present different types of human health and safety considerations and different levels of risks to CBP agents and officers versus those to the general public.

### 3.14 HAZARDOUS AND OTHER REGULATED MATERIALS

#### 3.14.1 CONTEXT FOR AFFECTED ENVIRONMENT

Hazardous materials are materials that are capable of posing an unreasonable risk to health, safety, and prosperity. Hazardous materials can be classified into roughly three categories:

- Hazardous or regulated substances (HRS);
- Hazardous or regulated waste (HRW); and,
- Special hazards.

**Code of Federal Regulation  
Hazardous Materials Definition**

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in 49 CFR 172.101 Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173.”

The resources described in this section are categorized as follows:

- Hazardous materials include cleaners and solvents; petroleum, oils, and lubricants; fuels; and other hazardous materials; and,
- Hazardous wastes include used cleaners and solvents; used petroleum, oils, and lubricants; fuel wastes; and other hazardous wastes.

This section does not characterize every potential hazardous material or hazardous waste within the entire northern border. It provides the analytical tools to conduct a specific impact assessment for future site-specific projects or activities, and it gives examples of the types of hazardous materials and hazardous wastes that exist along the northern border. It analyzes how, in which settings, and to what extent the various CBP alternative actions might create impacts related to hazardous materials and hazardous wastes, and provides guidelines, as necessary, for minimizing, mitigating, or avoiding such impacts.

##### 3.14.1.1 Hazardous Substances

Any substances that are considered severely harmful to human health or the environment may be classified as “hazardous.” Hazardous substances take many forms. Many are commonly used substances that are harmless in their normal uses but that are quite dangerous when released. They are defined in terms of those substances either specifically designated as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as the Superfund Law, or those substances identified under other laws (USEPA, 2011a). A great deal is known about hazardous substances and their effects. This information helps responders act quickly and safely in order to reduce the risks from emergency situations (USEPA, 2011b).

Hazardous substances considered in this study fall in the following categories: cleaning solvents; petroleum, fuel, oils, and lubricants; munitions, munitions constituents, and explosive materials; and other hazardous substances.

### **Cleaning Solvents**

Cleaning solvents are fabricated chemicals used in cleaning products, primarily for the industrial community. Cleaning solvents can be found in degreasers, carpet-cleaning solutions, dry-cleaning products, soaps, polishes, and lubricants.

### **Petroleum, Fuel, Oils, and Lubricants**

Petroleum products are used throughout the study area for various functions, including aircraft maintenance and aircraft ground equipment maintenance. Fuels (e.g., jet fuel, diesel, and gasoline) are stored in large storage tanks. Oil and fuel spills can result from leaking vehicles, aircraft, or storage tanks (USDHS, 2008a).

Motor oil contains inherent toxic chemical and additive properties that are hazardous to humans, plants, and animals. In addition, used motor oil picks up additional toxic elements from vehicle engines. Prompt attention is given by CBP to vehicle oil leaks as a means of preventing environmental motor oil contamination. If a leak or spill occurs, it is cleaned up prior to a rain event to avoid dispersion. Spills of hazardous wastes or materials, including any affected soil or water, should be stored as hazardous waste and disposed of properly.

### **Munitions, Munitions Constituents and Explosive Materials**

As a law enforcement component, CBP agents and officers use and train with a variety of small-caliber weapons and ammunition. During the course of daily inspection and interdiction activities, caches of ammunition and explosive materials are identified, confiscated, and destroyed or stored as evidence. The type of material encountered may be likened to munitions and explosives of concern (MEC) classified in the military as discarded military munitions (DMM), unexploded ordnances (UXO), or munitions constituents (MC). This includes ammunition products and components such as confined gas, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot control agents; smokes and incendiaries; bulk explosives; rockets; bombs; warheads; mortar rounds; and a variety of other military grade munitions, demolition charges, and devices and components thereof.

### **Other Hazardous Substances**

A number of common construction materials are considered to be hazardous substances when spilled or leaked. These materials include concrete curing compounds, asphalt products, paints, stains, wood preservatives, roofing tar, and palliatives.

#### **3.14.1.2 Hazardous Waste**

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) as a solid waste, or combination of solid wastes, that because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or,
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Hazardous wastes fall into two categories: characteristic wastes and listed wastes. Characteristic hazardous wastes are materials that are known or tested to exhibit a hazardous trait such as ignitability (i.e., flammable), reactivity, corrosiveness, and toxicity. Listed hazardous wastes are materials specifically listed by USEPA or a state regulation as a hazardous waste. Hazardous wastes listed by EPA also fall into two categories:

- Process wastes from general activities (F-listed) and from specific industrial processes (K-listed); and,
- Unused or off-specification chemicals, container residues, and spill cleanup residues of acute hazardous waste chemicals (P-listed) and other chemicals (U-listed).

These wastes may be found in different physical states as gases, liquids, or solids. Furthermore, a waste is deemed hazardous if it cannot be disposed of by common means like other byproducts of our everyday lives. Depending on the physical state of the waste, treatment and solidification processes might be available. In other cases, however, there is not much that can be done to prevent some degree of harm (Leonard, 2009).

Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes, and their associated regulatory requirements are specified in 40 CFR 273. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries; hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs; hazardous waste thermostats; and hazardous waste lamps.

The RCRA regulates the management and disposal of hazardous waste. One common method of treatment is hazardous combustion (i.e., incineration), which is used to destroy hazardous organic components and reduce the volume of waste (USEPA, 2009).

### **Used Cleaners and Solvents**

Unless testing proves that it can be handled otherwise, spent solvents are managed as a hazardous waste. Waste solvents are stored in containers that are in good condition and that are made of or lined with materials that are compatible with the stored wastes. The container must be closed during storage, except when it is necessary to add or remove wastes. The container also cannot be opened, handled, or stored in a manner that may cause it to rupture or leak. Containers holding hazardous waste must be clearly marked with the words "hazardous waste" and the date on which accumulation of the waste began (ARA, 2010).

### **Used Petroleum, Fuel, Oils, and Lubricants**

Petroleum waste-generating operations include aircraft maintenance, vehicle maintenance, and civil engineering. These hazardous wastes include varying quantities of spent solvents, fuels, stripping chemicals, paint, oils, and batteries. These wastes are tracked to ensure proper identification, storage, transportation, and disposal, as well as implementation of waste minimization programs (USDHS, 2008a).

### 3.14.1.3 Special Hazards

Special hazards are those substances that might pose a risk to human health; they are addressed separately from other hazardous materials. Special hazards include asbestos-containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP). The USEPA has the authority to regulate these special hazard substances under the Toxic Substances Control Act (TSCA) 15 U.S.C. 53. The USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR 763, with additional regulation concerning emissions (40 CFR 61). Depending on the quantity or concentration, the disposal of LBP waste is potentially regulated by the RCRA at 40 CFR 260. The disposal of PCBs is addressed in 40 CFR Parts 750 and 761.

#### **Asbestos-Containing Material (ACM)**

Due to the age of some of the BPSs located within the study area, the potential for the facilities to contain asbestos exists. Asbestos is typically found in wall and ceiling coverings, floor tiles, exterior siding, and thermal system insulation. At one time, asbestos was added to paint to provide decorative texture (ECY, 2010).

#### **Polychlorinated Biphenyls (PCBs)**

PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. PCBs have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties; PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and in many other industrial applications (USEPA, 2010a).

Other products that may contain PCBs include:

- Transformers and capacitors;
- Other electrical equipment including voltage regulators, switches, reclosers, bushings, and electromagnets;
- Oil used in motors and hydraulic systems;
- Old electrical devices or appliances containing PCB capacitors;
- Fluorescent light ballasts;
- Cable insulation;
- Thermal insulation material, including fiberglass, felt, foam, and cork;
- Adhesives and tapes;
- Oil-based paint;
- Caulking;
- Plastics;
- Carbonless copy paper; and,

- Floor finishes.

**Lead-Based Paint (LBP)**

Lead is a naturally occurring, bluish-gray metal used for many household and industrial items. Lead found in structures is usually in the form of compounds of refined metallic lead and other chemicals. Lead cannot be broken down, and it cannot deteriorate into less toxic substances. Metallic or elemental lead is a heavy, dull, gray metal. Compounds of lead were used in older paints, pipes, and plumbing fixtures, and are still used in construction products (ECY, 2010).

Lead dust or fumes are created when LBP is dry-scraped, dry-sanded, or heated during renovation or maintenance. Dust also forms when painted surfaces bump or rub together through normal use. Lead chips and dust can get on surfaces and objects that people touch. Settled dust can re-enter the air when people vacuum, sweep, or walk through it (ECY, 2010).

Due to the age of some of the facilities, the potential for lead-based paint in BPSs exists. From 1920 through 1978 lead was used in paint and plumbing. All buildings constructed before 1980 are considered to contain some lead-based paint. Paint with regulated dangerous waste components may also cover asbestos-containing building materials, such as pipe-wrapping or siding.

The USEPA, along with other state and Federal agencies and programs, regulates lead and lead-contaminated debris from renovation and demolition work when it is disposed of or recycled as a waste under USEPA’s Dangerous Waste Regulations (USEPA, 2010b).

Table 3.14-1 shows the location of hazardous materials typically found in buildings.

**Table 3.14-1. Building Components in Which Hazardous Materials Are Found**

Substance	Building Components and Materials
Asbestos	<ul style="list-style-type: none"> <li>• Roofs and tiles</li> <li>• Glue</li> <li>• Sound insulation</li> <li>• Fire-resistant sealing</li> <li>• Wall plaster</li> </ul>
PVC	<ul style="list-style-type: none"> <li>• Gutters and pipes</li> <li>• Roofs and tiles</li> <li>• Electrical cable</li> </ul>
Lead	<ul style="list-style-type: none"> <li>• Roofs and tiles</li> <li>• Electrical cables</li> </ul>
Cadmium	<ul style="list-style-type: none"> <li>• Plastic (cable, pipes and plates)</li> <li>• Occurring with zinc</li> </ul>

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Substance	Building Components and Materials
	<ul style="list-style-type: none"> <li>• Occurring with concrete</li> </ul>
Mercury	<ul style="list-style-type: none"> <li>• Fluorescent tubes</li> <li>• Switches and relays (electrical installations)</li> <li>• Other (concrete)</li> </ul>
Nickel	<ul style="list-style-type: none"> <li>• Stainless steel</li> <li>• Surface treatment</li> </ul>
Chromium	<ul style="list-style-type: none"> <li>• Stainless steel</li> <li>• Other (painted surfaces)</li> </ul>
Copper	<ul style="list-style-type: none"> <li>• Cables and wires</li> <li>• Permanent installations</li> <li>• Temporary installations</li> <li>• Roofs and pipes</li> <li>• Screws and locks</li> </ul>
Zinc	<ul style="list-style-type: none"> <li>• Gutters/pipes and galvanized products</li> <li>• Plastic (especially gutters and pipes)</li> </ul>
PCB	<ul style="list-style-type: none"> <li>• Small capacitors and electrical installations</li> <li>• Double-glazed windows (glue)</li> <li>• Sealant (softener)</li> <li>• Paint (pigments)</li> <li>• Fire-resistant additive (paint, glue/binder)</li> </ul>
Chlorinated paraffin	<ul style="list-style-type: none"> <li>• Plastic (in general)</li> <li>• Sealant (softener)</li> <li>• Others (glue)</li> </ul>
CFCs	<ul style="list-style-type: none"> <li>• Thermal insulation—polyurethane foam</li> <li>• Other insulation materials</li> </ul>
HCFCs and HCTs	<ul style="list-style-type: none"> <li>• Thermal insulation—polyurethane foam</li> <li>• Foam for joints</li> </ul>
Sulphur hexafluoride	<ul style="list-style-type: none"> <li>• Soundproof windows</li> </ul>

Source: (Strufe, 2004).

#### **3.14.1.4 Hazardous Materials Regulatory Requirements**

##### **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 USC § 9601 et seq.**

CERCLA provides Federal authority over releases or threatened releases of hazardous substances that may endanger public health or the environment, establishes requirements for closed and abandoned hazardous waste sites, and provides for the liability of persons responsible for the release of hazardous substances. Site contamination at CBP facilities could trigger these requirements but would more likely have to comply with Brownfield requirements designed to allow redevelopment of contaminated sites with provisions to protect the public and the environment.

##### **Community Environmental Response Facilitation Act (CERFA), 42 USC §9620(h).**

CERFA amends CERCLA to require the Federal Government, before termination of Federal activities on any real property owned by the Government, to identify real property where no hazardous substance was stored, released, or disposed of. This Act requires CBP to perform environmental site assessments to identify land free of hazardous substances in land transfers when it terminates operations at a location and transfers the property to a third party. CBP is responsible for any cleanup costs required after the transfer.

#### **3.14.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

A proposed project or activity would potentially have major impacts related to hazardous materials or other regulated materials under the following conditions:

- Substantial adverse changes in the procedures for procuring, storing, handling, or disposing of hazardous materials that may violate Federal, state, or local laws and regulations;
- Substantial adverse changes in the procedures for generating, storing, handling, or disposing of hazardous wastes that may violate Federal, state, or local laws and regulations; or,
- Substantial increases in the volume of hazardous waste generated if methods for reducing the volume are available, such as the use of a hazardous solvent when a non-hazardous cleaner is available and achieves the same or a similar purpose.

#### **3.14.3 ACTIVITIES WITH HAZARDOUS AND OTHER REGULATED MATERIALS ENVIRONMENTAL CONSEQUENCES**

##### **Construction Activities**

- Construction of or modification of fixed-point facilities including:
  - New BPSs, FOBs, communications towers, and air and marine operational facilities;
  - Modification/upgrade of existing POEs, BPSs, hangars, and other facilities in support of CBP operations; and,

- Set up of permanent traffic checkpoints.
- Construction of linear facilities including:
  - New or extended tactical security physical barriers, such as point-specific pedestrian or vehicle fences or other physical barriers; and,
  - New or extended access roads, drag roads, bridges, culverts, and low-water crossings.
- Operations at fixed facilities including:
  - Routine activities at POEs including agricultural inspections;
  - Continue standardizing and modernizing Office of Air and Marine (OAM) fleet;
  - Use of nonintrusive/nondestructive inspection and detection technologies;
  - Implementation and deployment of RVSS, MSS, CASC, and OIC;
  - Operation of small-arms weapons training ranges; and,
  - Enforce I-68 Canadian Border Boat Landing Program for recreational boaters.
- Maintenance and repair of all of the above.

### **Operations Activities**

- Field surveillance operations including:
  - Unmanned aircraft systems (UAS) missions and manned aerial surveillance patrols;
  - Waterborne patrols;
  - Off-road-vehicle (ORV) and all-terrain-vehicle (ATV) patrols;
  - Snowmobile patrols;
  - On-road vehicle patrols;
  - Canine patrols;
  - Horse patrols;
  - Set up of mobile traffic checkpoints; and,
  - Install and maintain UGSs.

## **3.15 UTILITIES AND INFRASTRUCTURE**

### **3.15.1 CONTEXT FOR AFFECTED ENVIRONMENT**

Utilities and infrastructure refer to the system of public works, utilities, and transportation networks that provide the basic framework for a community. Utilities include water, power supply, and waste management. Section 3.16 Roadways and Traffic addresses transportation networks.

The “affected environment” sections for each region describe the types and ranges of utility systems and infrastructure in the CBP facilities portfolio for that region. These include:

- Water supply (municipal or onsite water supply);
- Electrical generator or grid;
- Fuel supply (heat, ventilation, and air conditioning) including grid pipelines and onsite storage tanks; and,
- Wastewater management (sewer connection or septic system).

This section describes ranges of use for each utility resource based on recent CBP site-specific analyses of protection, relocation, construction, and operation of BPSs, and construction, modernization, and operation of POEs. This section then describes the utility resources of most CBP facilities: BPSs, POEs, FOBs, traffic checkpoints, and communication towers.

CBP's initiatives and ongoing operations are analyzed to determine its compliance with relevant Federal regulations and utility capacity. This information is used to predict CBP's continued compliance with relevant Federal regulations and various utility systems' capacities. According to EO 13148, "Greening the Government," all Federal agencies must take necessary actions to integrate environmental accountability into day-to-day decision-making and long-term planning across all agency missions, activities, and functions. Consequently, environmental management must become a fundamental and integral component of all Federal agencies' policies, operations, planning, and management.

### **3.15.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

Utility analysis in the NEPA context is necessarily site-specific. Programmatic analysis discusses the potential impacts of relevant actions on the four utility categories by region, focusing on the most prevalent systems within each category (depending on available data). This analysis assesses the potential severity of these impacts given site-specific circumstances and characterizes potential impacts as major (significant), moderate, minor, or negligible using resource-specific criteria. Exceeding any of the three utility capacities or violation of wastewater treatment or discharge standards constitutes a major impact.

Utility system elements have fixed maximum supply and treatment capacities, above which system performance can become negatively affected. CBP activities would have adverse impacts to utilities and infrastructure if they cause a demand or condition that:

- Exceeds existing wastewater treatment capacity serving the project site;
- Exceeds permitted potable water supply capacity serving the project site;
- Exceeds existing energy supply capacity serving the project site; or,
- Violates wastewater treatment or discharge standards.

### **3.15.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO UTILITIES AND INFRASTRUCTURE**

The following activities are expected to have environmental consequences to utilities and infrastructure:

- Modification to POEs;

- Repairs and maintenance of existing POEs;
- Construction or modification of existing BPSs;
- Construction of communication towers;
- Small additions to OAM facilities;
- Construction of new FOBs;
- Trade and travel processing at POEs;
- Use of NII systems; and,
- Use of other detection systems.

### **3.16 ROADWAYS AND TRAFFIC**

#### **3.16.1 CONTEXT FOR AFFECTED ENVIRONMENT**

Impact analysis includes discussion of the types of potential impacts, the potential severity based on specific context, and mitigation. The analysis is broken down by both alternative and geographic region. Specifically, this section provides a bounded analysis for CBP activities for which less-than-significant impacts are expected. It also offers guidelines to determine if transportation and traffic as a resource area can be eliminated from tiered NEPA documentation for specific activities. Finally, it supplies an analytical tool to evaluate activities that either have the potential to cause significant adverse impacts or for which information is not available to determine impact levels. The analysis characterizes potential impacts as major (significant), moderate, minor, or negligible using resource-specific criteria. It outlines regulatory requirements, best management practices, and possible ways to mitigate significant impacts.

#### **3.16.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

To analyze the potential for CBP activities to cause transportation traffic impacts along the northern border, this PEIS:

- Characterizes the areas (remote, rural, suburban, and urban) and critical infrastructure where CBP's proposed action and alternatives would be implemented;
- Characterizes both CBP and non-CBP infrastructure within the study area that may affect transportation resources;
- Characterizes temporary and permanent changes to different modes of transportation, including vehicle traffic, roadway infrastructure, off-road activities, public transit, and air traffic;
- Compares the changes in transportation volumes and modes to traditional activity levels in each area; and,
- Reviews each activity for its potential to affect critical infrastructure.

This PEIS uses a systematic process to evaluate the level of impact for roadways and traffic. This process compares the predictions to the significance criteria based on legal and regulatory constraints and on team members' professional technical judgment. Specifically, this approach

assumes that a project or activity has the potential to create an adverse impact on transportation if:

- Increased permanent roadway traffic (e.g., on-road automobile and truck traffic) would likely reduce service at nearby intersections or roadways to unacceptable levels;
- The project cannot comply fully with local, state, and Federal laws and design guidelines; and,
- The project would interfere considerably with public transit, rail, air, or pedestrian travel.

The degree to which an impact might be major depends upon how much loss of functionality affected communities would suffer from changes to roadway access or increases in traffic due to rerouting or slowing movement of traffic through the border.

### **3.16.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO TRANSPORTATION RESOURCES**

Activities that could affect transportation resources include:

- Construction projects;
- New trade and travel processing operations;
- Motorized ground operations;
- Aircraft operations; and,
- Vessel operations.

## **3.17 RECREATION**

### **3.17.1 CONTEXT FOR AFFECTED ENVIRONMENT**

There is a wide variety of recreation areas along the northern border on both the U.S. and Canadian sides. On the U.S. side these recreation areas include national parks (NP) and other units of the national park system, national recreation areas (NRA), national forests (NF), national wildlife refuges (NWR), and designated wilderness areas. On the Canadian side they include national park reserves, provincial parks, protected areas, and natural areas. U.S. recreation categories are described briefly below, since the type of designation bears on the nature of activities that can be conducted there.

#### **3.17.1.1 Definitions**

National parks are managed by the NPS to “preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations” (USDOJ, No Date). The emphasis placed on wilderness preservation and recreation varies from park to park, as do the types of recreation activities permitted.

National forests are managed by the USFS “to restore and enhance landscapes, protect and enhance water resources, develop climate change resiliency and help create jobs that will sustain

communities” (USDA, 2011). As with the national parks, the value of recreation, preserving the wilderness, forestry, and other economic activities vary considerably between national forests.

National recreation areas and lakeshores can be managed by either the NPS or the USFSe. These areas are managed primarily to preserve recreational use.

National wildlife refuges are managed by the USFWS. The mission of the National wildlife refuge system is “to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (USDOI, 2009a).

Rivers in the WOR Region may be designated as national wild and scenic rivers. The Wild and Scenic Rivers Act of 1968 establishes that certain rivers which “possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition” (16 U.S.C. 1271). While individual river designations focus on specific attributes to be preserved, designation does not necessarily restrict all development; it does, however, prohibit Federal support for any action that may harm the river’s free-flowing condition, water quality, or outstanding resource values, such as construction of a dam (National Wild and Scenic River System, 2010). Designated Wild and Scenic Rivers are identified in the recreation profiles within the larger property in which they are located.

### **3.17.1.2 Analysis Methods**

The analysis of recreational impacts in the NEPA context is site-specific. This analysis discusses the impacts of various activities on recreational values. The discussion also provides some examples of where these recreational values or pursuits exist in each region along the border. These recreational values include:

- Hiking (including backcountry and wilderness);
- Scenic quality;
- Sport hunting and fishing;
- Boating, swimming, and other water sports;
- Skiing, snowshoeing, and other winter sports;
- Camping (at developed sites and backcountry);
- Eco-tourism;
- Wildlife viewing; and,
- Use of motorized vehicles (as allowed).

Due to the wide range of recreational uses along the northern border, categorizing recreational areas by the type and intensity of use can prove useful. Federal land agencies employ various recreation categorization approaches in their land-management planning. For example, BLM uses a recreation opportunity spectrum (ROS), which identifies six categories of recreational areas (USDOI, 2007) to use as in-depth land use descriptions in resource management plans and site-specific environmental impact statements.

These classes categorize land in greater detail by recreational use, amount and types of development existing on the land, visual quality, and visitor expectations. In the least-developed class, designated as primitive, visitors expect physical challenges and little to no evidence of other people. The classification gradient then moves to semi-primitive, nonmotorized land; semi-primitive, motorized land; roaded natural areas; roaded modified areas; rural areas; and urban land, which includes high levels of human activity and development.

For programmatic analysis, we use a simplified approach, employing three “impact use” categories. A given national park or national forest may contain use areas of many types. These categories are:

**Low-impact Use Areas:** These areas are managed to protect their wilderness character and may include designated wilderness areas. Minimal, rustic, or primitive developments exist in these areas. Typical recreation may include backcountry camping, snowshoeing, cross-country skiing, and hiking, alone or in small groups. These activities have a relatively low physical and human impact on the area, and priority values are solitude, privacy, and observation of nature. Carefully regulated hunting and fishing may be allowed in certain areas. Visitors should encounter very few other people and minimal infrastructure. These areas include most of the national wildlife refuges, as well as some national parks and national forests. An entity may be included in this category even if it has non-wilderness, more-developed areas.

**Medium-impact Use Areas:** These areas include the majority of national parks, national forests, national wilderness areas, and national wildlife recreation areas. They may include some wilderness sections, but also have small to medium zones developed for recreational use. The management of these areas strikes a balance between solitary wilderness experiences for a small number of visitors and low to medium-impact recreation for a larger number of visitors. These areas are usually not developed for high-impact recreation, such as motorized vehicle use, snowmobile use, downhill skiing, or intensive water sports, although these activities may occasionally be permitted. Some developed lodging may exist in addition to opportunities for wilderness experiences. Typical recreation activities may include camping, backcountry camping, vehicle camping, hunting, fishing, swimming, cross-country skiing, and hiking.

**High-impact Use Areas:** These high-impact areas are the most developed and are managed for tourism or local recreational use. While there may be some low-impact use in these areas, a significant portion has extensive infrastructure to facilitate use. High and medium-impact uses are usually permitted in many areas of the park. They contain developed lodging and well-maintained trails, along with boat launches and marinas, where appropriate. Typical recreation activities may include RV and car camping, cabin lodging, off-road vehicle use, snowmobile use, downhill skiing, motor boating, guided tours, and activities. While some visitors may seek solitary wilderness experiences, most expect to see other people and infrastructure.

These use categories relate to the recreation opportunity spectrum in the following way:

- High-impact use areas include land categorized as urban, rural, and most roaded, modified areas;
- Medium-impact use areas include some roaded, modified areas, most roaded natural areas, and most semi-primitive motorized areas; and,

- Low-impact use areas include semi-primitive, nonmotorized areas and primitive areas.

Table 3.17-1 summarizes the recreational values and activities associated with each site category.

**Table 3.17-1. Federal Recreation Areas along the Northern Border by Intensity of Use**

Area Use Type	Recreational Values Emphasized	Typical Recreation Activities
Low-impact use areas	Hiking Scenic quality Camping Wildlife viewing Low-impact water and winter sports	Backcountry camping Snowshoeing Cross-country skiing Hiking Photography Limited hunting and fishing
Medium-impact use areas	Hiking Scenic quality Sport hunting and fishing Water sports (nonmotorized) Winter sports Camping Eco-tourism Wildlife viewing	Backcountry camping Vehicle campground camping Cross-country skiing Hiking Hunting Fishing Scenic driving along roads Boating (nonmotorized)
High-impact use areas	Scenic quality Sport hunting and fishing Water sports Winter sports Ecotourism Motorized vehicle use	RV and vehicle campground camping Cabin lodgings Off-road vehicle riding Snowmobile riding Downhill skiing Motor boating and other water sports Guided tours and activities Scenic driving along roads Day hiking

Most national parks, national forests, national wilderness areas, and national wildlife recreation areas include some elements of all of the categories in the table. These broad categories are, therefore, imperfect and decisions about developments in any protected area require a more in-depth understanding. To analyze programmatic impacts for a variety of actions, these categories should prove helpful.

**3.17.2 FRAMEWORK FOR CHARACTERIZING RESOURCE IMPACTS**

Impacts on recreation would occur if an activity:

- Eliminates areas of important or unique recreational opportunities or facilities (e.g., constructing facilities on a relatively undisturbed recreational site, or positioning a facility so close that it destroys the recreational value);
- Degrades the quality of the recreational experience (e.g., altering the vista, soundscape, lightscape, terrain, frequency of interactions with other people, or other wilderness value); or,

- Limits access to recreational areas by physical or administrative restrictions (e.g., constructing physical barriers or instituting closures).

The degree to which an impact to recreation would be major is dependent upon the permanence or degradation of access to or quality of a recreation resource and upon the particular sensitivity of a recreational area based on its impact use category. Low-impact use areas would more easily suffer major impacts than high-impact use areas.

### **3.17.3 ACTIVITIES WITH ENVIRONMENTAL CONSEQUENCES TO RECREATION RESOURCES**

The types of CBP actions that could produce recreation impacts include:

- Construction of new CBP facilities, such as BPSs, FOBs, or other facilities in, or close to, areas used for the recreational values identified above;
- Upgrades, expansions, or renovations of existing facilities on or near recreational sites;
- Occurrence of increased pedestrian, vehicle, marine, canine, horse, or aerial-patrol traffic that degrades recreational values by altering the soundscape, lightscape, scenic value, or terrain; and,
- Construction of infrastructure on or through recreational areas (e.g., transmission lines, pipelines, wastewater treatment, etc.).

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